



Sexual Behaviour and the Social Epidemiology of HIV/AIDS in
Nigeria: The Case of Plateau State and Nasarawa State

Clement Kevin Dongurum
150101688

A thesis submitted in partial fulfilment of the requirement of the
degree of Doctor of Philosophy

The University of Sheffield
Faculty of Social Sciences
Department of Geography

March 2021

ABSTRACT

HIV/AIDS has been a leading cause of morbidity and mortality in Sub-Saharan Africa over the last four decades. Sexual behaviour has contributed significantly to the acquisition or transmission of the virus. Globally, prevention efforts have reduced the burden of the virus, yet some settings have experienced increased transmission. Our understanding of the underlying factors that have influenced disproportionate epidemiological situations has relied on speculation. The research investigates the sexual behaviour and social conditions that act as motivators or barriers to the risk of HIV and the epidemiological context in Plateau State and Nasarawa State, Nigeria for sustainable sexual health and to halt the spread of HIV. Based on the social epidemiology of HIV, a sequential explanatory mixed-methods design was adopted, which demonstrates the significance in understanding the complex factors surrounding sexual behaviour and the risk of HIV transmission. The first phase of the study used Nigerian Demographic and Health Surveys datasets from 2003 to 2013, and District Health Information System datasets from 2013 to 2017 for Plateau State and Nasarawa State. The data obtained were analysed using quantitative techniques to establish indicators of sexual behaviour and predictors of HIV high-risk. The second phase of the study deployed qualitative research tools involving in-depth interviews (key informants, semi-structured), participant observations, and a document review to collect data on sexual experiences, social relationships, and the prevailing conditions that facilitate or constrain risky behaviour and the spread of HIV. The mixed-methods strategy enabled the triangulation of data and to gain a better picture of the findings. The research results show that in Nasarawa, more young people engage in sexual activity without the use of a condom than in Plateau State. Being female, married and aged ≥ 25 years predicted HIV high-risk behaviour. The lack of education, being from a poor home, and possessing unsafe HIV/AIDS attitudes increased the chance of acquiring or transmitting HIV. Risky behaviours were driven by gender control, when the man controls resources and dictates heterosexual relationships; this has deprived women of agency to demand safe sex. The most at-risk groups were found to border HIV hotspot states, and doubts about the reality of HIV heightened HIV risk. Also, family and community norms stigmatised, discriminated and criminalised the sexual and social attitudes of some people who perceived they were rejected and became isolated. Social distances created tension and distress thus impacting the receipt of HIV prevention services. The health seeking behaviour among the most at-risk groups exposed them to unsafe behaviours linked with HIV and health-related conditions. All these factors have contributed to the high prevalence of HIV in Nasarawa State. In Plateau State, more people engaged in safe sexual activity than in Nasarawa State. Completing primary education, and being a polygamist, female, and married were unlikely to be associated with high-risk transmission. Relationships within and between social groups kept people together and enabled access to resources to reduce exposure to risky behaviours. The behaviour change contributed to a significant decline in HIV rates. The study suggests that sexual behaviour and a combination of HIV prevention strategies would address behavioural, socio-economic, cultural practices, and laws within the broader policy environment in order to mitigate and deliver sustainable health and zero HIV/AIDS.

ACKNOWLEDGEMENTS

My PhD adventure to complete this thesis has been an overwhelming passion. In this journey, I learned the art and discipline of independent novelty, to contribute useful evidence-based research findings to the field of social epidemiology and found a moment of expertise conferred by the degree of Doctor of Philosophy. For me this has been a thrilling and rewarding journey facilitated by the support and efforts of individuals, families/friends and organisations (social capital product). I thank the University of Jos who awarded me the Need Assessment Scholarship for Staff Training and Development. I am grateful to my supervisors, Dr Deborah Sporton and Dr Julie Balen for their immeasurable contribution from the conceptualisation to the successful completion of the study. In the entire period of the research you painstakingly read numerous documents on my thesis and constructively gave feedback. Prof. Grant Biggs provided an exceptionally great motivation not only as my Postgraduate Tutor, he was my primary supervisor when Dr Deborah was unavoidably on sick leave and continued to support me even after she returned. The team of supervisors offered me a mentoring opportunity, where I learned enduring commitment, patience and understanding. I would like to thank Staff in the Department of Geography, University of Sheffield who ensured I made progress in my studies. I appreciate the Mathematics and Statistics Help (MASH) Team that provided statistical supports and the Research IT Team for Nvivo training and guidance on managing qualitative data.

I am grateful to Prof. Osagbemi, Dr. Benhamin T. for academic mentoship, Dr & Mrs Graham and Jean, Julliette, U., who double-checked my thesis writting documents. Dr Olasimbo had vigil to support clarity in my writing, Jonas prayed with me. John, Aliyu, Dr. Dang, Dr. Simi and fsamily, Aliyuda, Bitrus, Dr Farouk, Dr.Aisha, Dr. Ana, and Dr. Amber provided unquantifiable salubrious PhD atmosphere. The Plateau State Ministry of Health, Nasarawa State Ministry of Health, Plateau State Agency for the Control of AIDS (PLACA), Nasarawa State Agency for the Control of AIDS (NASACA) were very helpful in proving some policy documents and reports about their projects and programmes during data collection. Non-Governmental Organisations including Faith Alive, Halt AIDS, Adolescent Alliance Pact, Nasarawa State Civil Society Organisations, NAWHICA, Hope Rising, JNI, CAN, Community and Individual groups assisted with useful information. My appreciation to the Plateau State Ministry of Health, Nasarawa State Ministry of Health and Plateau State Specialist Hospital Jos for the permission and ethical clearance to research their environments. Barrister Ayewa, Bulus, Nansel and Livinus provided me accommodation in Lafia, Assokio and Kuka during the fieldwork. Barrister Jeremiah supported in the transcription of some interviews.

My family stood by me through thick and thin of the PhD adventure. In particular, my wife, Nenlep, sacrificed her all for me. My children, Joseph Na'anlong and Jemimah Kwalna'an made the experience fun, and they would always ask: *"Daddy how long will it take you to finish your school assignment you are doing?... now tell us how many days now we did not see you? Why will you be sleeping in school? when will you finish your studies and take us to the park to play?"* These questions that calmed down my PhD tensions each time I attempted to respond to Joe and Jemmy. The Pigmans, Mr. \$ Mrs Cornerlius, My Late Mother, Theresa and Father, Mr Kevin were lovely. Mr and Mrs Gochuk and family blessed me. I dedicate this thesis to God, who showed me mercies and provided amazing grace to thrive.

TABLE OF CONTENTS

ACCESS TO THESIS.....	i
TITLE PAGE.....	iii
ABSTRACT.....	iv
ACKNOWLEDGEMENTS	v
TABLE OF CONTENTS.....	vi
LIST OF TABLES.....	xi
LIST OF FIGURE.....	xv
LIST OF ABBEVIATIONS	17
CHAPTER ONE: INTRODUCTION.....	18
1.1 BACKGROUND TO THE STUDY.....	18
1.2 JUSTIFICATION FOR THE STUDY	19
1.3 RESEARCH QUESTIONS.....	24
1.4 AIM AND OBJECTIVES.....	25
1.5 SIGNIFICANCE OF THE STUDY	26
1.6 OVERVIEW OF THE RESEARCH METHODOLOGY.....	26
1.7 THESIS OUTLINE	27
CHAPTER TWO: AN EXPLORATORY LITERATURE REVIEW ON HIV/AIDS, SEXUAL BEHAVIOUR AND SOCIAL RELATIONSHIPS.....	29
2.1 INTRODUCTION	29
2.1.1 Literature review approach.....	29
2.1.2 The Literature Review Process	30
2.1.2.1 Search strategy.....	30
2.1.2.2 Literature selection criteria	32
2.1.2.3 Data extraction/evidence synthesis	32
2.2 LITERATURE FINDING	33
2.2.1 HIV and AIDS	33
2.2.2 Myths around HIV/AIDS.....	35
2.2.3 Forms Of HIV AND AIDS	37
2.2.4 Global HIV/AIDS Epidemiology.....	39
2.2.4.1 HIV/AIDS Epidemic in Nigeria.....	40
2.2.4.2 HIV epidemiology in Plateau State.....	42
2.2.4.3 HIV epidemiology in Nasarawa State.....	43
2.3 DYNAMICS OF SEXUAL TRANSMISSION OF HIV	44
2.3.1 Age and HIV Transmission.....	47
2.3.2 Sexual Abstinence and HIV Prevention.....	48
2.3.3 Non-marital sex and the risk of HIV transmission.....	49
2.3.4 Sexual Networking and HIV Risk	50
2.3.5 Sex in Marriage and the Risk of HIV	52
2.3.6 Categories of Sexual Partners	52
2.3.7 Sexually Transmitted Diseases and HIV risk.....	53
2.3.8 Condoms and the Risk of HIV Transmission.....	54
2.4 FACTORS OF SEXUAL BEHAVIOUR AND THE RISK OF HIV TRANSMISSION	55
2.4.1 Gender and Gender Inequality.....	56
2.4.2 Age and HIV Risk	57
2.4.3 Marital Status, Marriage and the risk of HIV Transmision	57

2.4.4	Religion and HIV Risk.....	58
2.4.5	Place and HIV risk.....	60
2.4.6	Education, Employment and the risk of HIV	61
2.4.7	Living Standard and HIV Risk.....	64
2.4.8	HIV/AIDS Knowledge and Attitudes	64
2.5	SOCIAL NETWORKING AND SUPPORT.....	65
2.5.1	Dimensions of Social Capital	67
2.5.2	Social Capital, Health and HIV/AIDS.....	67
2.6	STIGMA AND DISCRIMINATION	68
2.7	THEORETICAL/CONCEPTUAL FRAMEWORK	69
2.7.1	Disease Diffusion.....	69
2.7.2	Social Epidemiology of HIV/AIDS	70
2.7.2.1	Individual Level Factors.....	71
2.7.2.2	Socio-structural Level Factors	71
2.7.3	Agency, Structure and HIV/AIDS	74
2.8	CONCLUSION.....	75
	CHAPTER THREE	76
	MIXED METHODS RESEARCH METHODOLOGY	76
3.1	INTRODUCTION	76
3.2	THE RESEARCH PURPOSE	76
3.3	THE PHILOSOPHY OF MIXED METHODS RESEARCH.....	80
3.3.1	Pragmatism Research Paradigm	81
3.4	RATIONALE FOR CHOOSING MIXED METHODS	83
3.4.1	Compatibility with Pragmatism Research Perspective	84
3.5	MIXED METHODS RESEARCH	87
3.5.1	Mixed Methods Design	89
3.5.1	Quantitative Study	91
3.5.1.2	Cross-sectional survey in quantitative study	93
3.5.1.3	National Demographic Health Surveys (NDHS).....	94
3.5.1.3.1.	NDHS sampling techniques.....	95
3.5.1.3.2	How NDHS data were collected	98
3.5.1.3.3	Variables Classification	99
3.5.1.4	District Information Health System (DHIS).....	104
3.5.1.4.1	The nature of DHIS data.....	105
3.5.1.5	Quantitative data analysis.....	106
3.5.1.5.1	Statistical techniques	107
3.5.1.5.2	Dependent and Independent Variables.....	110
3.5.1.5.3	Coding Of Dependent and Independent Variables	112
3.6	QUALITATIVE STUDY	115
3.6.1	Inductive/Qualitative Approach.....	116
3.6.2	Qualitative Case study Design.....	117
3.6.3	Case Study Context of Nigeria.....	120
3.6.3.1	Plateau state	121
3.6.3.2	Nasarawa State	124
3.6.4	How Participant were Selected in the Qualitative Study.....	127
3.6.5	How Qualitative Data were Collected.....	129

3.6.5.1	Semi-structured interviews.....	130
3.6.5.2	Key Informants or Elite Interviews.....	131
3.6.5.3	Participant Observations.....	133
3.6.5.4	Policy Document Review.....	134
3.6.6	Qualitative Data Analysis	135
3.7	DATA TRIANGULATION	136
3.8	QUALITATIVE RESEARCH POSITIONALITY AND REFLEXIVITY.....	139
3.8.1	Insider Experience at Home	141
3.8.2	Outsider 'At Home' Or 'Within' Experience.....	144
3.9	ETHICAL CONSIDERATIONS	147
3.10	LIMITATIONS OF THE STUDY	149
3.11	CONCLUSION.....	151
	CHAPTER FOUR: <u>SEXUAL BEHAVIOUR AND THE RISK OF HIV INFECTION</u>	152
4.0	INTRODUCTION	152
4.1	AGE AT FIRST SEXUAL INTERCOURSE.....	153
4.1.1	Age at First Sexual Intercourse in Plateau State	154
4.1.2	Age at First Sexual Intercourse in Nasarawa State	155
4.2	NON-MARITAL SEXUAL BEHAVIOUR	158
4.2.1	Non-marital Sexual Behaviour in Plateau State	159
4.2.3	Non-Marital Sexual Behaviour: A Comparison.....	163
4.3	SEXUAL ACTIVITY AMONG MARRIED PEOPLE.....	165
4.3.2	Sexual Activity among Married People in Nasarawa State	167
4.3.3	Sexual Activity among Married Respondents: A Comparison	169
4.4	TYPES OF SEXUAL PARTNER	170
4.4.1	Types of Sexual Partners in Plateau State.....	171
4.4.2	Types of Sex Partner in Nasarawa State	173
4.4.3	Types of Sexual Partner: A Comparison.....	174
4.5	SEXUAL ACTIVITY DURING THE LAST FOUR WEEKS	175
4.5.1	Sexual Activity during the Last Four Weeks in Plateau State.....	176
4.5.2	Sexual Activity during the Last Four Weeks in Nasarawa State.....	177
4.5.3	Sexual Activity during the Last Four Weeks: A Comparison	180
4.6	CONDOM USE AND HIV TESTING	181
4.6.1	Condom use and HIV Testing in Plateau State.....	181
4.6.2	Condom use and HIV Testing in Nasarawa State	184
4.6.3	Condom Use, and HIV Testing – a comparison.....	187
4.7	SEX HAVING/WITH A PERSON WHO HAS STD (s).....	189
4.7.2	Reported STDs in Nasarawa State.....	190
4.7.3	Reported STDs Incidence: A Comparison.....	192
4.8	CONCLUSION.....	193
	CHAPTER FIVE: <u>FACTORS INFLUENCING THE RISK OF HIV TRANSMISSION</u>	194
5.1	INTRODUCTION	194
5.2	FACTORS OF HIV RISKY BEHAVIOURS.....	195
5.2.1	Risk and the Age at First Sexual Intercourse.....	195
5.2.2	Risk and Nonmarital Sexual Activity.....	200
5.2.3	Risky Sexual Behaviour in Marriage	204
5.2.4	Risky Sexual Activity during the Four Weeks Prior to the Surveys (Frequent Sex).....	208

5.2.5	Unsafe Types of Sexual Partner	213
5.2.6	Sex with a person with an STD	218
5.3	EXPLANATIONS ON THE STATISTICALLY SIGNIFICANT LIKELIHOOD OF HIV-RISK BEHAVIOURS	283
5.3.1	Gender inequality and high-risk behaviour	283
5.3.1.1	Male dominance in heterosexual decisions.....	284
5.3.1.2	Trust and love in an Intimate relationship	284
5.3.1.3	Masculinity and sex sensation seeking	285
5.3.1.4	Lack of female autonomy and out-migration	286
5.3.2	Being married, spouse living apart HIV high-risk behaviour	287
5.3.2.1	Cultural practices	287
5.3.2.2	Wife's postpartum abstinence.....	288
5.3.2.3	Continuous presence of security personnel in communities.....	288
5.3.3	Being older (age ≥ 25 years) and HIV high-risk behaviour	289
5.3.3.1	Exploring new sexual experiences	290
5.3.3.2	Material and financial support.....	290
5.3.4	Polygamy and the number of times a person marries.....	291
5.3.5	Religion and HIV high-risk behaviour	292
5.3.6	Education and HIV high-risk behaviour.....	293
5.3.7	Wealth status and High HIV Risk.....	295
5.3.7.1	Lack of Jobs	295
5.3.7.2	Resources deprivation.....	296
5.3.8	Awareness, attitudes and perceived risk HIV/AIDS	297
5.3.8.1	Lack of comprehensive HIV awareness.....	297
5.3.8.2	HIV/AIDS denialism	298
5.3.8.3	Suspicious of HIV prevention services	298
5.4	CONCLUSION	299
CHAPTER SIX: SOCIAL NETWORK, SOCIAL CAPITAL AND HIV/AIDS PREVENTION		300
6.1	INTRODUCTION	300
6.2	BACKGROUND OF THE CASE SITES.....	302
6.2.1	Case I: Shendam, Plateau State.....	302
6.2.2	Case II: Lafia, Nasarawa State	303
6.2.3	Case III: Kuka, Plateau State	304
6.2.4	Case IV: Assakio, Nasarawa State	305
6.3	CHARACTERISTICS OF SOCIAL ORGANISATIONS/SOCIAL GROUPS	306
6.3.1	Ethnic/Tribal Organisations.....	307
6.3.2	Faith-Based Organisations (FBOs).....	308
6.3.3	Government Organisations (GOs).....	310
6.3.4	Non-Governmental Organisations (NGOs)	310
6.3.5	Business and Market Traders Associations.....	311
6.3.6	Professional Organisations.....	312
6.3.7	Sports and Supporters' Clubs	313
6.3.8	Family and Friends Social Groups	313
6.3.9	Most At-risk Groups	314
6.4	NETWORKING EXPERIENCES AND SOCIAL CAPITAL MECHANISMS	315
6.4.1	Study Site I: Urban Low HIV Zone	315
6.4.2	Study Site II: Urban High HIV Zone.....	323

6.4.3	Study site III: Rural Low HIV Zone	326
6.4.4	Study Site IV: Rural High HIV Zone	330
6.5	SOCIAL EXCLUSION AND DISCRIMINATION.....	333
6.6	CONCLUSION.....	335
CHAPTER SEVEN.....		337
ROLE OF POLICY IMPLEMENTATION ON HIV/AIDS PREVENTION		337
7.1	INTRODUCTION	337
7.2	MOTIVATING POLITICAL PARTICIPATION.....	338
7.2.1	Establishment of Supporting Institutions	338
7.2.2	Health Facilities’ Reform Response.....	341
7.2.3	Partnership and Funding Supports	343
7.3	PROMOTION OF ACCESS TO HIV PREVENTION SERVICES	346
7.3.1	HIV awareness activities	346
7.3.2	Condom Distribution.....	349
7.3.3	HIV Testing Services (HCT)	351
7.3.4	HIV/AIDS Treatment Prevention	353
7.3.4.1	PMTCT for pregnant women.....	354
7.3.4.2	ART for people with HIV.....	355
7.4	CONCLUSION	356
CHAPTER EIGHT: CONCLUSION, STUDY IMPLICATIONS AND RECOMMENDATIONS.....		358
8.1	INTRODUCTION	358
8.2	OVERVIEW OF THE RESEARCH	358
8.3	SUMMARY OF MAJOR RESEARCH FINDINGS	361
8.3.2.1	Social drivers of a declining/low HIV situation.....	363
8.3.3.2	Social drivers of a rising/high HIV situation	365
8.3.2.3	Implementation of HIV/AIDS prevention programmes.....	366
8.4	RESEARCH CONTRIBUTIONS.....	367
8.4.1	Theoretical	368
8.4.1.1	Sexual behaviour and social epidemiology of HIV in Plateau State.....	368
8.4.1.2	Sexual behaviour and the social epidemiology of HIV in Nasarawa State.....	371
8.4.2	Methodological	373
8.4.3	Policy and practice implications.....	374
8.5	FUTURE RESEARCH.....	379
8.6	LIMITATIONS OF THE RESEARCH.....	380
8.7	CONCLUSION	382
REFERENCES.....		383
APPENDIX A: CHARACTERISTICS OF INTERVIEW PARTICIPANTS.....		461
APPENDIX B: RESEARCH INFORMATION DOCUMENTS.....		463
APPENDIX C: ETHICS PERMISSION / APPROVALS.....		468
APPENDIX D : CHARACTERISTICS OF COMMUNITY AND SOCIAL RESOURCES.....		475
APPENDIX E: INTERVIEW QUESTION GUIDE		489
APPENDIX F: HAF II HIV PREVENTION PROGRAMME IMPLEMENTATION		491

LIST OF TABLES

Table 1. 1: HIV Prevalence Trends in the North Central and States Bordering Plateau State	22
Table 2.1: Literature Search Strategy - Key concepts, search terms and databases	31
Table 2.2: Global Estimates of HIV/AIDS and Resource Distributions (in million)	40
Table 2.3: UNAIDS Indicators of Sexual Behaviour	46
Table 2.4: Benefits of Education with effect on Health Behaviour	62
Table 2.5 Dimensions of Social Capital	66
Table 3.1: Research objectives, approaches, and justification for use	78
Table 3.2: Common Research Paradigms in the Literature	80
Table 3.3: Sampling Allocation of Clusters and Households in the Study Location	96
Table 3.4: Sampled size in Plateau State and Nasarawa State	97
Table 3.5: Sampled size of Respondents who engaged in HIV Risky Behaviour	97
Table 3.6: Structure and themes of the questionnaires for 2003-2013, NDHS	99
Table 3.7: Measurement of Dependent Variable	113
Table 3.8: Measurement of Independent Variables	114
Table 3.9: People Counselling, Tested and HIV Positive in Shendam LGA	124
Table 3.10: People Counselling, Tested and HIV Positive in Lafia LGA	125
Table 3.11: Criteria in the Selection of Interview Participants and Documents	128
Table 3.12: Qualitative Research Sample Size	129
Table 4.1A: Age at First Sex in Plateau State, Nigeria DHS 2003 – 2013	154
Table 4.1B: Unprotected Sex at age <15-year old in Plateau State	154
Table 4.2A: Age at First Sex in Nasarawa State, Nigeria DHS 2003 – 2013	156
Table 4.2B: Unprotected First sex at age under 15 years old in Nasarawa State	156
Table 4.3: Unprotected sex at age < 15 years old by Study Location	158
Table 4.4A: Non-marital sex Activity in Plateau State, Nigeria DHS 2003 – 2013	159
Table 4.4B: Unprotected Non-marital Sex in Plateau State	160
Table 4.5A: Non-marital sexual Activity in Nasarawa State, Nigeria DHS 2003-2013	162
Table 4.5B: Unprotected Non-marital Sex in Urban and Rural Nasarawa State	162
Table 4.6: Unprotected Non-marital Sex by Study Locations	164
Table 4.7A: Sexual activity among married people in Plateau State, Nigeria DHS 2003-2013	165
Table 4.7B: Unprotected Extramarital Sex in Plateau State	166

Table 4.8A: Sexual activity among married Respondents in Nasarawa State, Nigeria DHS 2003 – 2013	168
Table 4.8B: Unprotected Extramarital in Nasarawa State	168
Table 4.9: Unprotected Extramarital Sex by study Location	170
Table 4.10A: Types of a Sex Partner in Plateau State, Nigeria DHS 2003-2013	171
Table 4.10B: Unprotected sex with Casual partner in Plateau State	172
Table 4.11A: Types of Sex a Partner in Nasarawa State, Nigeria, DHS 2003-2013	173
Table 4.11B: Unprotected sex with Casual Partners in Nasarawa State	173
Table 4.12: Unprotected sex with a Casual Partner by Study Location	175
Table 4.13A: Sexual Activity during the Last Four Weeks in Plateau State	176
Table 4.13B: Unprotected sex during the last four weeks in Plateau State	176
Table 4.14A: Sexual activity during in the last four weeks in Nasarawa State	178
Table 4.14B: Unprotected sex during the last four weeks in Nasarawa State	178
Table 4.15: Unprotected sex during the last four weeks by Study Locations	180
Table 4.16A: Condom use during the last sex in Plateau State, Nigeria DHS 2003-2013	182
Table 4.16B: Reported HIV Test in Plateau State, Nigeria DHS 2003 – 2013	182
Table 4.16C: Unprotected sex, and at no time tested for HIV in Plateau State, Nigeria DHS 2003-2013	183
Table 4:17A Condom use at last sex in Nasarawa State, Nigeria DHS 2003-2013	185
Table 4:17B HIV Testing services in Nasarawa State, Nigeria DHS 2003-2013	185
Table 4.17C: Unprotected sex, and at no time tested for HIV in Nasarawa State, Nigeria DHS 2003 -2013	186
Table4 4.18: Unprotected sex, and at no time tested for HIV by Study Locations	188
Table 4.19A: Reported STDs incidence in Plateau State, Nigeria DHS 2003-2013	189
Table 4.19B: Unprotected sex with a person having an STDs in Plateau State	190
Table: 4.20A: Reported STDs in Nasarawa State, Nigeria DHS 2003 – 2013	191
Table 4.20B: Unprotected sex with a person having an STD in Nasarawa State, Nigeria DHS 2003-013	191
Table 4.21: Unprotected sex with a person having an STIs in the study Location	192
Table 5.1: Distribution of HIV Risky Behaviour at First Sexual Intercourse by Study Location	196
Table 5.2: Factors Associated with Risky Behaviours at First Sexual Intercourse by Study Locations	198
Table 5.3: Predictors of HIV High-risk Behaviour at First Sexual	

Intercourse by study Locations	199
Table 5.4: Distribution of Non-marital HIV Risky Behaviour by Study Locations	201
Table 5.5: Factors Associated with Non-marital HIV Risky Behaviours	
By Study Locations	202
Table 5.6: Predictors of Non-marital Sexual High-risk Behaviour	
By Study Location	203
Table 5.7: Distribution of HIV Risky Behaviour in Marriage by Study Locations	205
Table 5.8: Factors Associated with HIV Risky Behaviours in Marriage	
By Study Locations	206
Table 5.9: Predictors of High-risk Non-marital Sexual Behaviour	
By Study Location	207
Table 5.10: Distribution of HIV Risky Frequent Behaviour by Study Locations	209
Table 5.11: Factors Associated with HIV Risky Frequent Sexual Behaviour	
By Study Location	211
Table 5.12: Predictors of HIV High-risk Frequent Sexual Behaviour	
By Study Location	212
Table 5.13: Distribution of HIV Risky Casual partner by Study Location	214
Table 5.14: Factors Associated with HIV Risky Sexual Partner by Study Location	216
Table 5.15: Predictors of HIV High-risk type of Sexual Partner by Study Location	217
Table 5.16: Distribution of Risky Sex with persons having a STDs	
By Study Location	219
Table 5.17: Factors Associated with High-risk Sex with a person having a STDs by Study Location.	221
Table 5.18: Predictors of HIV High-risk Sex with the Presence of STDs	
By study Location	222
Table 5.19: Summary of Significant Adjusted Odds Ratios of HIV High-risk Behaviour in the Study	285
Table 6.3: FBOs and their HIV/AIDS Units	309
Table 7.1: Beneficiaries of Social Investment activities in Study Location	340
Table 7.2: Distribution of Health Facilities and HIV/AIDS Services	
By August 2019	342
Table 7.3 HIV Tested and Received Results (HCTR) by Study Location, 2013-2017	351
Table 8.1 Benefits/Outcomes of HIV/AIDS Related Situation in the Study Locations	367

Table 8.2: Multilevel Factors that Influenced the Decline of HIV Prevalence in Plateau State	370
Table 8.3: Multilevel Factors that influenced the rising/high of HIV Prevalence in Nasarawa State	372

LIST OF FIGURE

Figure 1.1 HIV Prevalence Trends in Plateau State and Nasarawa State	23
Figure 2.1: The Immune system and HIV infection Progression	34
Figure 2.2: Global Distribution of HIV Typ1 Group M subtypes	38
Figure 2.3 Global New HIV Infections Trend between 1990 and 2018	39
Figure 2.4: HIV Distribution in Nigeria, 2018	41
Figure 2.5 : Individual Factors Influencing Sexual Behaviour	55
Figure 2.6: Classification of Social Capital	67
Figure 2.7: A Heuristic Framework for the Social Epidemiology of HIV/AIDS	73
Figure 3.1: The Sequential Explanatory Mixed-methods Design	90
Figure 3.2: The Independent and Dependent Variables	111
Figure 3.3: Multiple embedded Case Study Design	117
Figure 3.4: Multilevel, multiple embedded case study Mixed-methods	119
Figure 3.5: Map of Nigeria showing Plateau State and Nasarawa State	120
Figure 3.6: Map of Nigeria, showing Plateau State, and Shendam LGA	122
Figure 3.7: Map of Nigeria showing Nasarawa State, and Lafia LGA	126
Figure 7.1: Distribution of Condoms in Plateau State and Nasarawa States, 2013-2017	350
Figure 7.2: Pregnant women on PMTCT in the Study Locations between 2013 to 2017	354
Figure 7.3: ART Treatment in Plateau State and Nasarawa State, 2013 -2017	355

LISTS OF BOXES

Box 1: Perspectives on Non-marital sexual behaviour in Plateau State	160
Box 2: Condom Use and HIV Testing Responses	184

LIST OF PLATES

Plate 1: Mysterious Cross within a Mosque Precinct in Assakio	306
---	-----

LIST OF ABBEVIATIONS

JUTH	Jos University Teaching Hospital	NDHS	Nigeria Demographic and Health Survey
ANC	Antenatal Care	NEEDS	National Economic and Empowerment Strategies
AOR	Adjusted Odd Ratio	NGOs	Non-Governmental Organisation
APIN	AIDS Preventive Initiative in Nigeria	NPC	National Population Commission
ART	Antiretroviral Therapy	NSHIP	Nigeria State Health Investment Project
CBO	Civil Society Organisation	NSPHDP	Nasarawa State Primary Healthcare Development Agency
CD4	Cluster of Differentiation 4	OR	Odds Ratio
CDC	Centre for Disease Control and Prevention	PEPFAR	US President Emergency Plan for HIV/AIDS Relief
COR	Crude Odd Ratio	PHC	Primary Healthcare Centre
DHIS	District Health Information System	PLACA	Platu State Agency for the Control of AIDS
ELISA	Enzyme Linked Immunosorbent Assay	PLASVIREC	Plateau State Human Virology Research Centre
eNNRIMS	electronic Nigerian National Routine Information Monitoring System	PLWH	People Living with HIV/AIDS
ERN	Enhancing Nigerian's Response	PMTCT	Prevention of Mother to Child Transmission
FBO	Faith Based Organisation	PrEP	Pre-Exposure Prophylaxis
FCT	Federal Capital Territory	SDGs	Sustainable Development Goals
FLHE	Family Life and HIV/AIDS Education	SPSS	Statistical Package for Social Scientist
FMoH	Federal Ministry of Health	STD	Sexually Transmitted Disease
HAART	Highly Active Antiretroviral Therapy	STI	Sexually Transmitted Infections
HAF	HIV/AIDS Fund	UN	United Nations
HCRT	HIV Testing and Received Results	UNAIDS	Joint United Nations Programme on HIV/AIDS
HEAP	HIV/AIDS Emergency Action Plan	UNFPA	United Nations Population Fund
HPDP	HIV Programme Development Project	UNGASS	United Nations Special Session General Assembly
IHVN	Institute of Human Virology of Nigeria	USAIDS	United States Agency for International Development
LGA/C	Local Government Area / Counsel	VCT	Voluntary Counselling and Testing
MDGs	Millennium Development Goals	WHO	World Health Organisation
NACA	National Agency for Control of AIDS		
NASACA	Plateau State Agency for the Control of AIDS		

CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND TO THE STUDY

The global HIV/AIDS pandemic is the most significant public health challenge, and one of the leading causes of death across Sub-Saharan Africa over the last decades (WHO, 2020). At 1.5%, the prevalence of Nigeria's HIV infection among adults is relatively low compared with other countries in Southern Africa. However, the sheer size of its population means that it is one of the countries with the most people infected with HIV globally (UNAIDS, 2019). Within Nigeria, there are strong disparities in the rates of new HIV infections between and within states that reflect changes in the spatial epidemiology of the virus (Granich et al., 2015). In particular, in 1996, Plateau State was at the centre of Nigeria's HIV/AIDS epidemic when it experienced the highest HIV infection rates in the country, at 11% (FMoH - Federal Ministry of Health, 1996). Although the virus initially spread to surrounding states, by 2001 the infection was declining in Plateau State. Even more encouragingly, the populations experiencing a reduction in the HIV infection rates were children, women and the most-at-risk subgroups, such as sex workers (NACA 2015; Ogbe et al. 2014; Imade et al. 2014; Gomwalk et al., 2012). However, the infection rate was on the rise in neighbouring states at the conception of this study; these have lately experienced a slower decrease, but remain higher than in Plateau State and above the national average (FMoH, 2020; Bashorun et al., 2014; Obidoa and Cromley, 2013).

Following its initial report in 1981, AIDS was identified as an infection crisis that stimulated biomedical interventions for patients with advanced HIV (CDC 1993, 1983, 1982, 1981). The initial treatment began with the use of azidothymidine (AZT) or zidovudine (ZDV) (Fischl et al., 1987) and has been much improved over the years through male circumcision, the use of male condoms, and pre- and post-exposure prophylaxis, which are used for the prevention of the spread of the virus (Vella et al., 2012). However, the biomedical approach has not totally addressed the HIV epidemic, as envisaged in medical sciences (Rodger et al., 2013), because the disease has also evolved as a social phenomenon (Rowan 2014). In the last two decades, prevention efforts have combined social and structural dimensions to reach beyond the people immediately at high risk of infection (Lieberman et al., 2013). The approach now targets the prevention of initial occurrence by addressing vulnerable conditions that influence the risk of infection and health-related decisions (Crammond and Carey 2017; Berkman and Krishna 2014; Soskolne, 2007). These factors point

out that human health, including HIV infection, is a social matter (Oakes and Kaufman 2017; Berkman and Kawachi, 2014; Kippax, 2012; Berkman and Glass 2000).

More importantly, now there is renewed global synergy to sustain gains in combating HIV/AIDS, this thesis focuses on HIV infection in Nigeria which is largely the result of risky heterosexual behaviour. The assumption proposes that the modification of risky behaviour reduces the possibility of contracting the virus. As social beings, humans naturally establish one-on-one relationships, and bonds with one another within the groups to which they belong, and across neighbourhoods (Degenne and Forsé, 2004). The interactions involve reciprocal attraction, communication, and the possibility of exposure to a myriad of factors that influence health conditions, including HIV infection. Currently, our knowledge is limited concerning the social groups and networks to which people belong, the mechanisms through which they interact, and whether such relationships limit or enable the risk of exposure to behaviours responsible for the decline of HIV infection in Plateau State and, seemingly, not in neighbouring states, during the same period.

To understand the HIV risk situation, a mixed-methods research approach is adopted. The techniques in the design are pragmatic for data collection that reflects the novelty of exploring sexual behaviour and the social epidemiology of HIV. Nasarawa State is selected in proxy¹ (for safety and offers a similar HIV context); this helps to understand why HIV infection has failed to decline in neighbouring states. This section of the introduction has explained the motivation and broader context for this study, whilst the subsequent section discusses the justification for the study (section 1.2). Section 1.3 presents the questions raised by the study, while section 1.4 discusses the study aim and objectives. Sections 1.5 and 1.6 explain the significance of the study and provide an overview of the research methodology. Finally, section 1.7 gives a summary of the thesis structure.

1.2 JUSTIFICATION FOR THE STUDY

In sub-Saharan Africa (SSA), it is well known that heterosexual intercourse is responsible for over 90% of the risk of exposure to HIV infections, particularly when sexual activity is unprotected (Adimira et al., 2014; UNAIDS, 2012; Lurie and Rosenthal 2010). These risky behaviours

¹ Benue State was the initially preferred comparison case to study the rising prevalence of HIV (see Figure 2 for its prevalence). However, due to the security situation at the time of the data collection, the neighbouring Nasarawa State was selected due to its higher HIV infection characteristics than Plateau State. It was also more accessible and safe at the time of the fieldwork. Since completing the data collection phase, Nasarawa State has also experienced a decline in HIV.

influence the possibility of contracting HIV and other Sexually Transmitted Infections (STIs) from people within sexual networks (Zhen, 2011; Dean and Fenton, 2010; Boily et al., 2009). HIV, being an infectious disease that has multiple modes of transmission, relies on sexual contact between infected individuals and those at risk of acquisition or transmission (Haggett, 2000; Sadikov et al. 2011). Moreover, as the number of persons in any sexual network is large, so is the risk of HIV transmission within it (Potterat et al., 2005; Gupta 2002; Anderson and May 1989). The absence of a cure for HIV and AIDS has prompted emphasis on behavioural and social changes among the countries most affected in order to hasten infection decline and reduce the burden of the epidemic (de Wit et al., 2011). This change has been informed by the philosophy that people should have access to adequate information on the prevention of the infection, which can rapidly inform and influence members in a network (Rogers 2004). This suggests that people are likely to swiftly accept and adopt new behaviours based on the communication of an appropriate and adequate awareness by other members of their network. Rogers (2004) argued that rapidly received information influences opinion and judgment to the point of modifying behaviour. However, little is currently known about the different social groups and networks to which individuals belong, and the type of support they share and reciprocate, which would help to limit or enable the prevention of HIV risky behaviour. This research intends to identify the groups and networks to which people belong in order to understand the mechanisms by which risk of HIV infection are empowered to limit transmission or mitigate prevention measures in various case study units.

Consequently, until recently, there has been little interest in examining how individuals in a community utilise resources to reduce the risks associated with disease that influences health patterns in a population (Berkman and Kawachi 2014; Honjo 2004; Campell et al., 2002; Campell and Gillies 2001). Key literature has highlighted that the culture, policy and social environments within which individuals live represent a barrier to attaining well-being, and simultaneously enable HIV/AIDS to thrive (Hibbert et al., 2018; UNAIDS 2016; Poundstone et al., 2004; Herek and Captino, 1999). These barriers include poverty (Alsan et al., 2011; Obi et al., 2010), gender inequality (Zierler and Krieger 1997), discrimination and the criminalisation of one's sexual lifestyle and behaviour (UNAIDS 2016; Manjok et al., 2009), violent community conflict (McInnes, 2011; Iqbal and Zorn, 2010;), and displacement and migration (Poundstone et al., 2004). Exploring individual and socio-structural factors is therefore critical to enable the required depth and breadth to understand how issues influence conditions, which motivate decisions that shape intentions to act (or not) among individuals and communities concerning the risk of HIV infection in Plateau State and Nasarawa State.

Moreover, the Declaration at the Millennium Summit in September 2000 was significant and the biggest promise ever made by the world to reduce the world's most serious development challenges (in vulnerable countries). Specifically, Goal 6 focused on halting HIV/AIDS, reversing its spread and achieving access to treatments by 2015. The agenda has been improved to focus on all nations in Sustainable Development Goals - SDGs (Nigeria MDGs Report 2010; Hulme 2010; Fenwick et al., 2005; United Nations, 2000). In achieving the development goals, 19 billion US\$ was invested in 2018 for HIV/AIDS responses worldwide that mobilised relevant health infrastructures, improved data systems and diagnostic capacities, and made massive multi-sectoral interventions in low and middle-income countries with the expectation of value for investment (UNAIDS, 2020a). The investment benefits in 2018 showed that 78% of people living with HIV knew their HIV status, 78% were accessing treatment, and 86% had viral suppression, which achieved the global 90-90-90 targets to end HIV infection by 2030. Hence, new HIV infections fell by 41%, which is slow compared with the 40% in 2015 (UNAIDS, 2020a, 2016; Dorrington et al., 2014). The prevalence of discriminatory attitudes towards people living with HIV is on the decline in sub-Saharan Africa (Chan, et al., 2015). By 2017, in rural South Africa, 94% of the general population knew their HIV status (Human Sciences Research Council, 2018). In 2018, Kenya, which has the third-largest HIV epidemic in the world, 89% people knew their status and 77% had been placed on treatment; this was the first time such significant achievements had been recorded (UNAIDS, 2020b; Strauss et al., 2017).

Nigeria responded to the HIV/AIDS epidemic in various ways, which included the development of policies designed to improve the economic situation across the country, which was influenced by the established relationship between poverty and HIV/AIDS (Arogundade et al., 2011). Interventions have been mostly directed towards a targeted group since vulnerability and risk behaviours for HIV are multidimensional and overlap (FMoH, 2019). The targeted groups included the individual patient, sexual partners or family (micro), community (meso), or policy or structural (macro) levels. In the 1990s, the National Directorate of Employment (NDE), the Nomadic Education Programme and the Family Economic Advancement Programmes were established to address the economic and social needs of individual states across the country (Aluko 2003). In 2000, the HIV/AIDS Emergency Action Plan (HEAP) was adopted followed by the National HIV/AIDS Behaviour Change Communication in 2004 for a multi-sectoral response to the epidemic (Chima and Homedes 2015; NACA 2004; FMH 2005).

Recently, the National Plan of Action for the removal of legal and human rights barriers to the HIV/AIDS response (NACA, 2017), HIV/AIDS Stigma Reduction Strategy (NACA, 2016), and the National HIV Strategies for Adolescents and Young People (NACA, 2016) were designed. The implementation of these policy programmes nationally and sub-nationally may have contributed to a decline in HIV infections (Figure 1.1). However, this decline is evidently concentrated in just a few states in Nigeria, including Ebonyi, Gombe, Kano, Kogi, and Plateau (FMOH, 2019). However, far too little attention has been paid to the relevant programmes and interventions, their implementation and how they influenced persons not infected to change their behaviours, the early detection of new infections to reduce transmission to others, and therapy for infected persons with chronic conditions. This study critically examines the roles of HIV prevention programmes on the HIV situations in Plateau State and Nasarawa State.

Plateau State is located in the North-Central region of Nigeria (Figure 1.2). Since colonial times, the State has attracted mining industries (tin and columbite) and migrant labour from many parts of the country (Higazi 2011). Its temperate climate has attracted both national and international tourists for vacation and/or permanent settlement (Iirmdu et al., 2013). Jos is the State capital and serves as a central transport nexus (air, rail and road) that links the State to other parts of the country (Mohammed 2005). Together, these factors may have contributed to sexual networking in the State, which could have played a role in the first diagnosed case of AIDS within Nigeria in 1990, who was a Malian businessman (NACA 2014; PLACA 2007).

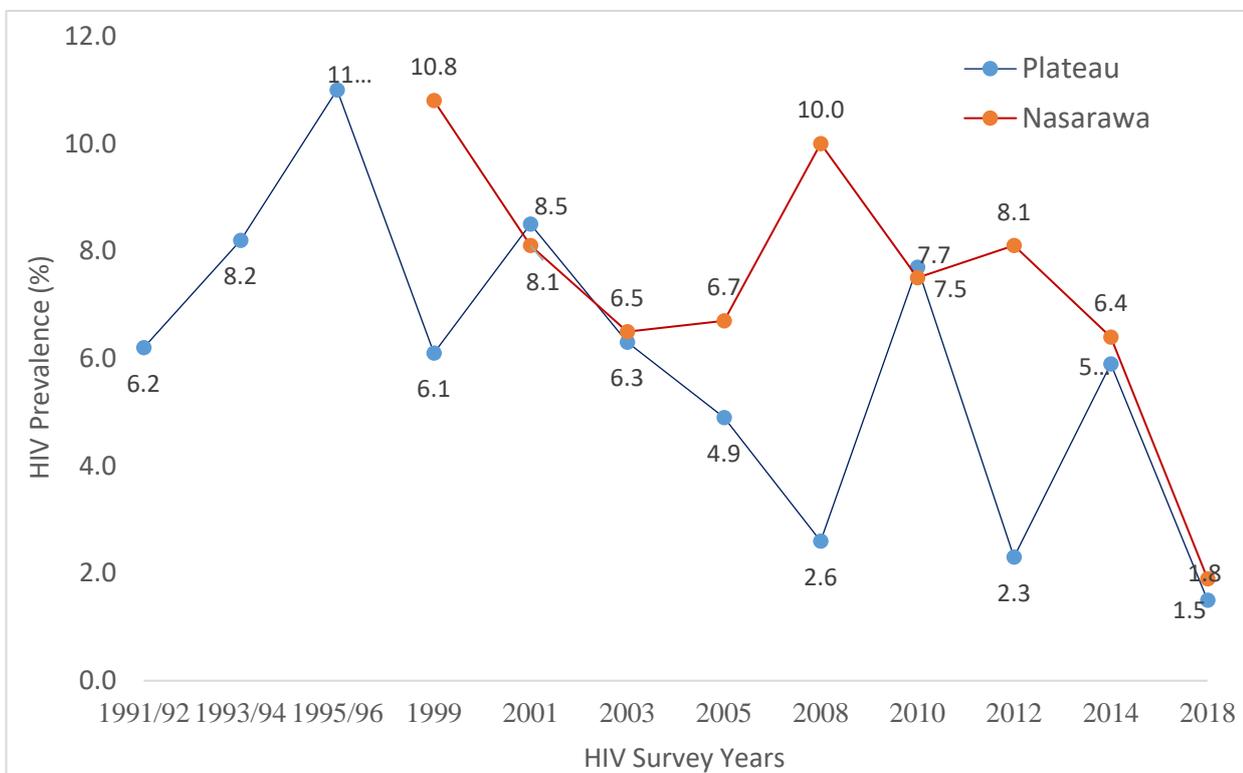
Table 1.1: HIV Prevalence Trends in the North Central and States Bordering Plateau State

Year / States	Benue	FCT	Kaduna	Kogi	Kwara	Nasarawa	Niger	Plateau	Taraba	National Average
1991/92	1.6		0.9		0.4			6.2		1.8
1993/94	4.7		4.6		2.4			8.2		3.8
1995/96	2.3		7.5	2.3	1.7			11.0	6.0	4.5
1999	16.8	7.2	11.6	5.2	3.2	10.8	6.7	6.1	5.5	5.6
2001	13.5	10	5.6	5.7	4.3	8.1	4.5	8.5	6.2	5.8
2003	6.3	8.4	6.0	5.7	2.7	6.5	7.0	6.3	6	5.0
2005	10	6.3	5.6	5.5	2.8	6.7	5.3	4.9	6.1	4.4
2008	10.6	5.0	7.0	5.1	1.8	10.0	6.2	2.6	5.2	4.6
2010	12.7	8.6	5.8	5.8	2.2	7.5	4.0	7.7	5.8	4.1
2012	5.6	7.5	9.2	1.4	1.4	8.1	1.2	2.3	10.5	3.4
2014	15.4	5.8	2.2	3.3	2.3	6.4	1.7	5.9	5.1	3.0
2018	4.8	1.4	1.0	0.8	0.8	1.9	0.6	1.5	2.6	1.3

Source: FMOH, 2008, 2010, 2013; NACA 2015

The State also later became the first in Nigeria to report high rates of HIV infection because of its central location and links to neighbouring states. Nearby states within the North-Central and North-Eastern regions subsequently began to report similarly high HIV infection rates (FMoH 1996; Balogun 2010). Since then, the trend in the HIV infection rate has fluctuated (as shown in Figure 1.1) and has fallen to low levels, consistent with the overall trend in Nigeria. In response to the epidemic, Plateau AIDS Control Agency (PLACA) was established in the year 2000 and worked with the Local AIDS Control Agency (LACA) in the management of HIV/AIDS policies and programmes adopted from the national framework. Significant prevention activities in the State may have contributed to a decline of the HIV infection rate from 8.5% in 2001 to 2.6% in 2008 (PLACA 2007; FMoH 2008).

Figure 1.1: HIV Prevalence Trends in Plateau State and Nasarawa State



Source: FMoH, 2008, 2010, 2013; NACA 2015

Following 2008 and 2014, there were spikes in the infection rates (see Table 1.1 and Figure 1.1). The first spike corresponds with some of the political and social crises observed between 2008 and 2010, which may have interrupted prevention activities and encouraged the risky behaviour associated with HIV transmission (NACA 2014; Umeobi 2013; Vanguard News 2011; Ross et al., 2006; Khaw et al., 2000). The state government, in collaboration with donor agencies, responded by scaling up its HIV/AIDS prevention and treatment programmes particularly for high-risk groups including inter-city-truck drivers, pregnant women, commercial sex workers (CSW), and

sexually active youths and children (Adelekan et al., 2017a, 2017b; Hassan et al., 2014; FMOH 2013). This move may have contributed to the sharp decline in 2012, particularly among these high-risk groups in the State (NACA 2015; Ogbe et al., 2014; Imade et al., 2013). Interestingly, this trend is not unique to Plateau State, as similar fluctuations in infection rates have been observed in other countries in SSA, including Uganda, Zambia and Zimbabwe (Kayeyi et al., 2012; Muchini et al., 2011; Halperin et al., 2009; Hallett et al., 2006).

However, there is a dearth of evidence as to whether the decline in HIV infection rates since 2003 in Plateau State can be attributed to changes in behaviour. It is also important to understand whether changes in behaviour were the result of HIV prevention activities in order to learn broader lessons from Plateau State's exceptional decreasing trends in HIV infection, and to enable similar progress in other states across Nigeria. Moreover, this decline appears to have taken place despite national survey data revealing low levels of HIV/AIDS awareness, low levels of condom use, inadequate use of HIV Counselling and Testing (HCT) facilities, and continued high-risk behaviours among youth and adults (NPC and ICF 2014, 2008). This decline also occurred at the same time as an influx of large numbers of internally displaced people to the State, as a result of the Boko Haram insurgency; they came from states with high rates of HIV (Enwereji 2009; NEMA 2014).

It is in the context of the above that this research is conceptually situated, which will thoroughly explore the factors that influence the HIV/AIDS situation in Plateau State. Nasarawa State, which was part of Plateau State until 1996, has been selected as a proxy² for the neighbouring states (Benue State was initially preferred but was not selected due to accessibility and safety issues) to enable a comparison and contrast of sexual and social relationships and to gain insight into why HIV infection failed to decline at the same rate as Plateau State. The study hopes to contribute new knowledge about the underlying drivers and dynamics of the HIV infection rates in Plateau and Nasarawa States, with the aim of better understanding the broader context within which to implement interventions that address the epidemic in the country and across Africa at large.

1.3 RESEARCH QUESTIONS

There is limited knowledge about the forms of sexual behaviour in the study setting. The factors that influence the risk of HIV transmission and the motivations that enable or limit exposure to the

² Benue State was the initially preferred comparison case study for the rising prevalence of HIV. However, due to the insecurity situation at the time of data collection, the neighbouring Nasarawa State was selected for its higher HIV infection characteristics, and for its accessibility and safety at the time of the fieldwork. Since completion of the data collection phase, Nasarawa State has also experienced a decline in HIV.

risk are based on speculation. Answers to the following questions are not currently clear. This concern has triggered the need for an evidence-based inquiry to address the research problem through the following questions.

1. What are the forms and trends of sexual behaviour in the study locations?
2. What are the indicators of sexual behaviour with the risk of HIV transmission?
3. How do individual characteristics determine the sexual behaviour that increases the risk of HIV transmission?
4. How are people motivated to engage in behaviours that constrain or facilitate the risk of acquiring or transmitting HIV, and inform the epidemiological conditions?
5. What types of social and community groups do people affiliate with in their place of residence?
6. What are the mechanisms through which people develop rapport and support to limit or enable vulnerability to sexual health and HIV/AIDS?
7. What HIV/AIDS and health-related programmes are implemented in the study settings?
8. What role did HIV/AIDS prevention programmes play in the HIV situations within the study locations?

1.4 AIM AND OBJECTIVES

The overall aim of this research is to investigate sexual behaviour and the social and structural conditions that influence the risk of HIV transmission in Nigeria by focusing on Plateau State and Nasarawa State as case studies. The specific objectives of the study are as follows:

1. To understand sexual behaviours in relation to HIV transmission in both Plateau and Nasarawa States:
 - a) To describe the forms and timings of sexual behaviour in the study settings;
 - b) To determine the factors associated with risky sexual behaviour and the likelihood of acquiring or transmitting HIV;
 - c) To explore the underlying factors, including personal motivation for engaging in sexual behaviours and vulnerability to the risk of HIV acquisition or transmission.
2. To investigate the role of social groups/networks and social capital in the prevention of HIV transmission in the study locations:
 - a) To identify the key characteristics of social groups and networks related to the transmission and prevention of HIV in the study sites;

- b) To describe mechanisms through which social groups and networks construct social capital that constrains or facilitates exposure to risky sexual behaviour and HIV transmission.
3. To analyse the role of HIV/AIDS prevention programmes on the HIV/AIDS situation in Plateau and Nasarawa States.
- a) To characterise HIV/AIDS prevention and health-related activities in the study locations;
 - b) To explore the mechanisms through which the implementation of HIV/AIDS activities may have influenced HIV prevalence in Plateau State and Nasarawa State.

1.5 SIGNIFICANCE OF THE STUDY

This study significantly differs from research perspectives that see observable evidence as the only form of defensible scientific outcome to understand complex public health phenomena, such as HIV. Hence, undertaking a study that identifies a problem and views it within its broadest context recognises the divide between the natural and cultural entities in order to better understand and ultimately solve an epidemiological problem. The key outcome of this study is to create knowledge that contributes to the social epidemiology of HIV and health-related debates. The approach intends to address the root cause of HIV risk by gathering local evidence to support the goals in SDGs that address both sexual and socio-structural issues. To make the study findings relevant to the immediate community, appropriate seminars and conferences will be sought to disseminate the findings of the study once the research is completed, when key evidence from the findings will be shared with HIV/AIDS stakeholders, social service providers and relevant government and non-governmental policy forums. In all, the research will provide insights into the currently limited evidence on the indicators of sexual behaviour and the multifaceted socio-structural dynamics of the decline and rise of HIV epidemiology in Nigeria and add to growing cross-national and empirical evidence in Africa. This information is important for policy and practice in HIV prevention as part of the wider goals to reach sustainable health and wellbeing for all.

1.6 OVERVIEW OF THE RESEARCH METHODOLOGY

The study focuses on understanding the complex conditions that constrain or enable the sexual and social behaviours associated with the risk of HIV in Nigeria, and Plateau State and Nasarawa State in particular. A sequential explanatory mixed method research design is suitable for this aim and for gathering data to answer the study questions. The first phase analysed Nigerian Demographic and Health Survey data to establish a relationship between personal and behavioural variables by using descriptive and inferential statistical techniques. The second phase used in-depth interviews,

participant observations, and a review of HIV and health-related documents. The narratives obtained were based on trust, as an 'insider' in Plateau State, and an 'outsider-within' in Nasarawa State communities. The analysis procedures for the collected data were conducted manually and via computer. SPSS IBM version 26 (statistical software) and NVivo 11 (a textual analytical tool) were used for the management of all collected data. The data complementarity and triangulation associated with a mixed-methods design yielded evidence-based results with implications for the sexual and social epidemiology of HIV/AIDS and health-related debates, policies, and practice.

1.7 THESIS OUTLINE

This section presents an outline of the entire thesis. The previous sections of this chapter provided the context and justification for the study and introduced the milieu within which the social epidemiology of HIV/AIDS was examined. Chapter Two uses an explorative strategy for the literature review that situates the thesis within wider academic debates on the history and distribution of HIV/AIDS, the dynamic and factors of the sexual transmission of HIV, and the theoretical framework of its social epidemiology. A growing body of literature was continuously examined to establish connections between the political, economic, and socio-cultural tensions that highlight the sexual conduct, perception and choice that influences the possibility acquiring or transmitting HIV and health-related concerns. This process reveals how behavioural and epidemiological conditions vary in different settings. The conceptual and theoretical theories on disease diffusion, and the individual, social and structural domains that influence HIV risks have been discussed.

Drawing from the findings in Chapter Two, Chapter Three adopts the mixed-methods research design that aligns with pragmatism research philosophy for the choice of techniques and for data collection and analysis most appropriate to address the research problem. The quantitative phase of the mixed-methods used survey data that produced statistical estimations on the indicators of sexual behaviours; in comparison, the qualitative methods involved interviews with persons from the study communities, participant observations and document reviews that triangulated evidence to address the research problem. Chapters Four and Five present results on the forms and timings of the indicators of sexual behaviour, and the factors influencing the risk of HIV transmission in Plateau State and Nasarawa State. Explanations for the concentration of high-risk have been discussed with evidence from participants' narratives of the experiences they shared during the interviews.

Chapter Six identifies and characterises the mechanisms through which community groups or organisational networks support members that constrain or facilitate HIV and AIDS prevention, mitigation and treatment. The social networks in the study include family, friends and other members of the community whose trust and collective values maximise or minimise vulnerability to, and risk of, HIV. The results in this chapter are based solely on the interviews, which explored participants' feelings, perspectives and experiences on sexual health and practice. Chapter Seven examines the role of the state and institutions in HIV/AIDS prevention policy and health-related activities. This section relies on the data obtained from the District Health Information System (DHIS) in characterising HIV Testing Services, condom use, the Prevention of Mother-to-Child Transmission (PMTCT) and Antiretroviral Treatments (ART). HIV/AIDS programmes implemented concerning health-related issues. Results from in-depth interviews provided an evidence-based understanding of the sexual behaviour and HIV/AIDS situations of Plateau State and Nasarawa State. Chapter Seven presents the political commitments, HIV/AIDS policy design, implemented intervention programmes which support HIV/AIDS prevention and contributed to epidemiological situations. Finally, Chapter Eight summarises the key findings of the study, discusses the contribution to knowledge, and notes its methodological significance. Moreover, it outlines the policy and practice implications of the sexual behaviour and social epidemiology of HIV in the achievement of sustainable sexual health and HIV-related conditions in Nigeria, and Africa at large.

CHAPTER TWO
AN EXPLORATORY LITERATURE REVIEW ON HIV/AIDS, SEXUAL BEHAVIOUR
AND SOCIAL RELATIONSHIPS

2.1 INTRODUCTION

Based on an exploratory strategy, this chapter reviews literature on the relationship between sexual behaviour, the risk of HIV/AIDS acquisition or transmission, and social networking/support. Generally, the review argues that, while HIV has a biomedical basis, its diffusion has social and structural dimensions. Thus, the literature review phase first identified an appropriate literature strategy, namely an approach, process and criteria for the selection of literature to identify relevant and reliable sources amongst the literature. The literature review focus on the aetiology of HIV/AIDS, then the literature related to its origin, types and geographical spread is discussed. Heterosexual relationships are arguably the primary pathway through which HIV is transmitted in Sub-Saharan Africa. The debate essentially forms the basis for contextual clarity in the developing the hypothesis and theoretical methodology underpinning the data collection, analysis and results.

2.1.1 Literature review approach

This section presents a narrative review of the literature, and providea an analysis and critique of the literature that seeks to understand the sexual risk of acquiring or transmitting HIV. It also discusses the disproportionate HIV/AIDS situation between declining and rising (or high) rates. The review helps to identify issues that exist; moreover, it integrates the work that others have done, bridges related topics and categorises the key issues in the subject area in order to establish a benchmark with which to compare results (Marshall and Rossman, 2016; Cooper, 2010). A systematic review was not considered because of the broad nature of the review. A systematic review focuses on a specific refine research topic/question, whereas a narrative review allows room for a range and different types of literature to be explored and included in the review. The review however followed some of the key steps use to conduct a systematic review, eg conducting comprehensive search of published and unpublished literature in relevant databases, websites to identify non peer reviewed reports and ‘grey’ literature. The aim was to examine the epidemiology of HIV and adolscents sexual behaviour, explain key concepts and theories of this subject area, and identify and describe the body of evidence previously published. Specifically, the review sought to identify gaps to be addressed in the primary PhD study.

The findings are presented in key sections: section Section 2.1.2, presents a discussion of the global, national and local perspectives regarding the form and distribution of HIV infection and the myths around its epidemiology. Section 2.4 provides a discussion on the dynamic of sexual transmission of infection, particularly as it relates to HIV/AIDS and other sexual and reproductive health. Section 2.5 discusses the social and structural factors that highlight the role of social networking, social capital, poverty, stigma and discrimination, violent conflict and displacement, and the impact of rules guiding relationships in exacerbating exposure to the risk of HIV infection. Section 2.6 focuses on theoretical frameworks on the disease, and information diffusion, and the debates on its social epidemiology. The chapter ends with summarising the key accounts and noting the gaps this research sets out to address.

2.1.2 The Literature Review Process

The literature review was guided by a strategy developed in consultation with study supervisors and university information specialist. The strategy also clearly defines the literature inclusion inclusion and exclusion criteria.

2.1.2.1 Search strategy

The search for literature involves a rational exercise to look for published sources of information to identify in electronic and grey literature sources (Adams, et al., 2014; Levy and Ellis, 2006).. The search considers a wide range of data bases including MEDLINE, EMBASE, Web of Science, CIHNAL available in the university of Sheffield electronic library, and Google Scholar (Table 2.1). . Grey literature were searched in relevant websites including the ministries of health, WHO, UNAIDS and UNICEF Websites. Wildcat and the truncated searches of sensitive words were undertaken to isolate British spellings; these searches were necessary due to the range of databases consulted and different uses of the English Language in publishing. s. The search terms used to search the literature were combined in Boolean combination as follows (example):

- “HIV prevalence” OR “HIV incidence” OR “HIV transmission” OR HIV decline AND (History of HIV OR AIDS AND Global AND Sub-Saharan Africa AND Africa) Limits: Humans, English, Date of Publication 1990 -2000, 2001-2010, and 2011-2020)

Table 2.1: Literature Search Strategy - Key concepts, search terms and databases

Focus Concept	Data Bases	Terms used for Search
HIV/AIDS	i. Google and Google scholar,	HIV, AIDS, HIV/AIDS myths, HIV/AIDS conspiracy theory, HIV/AIDS distribution, Types of HIV, HIV transmission, HIV acquisition, Sexual transmitted infections, Sexual transmitted diseases, HIV decline
Sexual behaviour	ii. International Bibliography of social sciences, iii. MEDLINE iv. Academic science Complete, v. Mendeley literature search,	Sexual behaviour, sexual activity, sexual practices, sexuality, sexual risk behaviour, HIV risk sexual behaviour, high-risky sexual behaviour, HIV risky behaviour, low risk sexual behaviour, risky sexual behaviour, unsafe sexual behaviour, safe sexual behaviour, sexual debut, Heterosexual behaviour, extramarital sex, premarital sex, Non-marital sexual practice, sexual transmission of HIV, Casual sex, sexual fidelity, marital sexual practice, sexual behaviour and condom use, unprotected sex, Dynamic of sexual transmission of STI/HIV, Factors of sexual behaviour
Social capital	vi. PsychINFO vii. African Journals online (AJOL) viii. StarPlus, Unvisited of Sheffield Library discovery,	social interactions, social relationships, social network, social support, social cohesion, Social trust, social participation, Bonding, bridging, bonding, horizontal relationship, vertical relationship, social capital, Social capital and health, social isolation, social exclusion, social distance, dark side of social capital
Social epidemiology	ix. EMBASE x. White Rose	Social epidemiology, social determinant of health, social factors of Health, Social factors of HIV, Social factors of HIV risk, violence, and health and diseases, Conflict and HIV/AIDS, War and HIV/AIDS, structure and agency, health barriers, institutional obstacles to health/HIV, gender and health/HIV, gender inequality
Disease diffusion	xi. Social Capital and Training Online website	Spread of disease, Disease diffusion, Innovation diffusion, Information diffusion, HIV diffusion.
Stigma and discrimination		Stigma, Discrimination, HIV/AIDS stigma, Discrimination of people with HIV/AIDS, criminalisation of sexuality, Laws and homosexuality Social Isolation and Exclusion

- (“sexual behaviour” OR “sexual practice” or sexual behaviours indicators” OR “Heterosexual behaviour”) AND (HIV risky behaviour) AND (Subsaharan Africa AND African countries) Limits: Humans, English, Date of Publication from 1990 -2000, 2001-2010, and 2011-2020
- (“social capital” OR “social relationship” or “Social support” OR “social network” OR “social groups”) AND (HIV OR AID [Mesh] AND sexual behaviour AND healthy behaviour) Limits: Humans, English, Date of Publication from 2000-2010 and 2011-2020

2.1.2.2 Literature selection criteria

As early mention, the literature review process was an exploration to gain a broad understanding of the sexual behaviour and social epidemiology of HIV in Nigeria, with a particular interest in Plateau and Nasarawa States. To select the papers that were relevant to review, the author read the titles and abstracts to ascertain their relevance, followed by the full texts of potentially qualify papers, and using the inclusion and exclusion to select the most relevant.

2.1.2.3 Data extraction/evidence synthesis

Data extraction involved reviewing full texts articles and pulling out relevant information such as authors details, year of publication, study design, study settings, methods use to recruit participants, collect and analyse data, and key findings (for primary studies. For theoretical papers, the aim of the report, author, year of publication and key findings were extracted.. The information extracted were synthesis and and reported narratively. Interpretation of the findngs helped in addressing this review and identifying research gaps.

2.2 LITERATURE FINDING

Peer review and non-peer reviewed quantitative, qualitative, mixed methods findings included in the reviewed. The findings from the literature were are presented thematically as follow:

2.2.1 HIV and AIDS

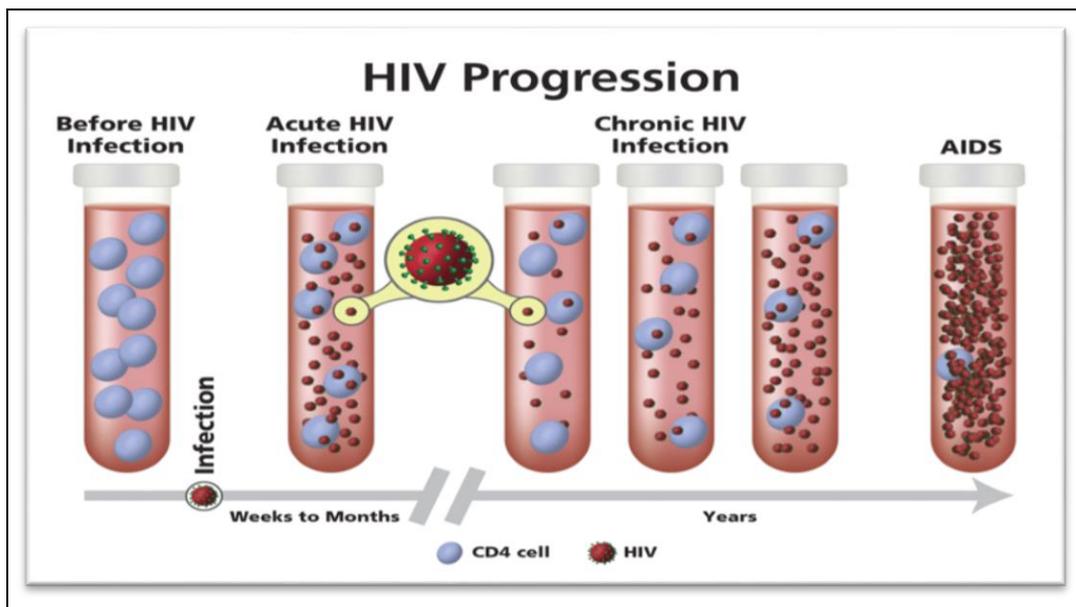
Human Immunodeficiency Virus, popularly called HIV, is a virus that spreads through body fluids to attack the immune system. Humans have a system of cells (T4 cells) that helps to fight any infection entering the body. Sompayrac (2019, pp. 1, 13) states that the immune system is a “hard wired” body defence mechanism, and a “team effort” that involves different players working to ensure a defence against invaders. Figure 2.1 illustrates how these cells are intact before HIV infection. However, when HIV enters the body, the virus rapidly multiplies and eventually attacks and incapacitates many of the cells. The white blood cells are weakened and no longer repel disease with vigour (Brenchley et al., 2006). The harm to the immune system gives an opportunity for infections to dominate the body (greenish and brown dots on Figure 2.1). These are called opportunistic infections and include tuberculosis and Kaposi’s sarcoma cancer. When the human body becomes infected and these infections are not treated, Acquired Immunodeficiency Syndrome (AIDS) takes hold. The AIDS stage of the HIV infection has been the cause of many deaths and untold hardship globally (UNAIDS, 2014a). When a person is infected with HIV and treatment is not received, it classically progresses through the ‘three As’ phases of infection, these being the acute infection phase, the asymptomatic phase, and the AIDS phase.

i. The acute HIV infection phase: is the primary stage of HIV infection that occurs between two to four weeks after HIV is contracted, when the virus comes to live in the human body. It is a window period, occurring between the onset of the infection and the appearance of detectable antibodies to the virus. The transmission rate of the virus is higher at this phase. The virus replicates and copies itself repeatedly, resulting in a concentration of HIV in the blood (Shaw and Hunter, 2012). The concern here is that people at this stage of infection may not feel sick at all and are often unaware that they are infected. Even when a test is carried out using the ELISA rapid test or Western Blot, it may give a false negative result. It requires a fourth-generation antibody/antigen or a nucleic acid (NAT) test to reveal the virus (CDC, 2016). The risk of transmitting HIV to other people is very high at this stage, particularly through unprotected sex, the sharing of infected needles, or blood transfusions (Patel et al., 2014). The virus thrives and spreads faster when an infected person has fluid contact with an uninfected

person, who also transmits, and the spread continues, depending on the size and extent of the network (Rothenberg, 2009). Settings with generalised HIV epidemics, when people are unaware of their status, are more likely to be at risk of HIV transmission (Kucirka et al., 2011). Safer behaviour, such as the use of condoms, the screening of blood before transfusion, and the avoidance of any form of fluid contact, is particularly important at this time (Lieshout-Krikke, et al., 2015; Weller and Davis-Beaty, 2002).

ii. The asymptomatic phase: is the period of clinical latency during which HIV is inactive or dormant. The virus continues to replicate itself in the body of an infected person at a low level (Hollingsworth et al., 2008). At this stage of HIV, infected people live without symptoms but can transmit the virus. Eventually, the viral load begins to increase and the ‘CD4 cell count’³ decreases. As this occurs, the symptoms of different diseases begin to manifest, which leads to the AIDS stage of the infection (Deeks et al., 2015).

Figure 2.1: The immune system and HIV infection progression



Source: UNAIDS (2020)

iii. The Acquired Immunodeficiency Syndrome (AIDS): phase of the virus progression is the most severe for the human body system (Coffin, 1986). The immune system during this phase is severely damaged and is too weak to fight illnesses, referred to as opportunistic infections. Opportunistic infections have symptoms that include salmonella, tuberculous (TB), and toxoplasmosis, among others, that affects the CD4 count, which drastically drops at this

³ This is a measure of the capacity of the white blood cells to fight infections

time (CDC, 2014; Coffin, 1986). If treatment is accessed, people in this phase of HIV infection can survive for years (Simon et al., 2006).

2.2.2 Myths around HIV/AIDS

The literature has established that myths surrounding HIV/AIDS are significant barriers to curbing the spread of the pandemic (Tenkorang, 2013; Irwin et al., 2003; Caldwell, 1999). Studies have found that people speculate that HIV can be transmitted from a mosquito bite and by touching an infected person (Bernardi, 2002). Some people believe that AIDS can be cured when an infected person has sex with a virgin (Smith, 2003). A common belief circulating among religious groups is that HIV/AIDS is an expression of God's wrath against sexual promiscuity (Olaore and Olaore, 2014). For example, Tenkorang et al. (2011) reported that 29% of men and 31% of women of reproductive age believed that HIV and AIDS are transmitted through witchcraft and superstitious practice.

AIDS conspiracy theorists have claimed that the HIV virus is the consequence of a plot by the governments of powerful nations, and executed by leading international organisations to limit certain populations (Kalambuka, 2009; Hook, 1999; Geortzel, 1994; Cantwell, 1993). This claim is linked to a belief that the AIDS virus is a biologically generated germ for genocide (Klonoff and Landrine, 1999). It is speculated that certain people were used as guinea pigs for AIDS virus experiments (Herek and Capitanio, 1994) and, in some cases, were infected through vaccinations for hepatitis B and polio (Strecker, 2015; Thorburn and Bogart, 2003; Hook, 1999). Some proponents of the theory believe that the HIV virus was intended to 'wipe-out' Africans, Haitians and black homosexuals.

A growing body of literature examining AIDS conspiracy beliefs has uncovered significant distrust of the government and public health authorities in America among African-Americans in particular (Gillman et al., 2018; Mattocks et al., 2017; Bogart et al., 2010; Thrasher et al., 2008; Armstrong et al., 2007; Ross et al., 2006; Klonoff and Landrine, 1999; Quinn, 1997; Guina, 1993). Multiple studies have documented that myths and beliefs rooted in religious and traditional belief systems affect people's judgements about HIV/AIDS, causing the fatalistic belief that HIV/AIDS cannot be prevented or treated, and thereby reducing the positive impact of HIV/AIDS prevention services (Bogart and Thorburn, 2005; Caldwell, 1999; Quinn, 1997; Guina, 1993) and antiretroviral treatments (Jolley and Douglas, 2014; Bogart et al., 2010; Ross et al., 2006).

The then President of South Africa, Thabo Mbeki, for instance, attacked HIV science. In collaboration with health officials, he believed that HIV was invented, which led to the suspension of HIV prevention activities. HIV services, including ART and PMTCT, were stopped (Chigwedere, Gruskin and Essex, 2008; Cohen, 2000). ART drugs were replaced with nutrition, music, yoga and massage therapies (Nattrass, 2012). Access to Global Fund grants for AIDS treatments were thwarted (Chigwedere and Essex, 2010; Horton, 2000). It took a legislative battle to restore the HIV services that lessened the burden of HIV in the country. The delay in the implementation of HIV services and antiretroviral drugs caused the death of a quarter of a million people and about four hundred thousand babies were infected with HIV in South Africa (Kalichman, 2009; Nattrass, 2008). The effect of the conspiracy belief had a devastating public health impact on South Africa, contributing to the country developing one of the highest rates of HIV/AIDS in the world (UNAIDS, 2019). It is now well established from many studies that belief in AIDS conspiracy theories results in a low level of knowledge of HIV (Hogg et al., 2017), negative attitudes towards the use of condoms, and inconsistent condom use (Ross et al., 2006; Bogarts and Thorburn, 2005). Such beliefs also result in a failure to use HIV testing services (Ford et al., 2012), as well as negative attitudes towards, and non-adherence to, antiretroviral treatments (Mattocks et al., 2017; Gillman, 2013; Bongart et al., 2010).

When AIDS was first reported in Nigeria, fear, doubt and disbelief were expressed and it was referred to as the American homosexuals' disease (Balogun, 2012, 201.). Beliefs of this kind are widespread and rooted in many religious and ethnic settings. As a multi-diverse socio-cultural society, the beliefs about the origins of HIV are expressed differently in families, clans and communities. Some actions and slogans that express prevalent beliefs about AIDs include: *"American Idea to Discourage Sex – AIDS"*, *"Oyibo's kasala"* (the whites' disease), *"disease no do kill Africans"* (Africans cannot die of disease), and *"I have African blood"* (Oluduro, 1985; Tayo, 2017). Fela Anikulapo Kuti, a famous musician and activist in Nigeria, initially vehemently denied the existence of HIV/AIDS, later coming to believe that it was a white man's disease that could not affect the black man. His death, reported to be AIDS-related, marked a turning point for HIV awareness (Tayo, 2017; SEAL67, 2006).

The religious response to HIV in Nigeria was initially negative, but turned positive when the reality of its burden was accepted (Green, 2015). It was initially believed to be a curse, God's punishment for immorality, which heightened fear, suspicion, stigma and discrimination. The emphasis placed on faith healing discouraged access to HIV prevention and treatment services

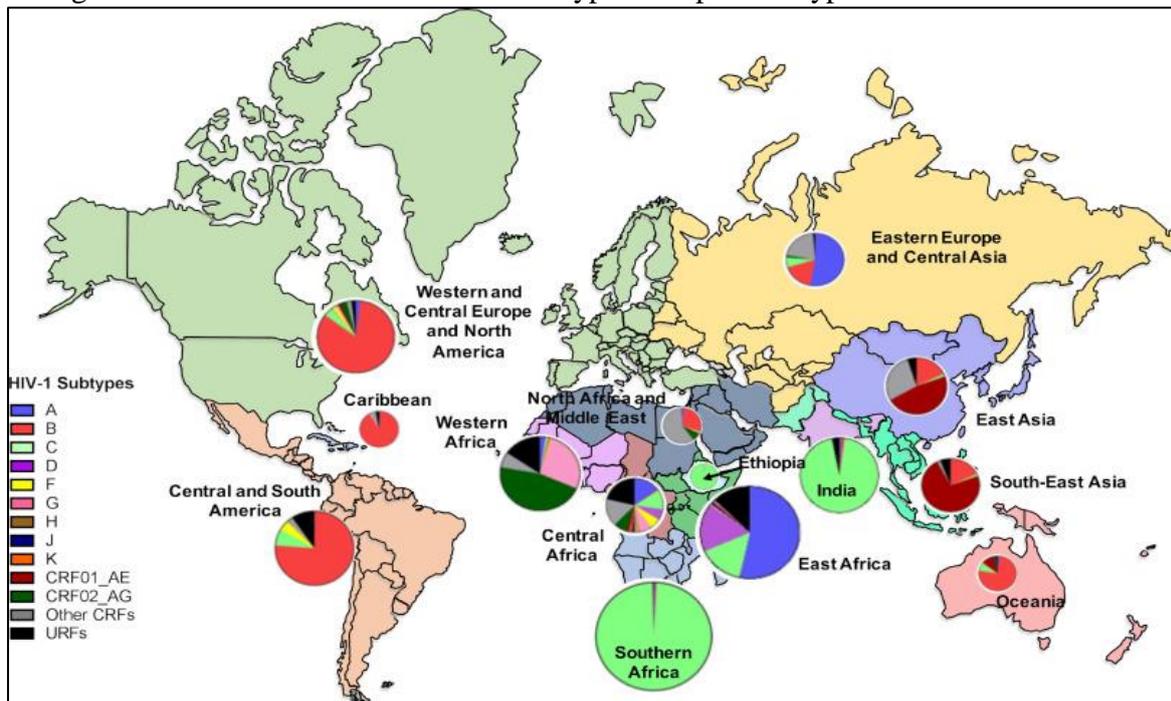
(Aguwa, 2010a and 2010b). In recent times, religious organisations have shaped the lives of Nigeria's citizens providing medical facilities, treatment and testing services (Green, 2015; Mash and Mash, 2013). Similar conspiracy beliefs were present among many ethnic groups in Nigeria in relation to the polio vaccine for children aged five years and under; indeed, radical Islamists opposed the vaccine, claiming it had been contaminated in order to stop reproduction among vaccinated children when they grew up. This belief became widespread and hindered the eradication of polio (Kennedy, 2016; Ghinai et al., 2013; Jegede, 2007). The conspiracy ideology and its diverse characteristics lie at the root of stigma and discrimination around HIV/AIDS. It is responsible for the social exclusion and isolation of certain people from families and the communities because of their sexuality and lifestyle. This study will examine how conspiracy thinking has contributed to the risk of HIV infection.

2.2.3 Forms Of HIV AND AIDS

Human Immunodeficiency Virus was found to be the causative agent of AIDS in 1983 after its isolation in 1981 (Barre-Sinoussi et al., 1983). The breakthrough was motivated by a deep concern to understand the virus after it was established as a pandemic (Galo et al., 1984). Further studies have examined HIV from the evolutionary perspective to understand its global viral diversity and immune response (Hemelaar, 2012). Biomedical research identified two HIV families as Type 1 (HIV-1) and Type 2 (HIV-2). Type 1 has groups M, N, O and P and Type 2 is grouped from A to H (Vallari, et al., 2011; Roques et al., 2004, 2002; Simon et al., 1998; Bachmann et al., 1994).

Types 1 and 2 have similar methods of transmission but differ in terms of origin, rate of transmission, disease progression, and geographical distribution (Sharp and Hahn, 2011; Lemey, et al., 2003; Najera et al., 1988). Type 1 is the commonest type worldwide, accounting for the majority of HIV infections, while type 2 is largely restricted to West Africa (D'arca et al., 2015; Kluge et al., 2014; Peeters et al., 1997). Within Nigeria, Type 2 exhibits a longer inactivity period at infection, slower progression towards disease, lower viral burden, and lower transmissibility than Type 1 (Balogu, 2010; Clement et al., 2005; Peeters et al., 1997).

Figure 2.2: Global Distribution of HIV Typ1 Group M subtypes



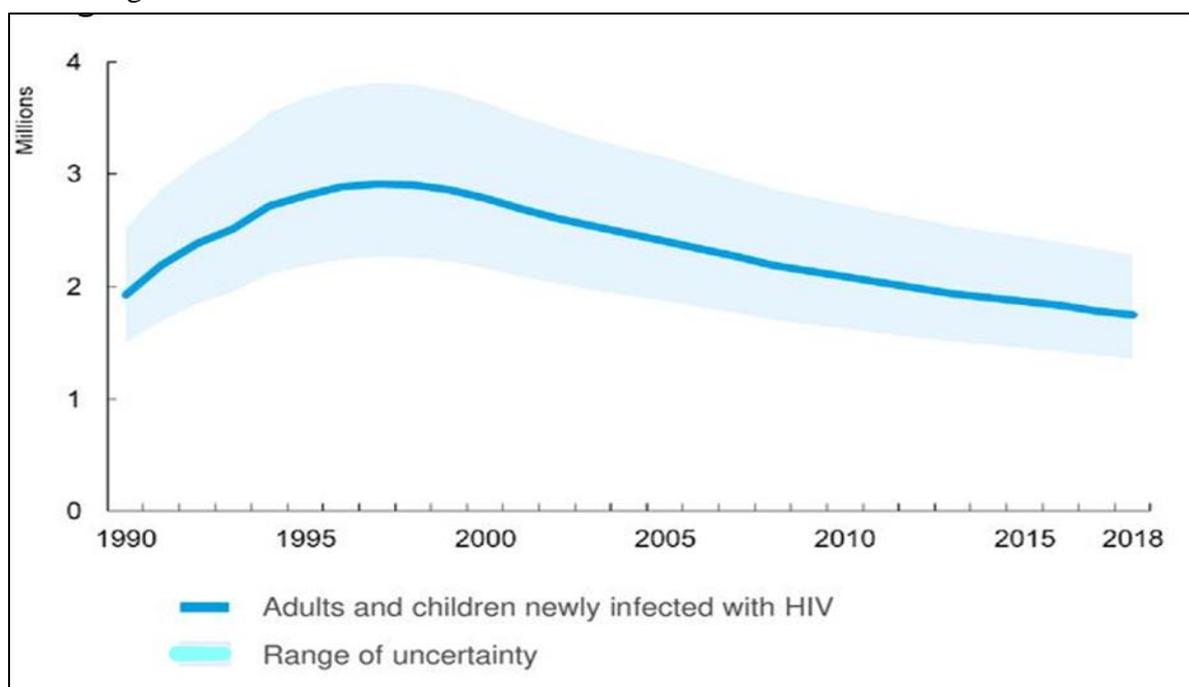
Source: UNAIDS (2019); Hemelaar et al. (2019, p. 150)

HIV Type 1 has two major genotypic subgroups, known as M and O. The M group is the most common type and has caused more than 90% of HIV infections globally, particularly in sub-Saharan African countries. It has subtypes from A to I, and more than 50 circulating recombinant forms (CRFs) are known today. As the virus continues to spread and mutate, new subtypes and CRFs appear (see Figure 2.2). These subtypes are generally confined to specific geographical regions, some of which have been identified in Nigeria (Kluge et al., 2014; Abecasis et al., 2007; Peeters, 2000; Ani and Agwale, 1998; Peters et al., 1997). The Type 1 virus found in Nigeria can kill cells and is capable of hiding, remaining inactive within the human body only to emerge later in a flare of deadly infection. As a result, the vast majority of infected people do not know they are infected unless they undergo serologic testing. Since they can transmit the virus to others, the disease spreads and replicates fast (Mboup et al., 2006; Peeters et al., 2000; Schmeck-Jr, 1987; Barnes, 1986). HIV/AIDS is the sixth largest cause of death globally and the leading cause of death in sub-Saharan Africa (Danforth et al., 2017). In Plateau State, studies have identified unique recombinant forms of the virus people with HIV who otherwise would be missed through conventional HIV testing (Nazziwa et al., 2018; Charurat et al., 2012). These numerous forms of the HIV virus pose great challenges for early detection at the acute stage of infection, and require specific drugs for treatment. This is likely to have been responsible for the challenges that caused delay in the discovery of a cure.

2.2.4 Global HIV/AIDS Epidemiology

Human society has witnessed and contended with different kinds of disease epidemics in different parts of the world over time. These epidemics have had great impacts on populations, urbanization, industry and on socio-economic, cultural and political spheres (Acemoglu et al., 2003; WHO, 2001). Almost four decades later, 75.7 million people have become infected and 3.27 million people have died from AIDS-related illnesses, as the fight against HIV and AIDS continues (UNAID, 2020). The virus that kills cells is also capable of hiding inactive within the human body to emerge later in a flare of deadly infection. Available data shows clear variation in the distribution of HIV and AIDS, highlighting hot-spot locations and populations most at-risk (Piot et al., 2015). New HIV infections peaked at 2.8 million in 1998, and slowly declined to 1.7 million in 2019 (see Figure 2.3 and Table 2.2).

Figure 2.3: Global New HIV Infection trend between 1990 and 2018



Source: UNAIDS, 2019

As global HIV declined, new infections decreased by 41% from 2010 (UNAIDS, 2021, 2019). Recent statistics reveal a decline of 28% in infections in Eastern and Southern Africa, a decline of 16% in the Caribbean, and a decline of 13% in Western and Central Africa. There have been significant declines in 12 countries, including South Africa (36%), Congo (37%), Uganda (36%) and Zambia (9%). Despite the global decline in HIV infections, there has been an increase in infection outside sub-Saharan Africa. Sub-Saharan Africa initially contributed a higher rate of infection to the global trend (UNAIDS, 2019a); however, regions that hitherto had a low prevalence are now experiencing increased infection. The principal areas currently

experiencing such increases are Eastern Europe and Asia (29%), and Middle and North Africa (10%). At the country level, Pakistan had a 56% increase among adults followed by Nigeria (8%).

Table 2.2: Global Estimates of HIV/AIDS and Resource Distributions (in million)

HIV Epidemiology Periods	People living with HIV	New HIV Infections (total)	AIDS-related deaths	People accessing antiretroviral therapy	Resources Invested in low- and middle-income countries (US\$)
2000	24.0 [20.0 – 28.2]	2.7 [2.0 – 3.7]	1.4 [1.0 – 2.0]	0.6 [0.6 – 0.6]	4.8 billion
2005	27.3 [22.8 – 32.1]	2.4 [1.8 – 3.2]	1.7 [1.2 – 2.4]	2.0 [2.0 – 2.0]	9.4 billion
2010	30.7 [25.6 – 36.1]	2.1 [1.6 – 2.9]	1.1 [0.8– 1.6]	7.8 [6.9 – 7.9]	15.0 billion
2015	34.9 [29.1 – 40.9]	1.9 [1.4 – 2.5]	0.8 [0.6 – 1.2]	17.2 [14.7-17.4]	18.0 billion
2016	35.7 [29.8 – 41.9]	1.8 [1.3 – 2.4]	0.8 [0.6 – 1.1]	19.3 [16.6-19.5]	18.4 billion
2017	36.5 [30.4– 42.8]	1.8 [1.3 – 2.4]	0.8 [0.6 – 1.1]	21.5 [19.5-21.7]	19.9 billion
2018	37.3 [31.0 – 43.6]	1.7 [1.2 – 2.3]	0.7 [0.5 – 1.0]	23.1 [21.8-23.4]	19.0 billion
2019	38.0 [31.6– 44.5]	1.7 [1.2 – 2.2]	0.7 [0.5 – 1.0]	25.4 [24.5-25.6]	18.6 billion
2020 (June)	-	-	-	26.0 [25.1-26.2]	

Source, UNAIDS, 2021

Recently, UNAIDS (2019b) prioritised plans to achieve zero HIV/AIDS, which focused on 28 countries that had 75% of all new infections globally in 2018. Current prevention strategies have focused on these countries with a high concentration of HIV, including Nigeria, and the hope is that the spread of infection can be halted by the end of 2020 and completely eradicated by 2030. Accomplishing this task means winning the war against HIV/AIDS globally. Little is known about the rising and falling dynamics of epidemics within and between countries globally. Close examination is required to understand the critical driving factors enabling some current high infections in places that, in the past, were not high despite the global decline.

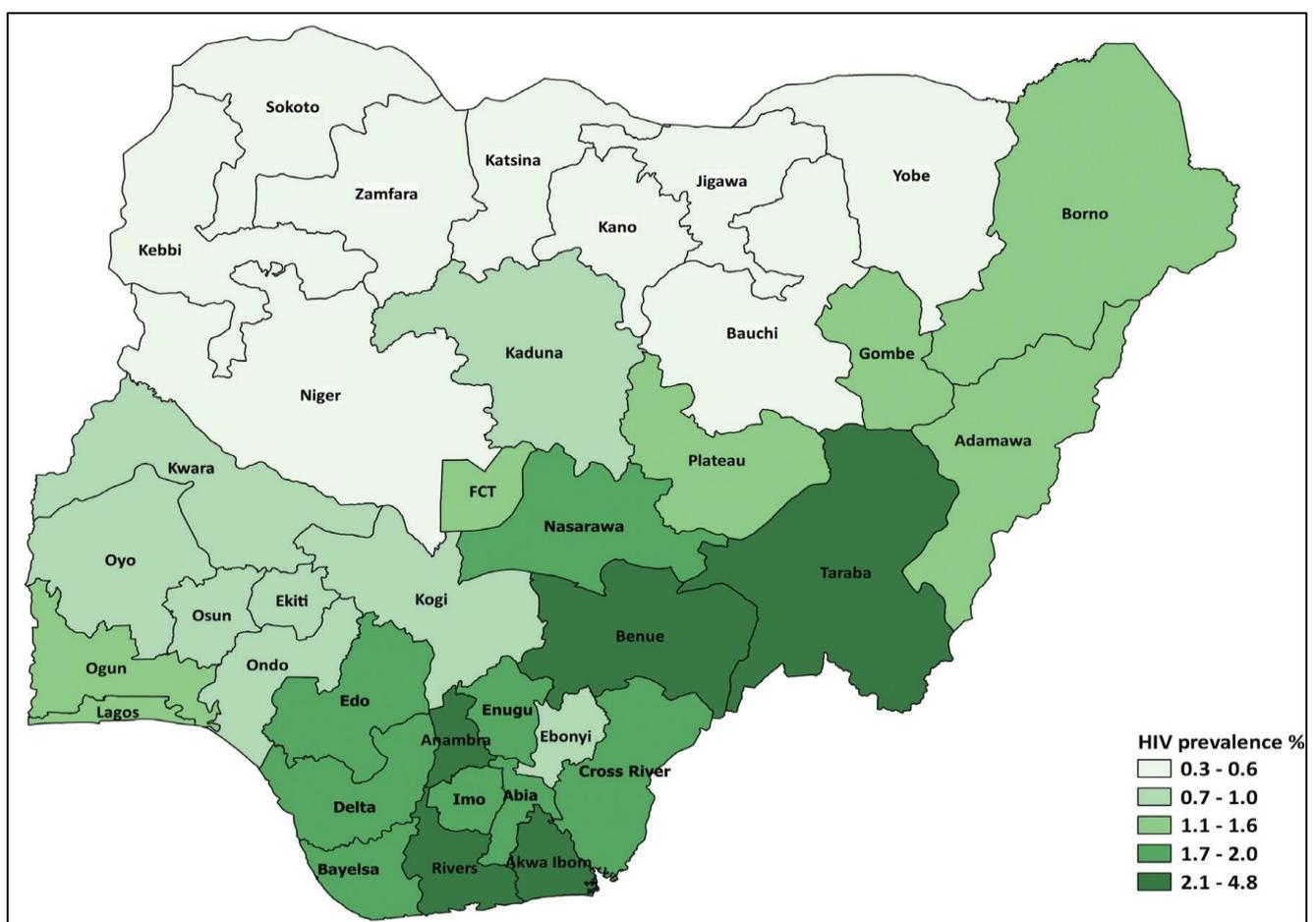
2.2.4.1 HIV/AIDS Epidemic in Nigeria

HIV prevalence among adults is remarkably small (1.5%) in Nigeria compared with countries such as Zimbabwe (12.7%, 1.3 million) and Zambia (11.3%, 1.2 million). The large size of Nigeria’s population means that 1.9 million people are now living with HIV in 2018, which is the second highest number globally after South Africa (20.4 %, 7.7 million) (UNAIDS, 2019a). The HIV/AIDS epidemic in Nigeria showed complex patterns of spread in the country in the 1990s, after the first two cases were identified in 1985. The fight against the disease commenced with HIV sentinel surveillance, conducted in 1991/1992, 1993/1994, 1995/1996, 1999, 2001, 2003, 2005, 2008, 2010 and 2012 (NACA, 2010, 2014). The results of the sentinel

survey revealed a progressive increase among adults from 1.8% in 1991, through 4.5% in 1995, to a peak at 5.8% in 2001. Subsequently, the trend reversed, with its prevalence falling to 5.0% in 2003 and to 4.4% in 2005. Its prevalence rose again to 4.6% in 2008, before falling to 3.0% in 2015 and declined further to 1.5% in 2019 (FMoH, 2010; NACA, 2016, 2019).

In 2018, the regional distribution of HIV within the country was as follows: South-South 3.1%, South East 1.9%, South West 0.6%, North Central 2.1%, North West 1.2%, and North East 1.1%. Across the States, Akwa Ibom had the highest prevalence (5.6%), followed by Benue (4.9%), Rivers (3.8%) and then Taraba (2.7%) (NACA, 2019).

Figure 2.4: HIV Distribution in Nigeria, 2018



Source: FMoH (2019, p.57)

The infection rate among adult women is currently 1.9% and among men, it is 1.1%. Unprotected heterosexual sex accounts for about 80% of new HIV infections in Nigeria (FMoH, 2015); furthermore, 67% of the adult population knew their status, while those in treatment represented 53%, and 80% had viral suppression by 2018 (NACA, 2019; UNAIDS, 2019a).

In the past, the control of HIV/AIDS in Nigeria was left to the health sector (Balogu, 2010) and depended greatly on external donors for funds (Morolake, 2009). More recently, the government has acted in collaboration with donor agencies, like the AIDS Prevention Initiative in Nigeria (APIN) and the President's Emergency Plan for AIDS Relief (PEPFAR), to provide free ARV drugs to AIDS patients (NACA, 2016). Their efforts have improved the uptake of HIV testing and counselling, and scaled-up access to antiretroviral treatments among pregnant women and people living with AIDS. In addition, Family Life and HIV/AIDS Education (FLHE) was introduced to the school curriculum, with instructions that include a comprehensive list of topics related to HIV, AIDS and family life targeted at young people (Abah, 2013; Nigerian Educational Research and Development Council, 2003). Policies on HIV/AIDS response, the Presidential Comprehensive Response, the National Health Policy, and HIV/AIDS strategic prevention plans were initiated to enhance the HIV/AIDS intervention program. An anti-stigma and anti-discrimination bill was also signed to law in 2014 to secure the rights of people living with HIV (NACA, 2014, 010; UNAIDS, 2014d; FMoH, 2010, 2009). The implementation of these policies may have contributed to the significant success reflected in reduced HIV infection rates at the national level, across regions and states.

Obstacles in the fight against HIV/AIDS in Nigeria are associated with difficulties in the harmonization of multiple agencies, multiple programmes and the different planning funding cycles involved in AIDS control in the country (NACA, 2007, 2010). National laws prohibiting the activities of men who have sex with men (MSM) and commercial sex workers (CSW) threaten HIV prevention (UNAIDS-Lancet Commission, 2015; UNAIDS, 2014d; de-Boni et al., 2014). Criminalisation, stigmatisation, and discrimination emanating from society often discourage people from undergoing a test, disclosing their status or accessing treatment (NACA, 2014 and 2010). This study seeks to gain insight into how the activities of the government and society influence the risk of HIV infection.

2.2.4.2 HIV epidemiology in Plateau State

In 1989, Jos University Teaching Hospital (JUTH) first reported the HIV rate among pregnant women in Plateau State at 0.03%. In 1990, the first case of AIDS was diagnosed in a Malian international businessman who was attracted to the State by investment opportunities (PLACA, 2007). Plateau State Specialist Hospital, supported by the International Centre for Laboratory Culture (World, Lausanne in Switzerland), reported on a survey of blood donors and found that 1.7% had the HIV virus; moreover, following the blood screening, in 1994 it found that 5.4% among 2040 individuals had the virus. Subsequently, a study at Jos University Teaching

Hospital reported a sero-positive rate of 3.3% in 1997 decreasing to 3.0% in 1998 (Jinun and Gotodok, 2007). The National HIV/AIDS sentinel surveillance carried out in 1991 reported a prevalence rate of 6.2% for Plateau State, rising to 8.2% in 1993, and peaking at 11.0% in 1996, which was the highest rate in Nigeria. In 1999, the prevalence of HIV in the State decreased to 6.1%. It rose to 8.5% in 2001 but reduced to 6.2% in 2003. The prevalence declined to 4.9% in 2005, and 4.4% in 2008, although rose to 7.7% in 2010 (FMOH, 2009, 2010, 2012). A significant decline to 2.4% was reported in 2012 (NACA, 2014; FMOH, 2013, 2010, 2008; PLACA, 2009; PLACA, 2007). The recent regional and national decline in HIV has been reflected in Plateau State at a rate of 1.5% in 2019 (NACA, 2019). This substantial decline requires further examination on the rise or high rates in neighbouring states.

2.2.4.3 HIV epidemiology in Nasarawa State

Nasarawa State was part of Plateau State until October 1996 when it became an independent State. In 1999, HIV prevalence in Nasarawa State was 10.7%, which declined to 8.1% in 2001 and 6.5% in 2003. In 2005, the National Sero-prevalence Sentinel Survey reported a rise to 6.7%, whilst in 2008, the infection rate peaked at 10.0%. It fell to 7.5% in 2010, then rose to 8.1% in 2012, after which it began to decline. Information shows that, in 2014, Nasarawa State had a prevalence rate of 6.4%, which declined to 1.9% in 2018. The rise in HIV in Nasarawa State was above the national average. The State is a hot spot for HIV transmission. In 2010 and 2014, the state was included in the HIV Integrated Biological and Behavioural Surveillance Survey (IBBSS).

A close look at the prevalence of HIV suggests that HIV/AIDS peaked in Plateau State, and then diffused to neighbouring states including Nasarawa (Obidoa and Cromley, 2012; Djukpen, 2012; Adeyi, 2006). HIV prevalence subsequently fell in Plateau State. Djukpen (2012) and Obidoa and Cromley (2012) connected its high prevalence in Nasarawa State with the spatial pattern that influenced the spread along transportation routes. Explanation for the decline and low prevalence of HIV in Plateau State and the initial rise and the high prevalence (above the national average) in Nasarawa State is unknown. The gap in knowledge concerning the dynamics that underpin the lower HIV/AIDS rate in Plateau State and high prevalence in neighbouring Nasarawa State indicates a clear need for research. The present study was conceived based on this gap: It will examine the factors responsible for the decline in HIV in Plateau State, which was not mirrored in Nasarawa State.

2.3 DYNAMICS OF SEXUAL TRANSMISSION OF HIV

Sexual health does not only denote the absence of disease, but also involves safety in sexual experiences and respect for rights, including the right not to consent to sex (WHO, 2006). Sexual health is best understood by examining sexual behaviour, but sex is a private activity despite being central to social relations (Mercer, 2010; Field et al., 2013). The concealment of sex, which is taboo in some social contexts, makes it difficult to arrive at a definition (Sewell et al., 2017). Nevertheless, sex is typically understood to involve the stimulation of sensitive body parts or vaginal or anal penetration between two or more persons to derive satisfaction (Trotter and Alderson, 2017; Schick et al., 2016; Horowitz and Spice, 2013; Peterson and Muechlenhard, 2007; Randel and Byers, 2003). Sexual activity occurs with the same or mixed sexes, which stresses the significance of STI including the risk of HIV (Schick et al., 2016; Pathela et al., 2006; Young and Meyer, 2005). While individuals and cultures vary in their attitudes regarding sexual behaviour, this research adopts the prevalent views reported by Sewel (2015), Sanders and Reinisch (1999) and Sanders (2010) that highlights penile–vaginal intercourse, namely the insertion of the penis into the vagina. This form of sexual intercourse is referred to in literature as a heterosexual relationship. It involves vaginal sexual intercourse between a man and a woman (FMoH, 2014).

The behaviour associated with sex activities to satisfy the sensual desires is examined in the context of sexual practices, relationships, reproductive health, sexually transmitted infections (STIs), and contraception (Chawla and Sarkar, 2019). Such behavioural activity can be safe or unsafe; safe practices reduce the risk of STIs, including HIV and reproductive health challenges. In contrast, unsafe or risky sexual behaviour denotes activities that expose a person to acquiring or transmitting sexually transmitted infections, including HIV. Such exposure to infections often occurs, typically incurring heightened HIV risk, if sexual behaviour does not include protective measure (Kumari et al., 2012; Boily et al., 2009). Moreover, the context of behaviour informs the levels of risk. Generally, risk behaviours are well known; however, the specific categories of acts responsible for the acquisition or transmission of HIV within an epidemiological setting have not been sufficiently researched or discussed due to their complex and sensitive nature. Nevertheless, much needs to be understood about the prevalence and spread of these specific behaviours within certain epidemiological settings in order to develop effective prevention strategies.

The acquisition or transmission of HIV is highly dependent on specific types of sexual practice and the type of partners with whom a person engages. In a heterosexual relationship, anal, penile-vaginal or oral-genital intercourse carries a high risk of HIV (Kalam, 2010; Randal and Byers, 2003). In low-income countries, heterosexual activities contribute more than 90% of the risk of HIV transmission. Boily et al. (2009) reported that vaginal intercourse with an HIV positive partner causes a 0.30% (1 in 333) risk of transmission to females, and a 0.38% (1 in 263) risk of transmission to males, regardless of whether ejaculation occurs (Jin et al., 2010). The risk arises because the acute phase of HIV infection is the period of time immediately after HIV has been contracted when the virus replicates itself rapidly and copies itself repeatedly, resulting in a significant amount of HIV in the blood (Patel et al., 2014; Hollingsworth, 2008; Brenner et al., 2007; Pilcher et al., 2004). The presence of other sexually transmitted infections (STIs) in a person increases the risk of HIV transmission by eight times (Marrazzo, et al., 2018). Furthermore, the dynamics underlying geographic diffusion and the mix of population between high and low concentration areas of the virus facilitate the acquisition and transmission of new infection and its prevalence (Weir et al., 2003; Gorbach et al., 2000). Studies reveal that adherence to treatment among people infected with HIV reduces transmission between 96% and 100% (Marrazzo et al., 2018). The consistent use of pre-exposure prophylaxis by HIV-uninfected (at risk) persons can decrease the risk of infection by 92% (Marrazzo et al., 2018; CDC, 2014).

Table 2.3 UNAIDS Indicators of Sexual Behaviour

Indicator	Name	Denominator	Numerator
All adults			
UN1	Higher risk sex in the last year	All who had sex in the last year	People who had sex with a non-cohabiting partner in the last year
UN2	Condom use at last higher risk sex	All who had sex with non-cohabiting partner in the last year	People who used a condom at most recent sex with non-cohabiting partner
UN3	Commercial sex in the last year	All men	Men who had sex with CSW in the last year
High risk group			
UN4	Condom use at most recent commercial sex (client report)	Men who report commercial sex in the last year	Men who used a condom on the most recent occasion they had commercial sex
UN5	Condom use at most recent commercial sex	Sex workers who have had sex with a client in the last year	Sex workers who used a condom when they had sex with their most recent client
UN6	Higher risk male-male sex in the last year	All men in a special survey of men who have sex with men	Men who had anal sex with at least one man in the last 6 months
UN7	Condom use at most recent anal sex between men	Men who have had anal sex with a man in the last 6 months	Men who used a condom on the most recent occasion they had anal sex with a man
Those aged 15-24			
UNy1	Median age at first sex among young men and women	The age by which 50% of young people aged 15-24 say they have already had sex	
UNy2	Young people having premarital sex in last year	All young people who have never had a cohabiting partner	Young people who have never had a cohabiting partner and who had sex in the last year
UNy3	Young people using a condom during premarital sex	All young sexually active people who have never had a cohabiting partner	Young people who used a condom on the most recent occasion they had sex
UNy4	Young people having multiple partners in the last year	All young people	Young people who report more than one partner in the last year
UNy5	Young people using a condom at last higher risk sex	All young people	Young people who used a condom on the most recent occasion they had sex with a non-cohabiting partner in the last year
UNy6	Condom use at first sex	All young people who have ever had sex	Young people who used a condom the first time they had sex
UNy7	Age mixing in sexual relationships	Women aged 15-19 who had sex with a man to whom they are not married in the last 12 months	Women aged 15-19 who had sex with a man to whom they are not married and who is 10 or more years older (based on their last 3 reported partnerships)

CSW, commercial sex worker

Source: Slaymaker (2004, p. 14)

The literature shows that consistent condom use lowers risk on average by 80% (Patel, et al., 2014; Holmes et al., 2004; Varghese et al., 2002; Carey, 1999).

Worldwide, HIV infection is spread through individual sexual behaviour. Key benchmark indicators have been generated for the evaluation of sexual behaviour (see Table 2.3). The Global Programme on AIDS (GPA), UNAIDS, Family Health International (FHI) and the United Nations General Assembly Special Session on HIV/AIDS (UNGASS) have endorsed the indicators for the monitoring and evaluation of HIV related behaviour (Slaymaker, 2004; UNAIDS, 2002; FHI, 2000; WHO, 1994). The indicators supported this research in the selection of participants for interview (see section 3.3) in order to explore and understand sexual behaviour and the risk of HIV transmission in Nigeria. The indicators relate to adults, young people, people in high-risk groups, and their various characteristics, as described in detail (UNAIDS, 2000)

2.3.1 Age and HIV Transmission

Initiation of a sexual relationship before one reaches the age of 15 is often riskier than when one engages at an older age (Cavazos-Rehg et al., 2010). At this age, the genital tract in females is tender and highly prone to infection (Ma et al., 2009). Sex at an early age mostly occurs during a relationship that is briefer and more unstable than the relationships formed in adulthood, and exposes partners to a greater risk of acquiring HIV infection (Slaymaker, 2004). In adulthood those with a sexual debut early in life may have less steady sexual relationships and be more likely to suffer sexual exploitation than those who commenced at a later age (White, et al., 2000). Sex debut at an early age is associated with HIV infection in sub-Saharan Africa (Stock et al., 2013). Young people who engage in this behaviour, particularly girls, often partner older and sexually experienced people. Girls are at higher risk because their vaginal mucosa is highly susceptible to the virus (Dellar et al., 2015).

The increase in sex before the age of fifteen may be connected with similar factors in other developing countries, including local or foreign movies with sexual content, which are watched by young people (Osorio et al., 2012). There is a double standard in the legal frameworks and no uniform age of sexual consent and marriage. While the national law specifies 18 years (International Amnesty, 2000), 26 states have adopted Customary Law, which permits sex and marriage at age 16 (Nzarga, 2016). However, the age of marriage can be as low as 9 years according to Islamic Law (Nzarga, 2016). The Sharia Penal Code specifies the age of 13 years as the age of consent and marriage in some states in the northern part of Nigeria (Cole, 2015).

Inconsistent legal frameworks have sexual and reproductive health implications (McGovern et al., 2019; Cortez, et al., 2015). Cortez et al. found that unwanted pregnancy and early marriage/cohabitation were linked to poverty in Karu, a peri-urban settlement of Nasarawa State. This is a threat to the Sustainable Development Goals (SDGs) for HIV/AIDS, sexual and reproductive health, and enables HIV to thrive unabated. Peer pressure, a fear of stigma, myths about sex, poor parenting and coercion influence the early initiation of sex amongst adolescents (Ankomah et al., 2011, Slap et al., 2003). The consequence of this behaviour has more impact on women. For instance, due to the biological tenderness of the cervix at an early age, invasive cervical cancer was found among African, Asian and South American women aged 17-20 years who experienced sex early (Louie et al., 2009).

2.3.2 Sexual Abstinence and HIV Prevention

The HIV virus is largely spread through unprotected vaginal, oral or anal sex with an already infected partner (Jemmott et al., 1998). Sexual abstinence is an effective way of reducing the risk of becoming infected with HIV (Rector, 2002). Abstinence in this context refers to the total refrain from vaginal, oral or anal sex (Goodson, 2003; US Social Security Act, 1996) and is considered an effective measure in the prevention of unwanted pregnancy and STIs including HIV (Oladepo and Fayemi, 2011). An age-old tradition in most communities in Africa, and embraced as a component of HIV prevention strategy in many countries in the world, abstinence exercises sexual agency whereby an individual decides to delay sex until he/she gets married or has the potential resource required to ensure wellbeing (Winkell et al., 2013; Jemmott et al., 2010). Studies in developing countries have reported higher sexual abstinence behaviour among young people aged fifteen years and under than among those who are older (Inyan and Iyang, 2013; Oladepo and Fayemi, 2011) among Ghanaians, Burkinabe, Ugandans and Malawians (Trinitapoli, 2009). In Nigeria, 54.6% of adolescents were reported to be abstinent (Akomah et al., 2011). In Ibadan South-West Local Government Area, 88% of adolescents were found to be abstinent (Oladepo and Fayemi, 2011). The figure was noted as 29.4% among school youths in Oyo State (Sangowawa and Adebisi, 2013), and in Plateau State, 66.4% abstinence was reported among secondary school students in Jos (Slap et al., 2003).

Funding for the promotion of abstinence-only as part of the sexual and reproductive health and HIV prevention policy by the U.S President's Emergency Plan for AIDS Relief (PEPFAR) has ceased. The policy has been replaced with abstinence-plus, an approach that integrates condom use, non-penetrative sex and abstinence-only. The idea is to avoid the exclusion of people who may not totally abstain from sex before marriage and instead promotes the practice of safe sex

(Buse et al., 2016; Santelli et al., 2016, 2013). It has been established that promoting sexual abstinence until marriage is ineffective, unrealistic and inadequate to address sexual risk, despite the considerable resources invested in such promotion over the years (Santelli, et al., 2013; Stanger-Hall and Hall, 2011; Underhill et al., 2007a; Perrin and DeJoy, 2003; Rector, 2002). The policy change and lack of funding for abstinence-only initiatives in favour of abstinence-plus worldwide interventions (Underhill et al., 2007b; Santelli et al., 2006) may have led to low and declining sexual abstinence in the study locations. Abstinence-plus, a prevention activity that promotes the use of a condom by those who cannot abstain and at the same allows for total abstinence from sex, appears to serve as a double-edged prevention approach that aims to reduce the risk of sexual and reproductive health challenges, including STIs, in the population.

2.3.3 Non-marital sex and the risk of HIV transmission

This section examines sexual activity that occurs outside marriage. This includes sexual activity among those who have previously been married but are not now married, and among those who have never married, or who may become married in the future. This sexual behaviour is generally regarded as one of the indicators of risky sexual behaviour. Depending on the pattern of practice, it can either facilitate or contain the spread of HIV in a population. This form of sexual activity involves persons not married including those who have not attained the age of marriage (Noroozi et al., 2014). Sex outside marriage can occur between single partners before the start of married life (Abaissa, et al., 2017); this type of conduct is increasing worldwide (Wu et al., 2018; Bearinger, 2007). In sub-Saharan Africa, sexual activity before marriage is taboo but nevertheless increasing (Speizer et al., 2013). Ignorance about condoms and the consequent non-use of condoms is the main pathway through which unwanted pregnancies and STI infections, including HIV/AIDS infections, occur (Ghebremichael et al., 2009; Bongaarts, 2007). Most often, sexual activity takes place with a partner who is sexually inexperienced and less likely to negotiate condom use (Granato et al., 2012). This can lead to the establishment of a pattern of behaviour that persists into adulthood (Lewis et al., 2012).

The unmarried population is more sexually active than their parents' generation at the same age (Wu et al., 2018). Because young people now often marry later in their pursuit of opportunities for a better future, the opportunity for - and likelihood of - non-marital sex has increased, and this may involve risky sexual practices (Berliana et al., 2018). Young people are in their period of biological and social transition to adulthood that is mostly characterised as being in school or learning a skill (Sawyer et al., 2012; UNICEF, 2011; National Research Council and

Committee on Population, 2005). The development process, unless interrupted by socio-cultural practices, tends to prevent people from getting married at an early age (National Research Council and Committee on Population, 2005). For instance, according to the Nigerian National Population Commission (2014), women (12.2% vs 8.9%) and men (20.0% vs 15.6%) in Plateau State are more likely to attend tertiary education than those in Nasarawa State, with women spending higher than average years in schooling (7.3 as opposed to 5.5). The window period before marriage may facilitate sexual activity among the unmarried although education represents a social vaccine against the risk of HIV infection (Vandemoortele and Delamonica, 2000).

Nevertheless, unmarried female students were reported to exchange sex for money because of poverty (Uzokwe, 2008; Obinna, 2005). Similar studies in sub-Saharan Africa reveal that the unmarried population is becoming increasingly sexually active with multiple partners and inconsistent condom use (Doyle et al., 2012). In Nigeria, a 2.7% incidence of non-marital sexual activity with low condom use was reported in Ilorin, Kwara State (Fawole et al., 2011), 53.5% in the country (Folayan et al., 2015), and 32.7% in Niger State (Sunmola et al., 2002). John et al. (2012) and Slap et al. (2003) reported a 19.2% and 34.0% incidence in Jos and Plateau State respectively. This behaviour may be facilitated by poverty, which encourages child labour (Itari et al., 2018; Otuka, 2011). Child workers survive on the streets as hawkers or work as local restaurant attendants to earn income for their families. Many of these children are vulnerable to coerced/lured sex for cash, resulting in unwanted pregnancy and cohabitation (Coarts et al., 2015). Among some ethnic groups in Nigeria, women have responsibility for sourcing funds for the purchase of items for marriage (Abu, 2018; Abubakar, 2018). Furthermore, in a digital age unmarried people have almost unlimited access to all sorts of information, including explicit sexual content (Brown et al., 2006).

2.3.4 Sexual Networking and HIV Risk

This practice involves sexual activity with more than one sexual partner. In the dynamics of HIV transmission, sex with more than one person, whether concurrently or one partner at a time, may help facilitate HIV transmission in a population (Mah and Halperin, 2010). The risk of HIV becomes higher if each person involved in the sexual activity also has one (or more) additional partner(s). The degree of susceptibility to the acquisition or transmission of HIV and other STIs in multiple sexual relationships involves sexual networks with new partners, and new partners with other partners. The sexual partner may be a regular or a casual partner inside or outside a union. This behaviour is a pathway through which HIV thrives and remains

unabated in a population, such as Nigeria, whose HIV stage is categorised as a generalised epidemic (Piot et al., 2015). In sub-Saharan Africa, this pattern of sexual relationship is also rooted in polygamy (De Walque, and Kline, 2012), remarriage or levirate marriage (Doosuur and Arome, 2013; Bove and Valeggia, 2009), and spouse sharing that enables sexual networking with many people whose past sexual history and health may not be known. This has been noted to inadvertently increase the risk of STIs, including HIV infection (Bove and Valeggia, 2009; Orubuloye, et al., 1997).

Labour migration and the growth of transportation have driven an influx of people to urban centres, encouraging sex hawking and transactional sexual activities (Ikpeazu et al., 2014; NASACA, 2008). Commercial sex workers and men who have sex with men are sub-populations whose lifestyles are stigmatised and criminalised (Rodriguez-Hart et al., 2018; Vu et al., 2013) and who may avoid prevention services, fueling HIV transmission and increasing infection rates. The literature has documented that difficult social conditions reduce men's ability to afford multiple partners, including multiple wives (Lugalla et al., 2004; Muchini, et al., 2011). The death of close relatives and friends from AIDS related conditions before the advent of Antiretroviral Therapies increased the perceived HIV risk, leading to behaviour change which has helped to promote the decline of HIV (Slavin et al., 2007; Green and Witte, 2006).

An extramarital sexual relationship is an overlapping sexual contact with a person other than a primary partner (Labrecque and Whisman, 2017; Coma, 2013). As earlier argued, people who initiate sex at an early age are more likely to have multiple partners in single adulthood and in marriage (Labrecque and Whisman, 2017; Epstein et al., 2014; Kaplan et al., 2013; Zuma et al., 2010). Those who engage in extramarital sex are likely to do so with those who have had sex in premarital relationships (Labrecque and Whisman, 2017). Extramarital sex is a form of concurrent sexual relationship with a high risk of HIV transmission in sub-Saharan Africa (Mah and Halperin, 2010). The risk of HIV infection in marriage increases in an extramarital sexual relationship, as condoms are less likely to be considered (Bancraft et al., 2004). This behaviour has been highlighted as a sexual revolution, particularly among young married women in Nigeria (Orubuloye et al., 1990, 1991). Extramarital sex is permitted in some cultures, but in many countries, it is considered a form of dishonesty, which is why it occurs in secrecy (Labrecque and Whisman, 2017). The behaviour has increased the risk of HIV acquisition in marriage contrary to the belief that marriage provides immunity to HIV infection. For instance, Kelly et al. (2003) and Glynn et al. (2001) found more HIV infection among the married than

the unmarried. Women were more vulnerable and were twice as likely as their male counterparts to first acquire HIV (Carpenter et al., 1999).

2.3.5 Sex in Marriage and the Risk of HIV

Sexual fidelity in a union is a behaviour that conforms to the ABC of HIV prevention model. The ABC prevention model promotes: (A) Abstinence from sex until marriage, (B) Being faithful to a primary partner, and – for people who cannot adhere to (A) and (B) – (C) Condom use that is effective and consistent. This model was first used worldwide at the advent of HIV. Sexual fidelity in a union conforms to ‘B’, which urges married people to only solicit sexual relationships within a union (Cohen, 2004; USAIDS, 2003). Eliminating or reducing sex outside marriage lowers the risk of acquiring and transmitting HIV infection to one’s partner in the union (Shelton et al., 2004). The practice of ‘B’ has effectively contributed to a reduction in the number of sex partners and casual sex, with a significant impact on the decline of HIV prevalence in Zimbabwe and Uganda (Halperin et al., 2011; Green et al., 2006).

2.3.6 Categories of Sexual Partners

In literature, sexual relationship generally occurs with a regular or casual partner (Gary et al., 2013; Nelson et al., 2011; Chiao and Morisky, 2007; Macaluso et al., 2000; Curbbins and Tanfer, 2000; Ragan and Dreyer, 1999). A regular partner could be a spouse or a person in whom a person engages in committed relationship, while a casual or non-co-resident partner is an important indicator for measuring the risk of HIV transmission that behaviour describes the extent to which sexual intercourse occurs with an unacquainted or acquainted person with which is not a co-resident, usually based on physical attraction, spontaneous, and often impulsive (Estcourt et al., 2020; Grello and Walsh, 2006). This form of sexual activity occurs between the married person, and married or unmarried with girl/boyfriends, commercial sex workers or casual acquaintances (Regan and Dreyer, 1999), or even relatives (Quddus, 2015). This form of sexual behaviour among people who may not be living in the same residence perhaps involves sex with an inconsistent and/or secondary partner. The behaviour is an indicator of HIV risky behaviour, particularly when condom use is unpredictable (Slaymaker, 2004). In this form of sexual activity, partners are less likely to know their HIV status and the past risky behaviour of their partner, and are less likely to use a condom (Lewis et al., 2012). This behaviour poses a great risk of STI (including HIV) transmission, because, as studies have shown, sexual relationships with a momentary partner are less likely to involve protection against infection (Lewis et al., 2012; Kaestle and Halpern, 2005). In the context of a generalised

epidemic, sex with a casual or non-co-resident partner leads to a significant risk of contracting HIV.

The occurrence of this behaviour is affected by the interaction of conditions (referred to in the previous section) that may limit the ability of respondents to turn down encounters with implications for their sexual health. However, the need to satisfy a strong sexual libido, especially among men, apparently motivates both the unmarried and married to engage in sexual activity many times with more than one partner without using a condom (Ibrahim and Bwadi, 2012; Laah and Ayiwulu, 2010). Poverty and low levels of family support have been reported to promote transactional sex between married people and unmarried schoolchildren or young adult women (Ajayi and Somefun, 2019). As previously mentioned, spouse sharing and wife inheritance (Doosuur and Arome, 2013; Osagbemi et al., 2007) most often occur without the use of a condom and are risky (Daniel et al., 2017); as such, these behaviours are responsible for HIV transmission.

2.3.7 Sexually Transmitted Diseases and HIV risk

Sexually Transmitted Diseases (STD) refers to a variety of clinical conditions and infections caused by pathogens that can be acquired or transmitted through unprotected sexual activity (Workowski, et al, 2015). STD infection is enabled through involvement in risky sexual behaviours with a partner who may have been infected. A partner who is HIV negative but who has another STD is highly likely to be exposed to HIV during sex with an infected partner. In addition, an HIV positive partner is more likely to transmit HIV when he or she also has another STD. Some STDs can cause cancer or inflammation that increases the infectiousness of, and the susceptibility to, HIV infection (Galvin and Cohen, 2004). STDs are all important markers for determining the possibility of a partner contracting or transmitting HIV (Johnson and Lewis, 2008; Fleming and Wasserheit, 1999). A recent study shows that STDs can remain unnoticed, be endemic in a population (Lowe et al., 2019) and increase the possibility of mother-to-child infection with HIV. Nonetheless, the high-quality technology needed for diagnosing such sexual infections at an early stage is limited, and infections may continue to thrive unabated. In this case, the trend of STDs is examined to understand the risk of HIV transmission and how it may have contributed to HIV situations.

2.3.8 Condoms and the Risk of HIV Transmission

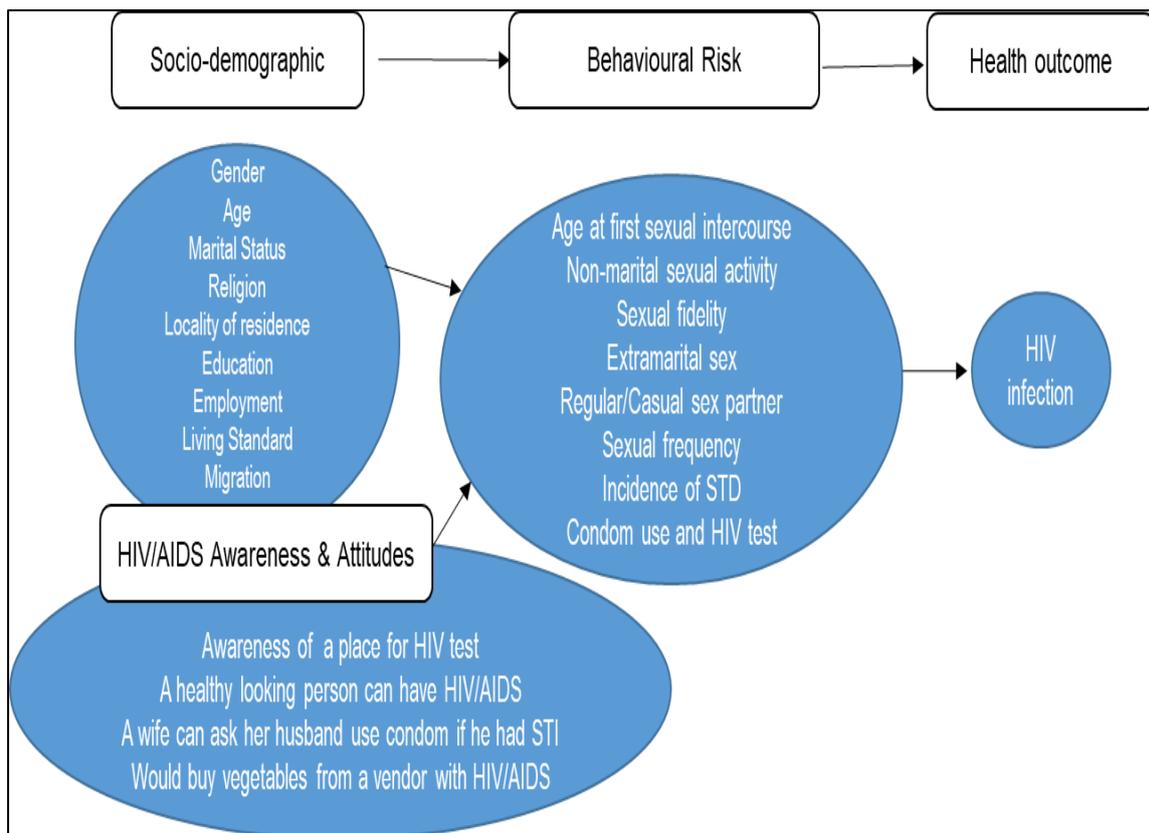
As discussed in section 2.2 and 2.7, unprotected sex results in sexual and reproductive health risks. HIV is transmitted from a person who has the virus to another person who does not have it or to someone who already has the virus through body fluid. Sexual intercourse is a leading medium through which HIV is transmitted (CDC, 2016). This study has argued that the heterosexual sexual activities presented in the sections above significantly increase the possibility of a person acquiring or transmitting the infection (Kaiser Family Foundation, 2016). Research has shown that the risk of contracting HIV can be effectively reduced by up to 95% when a condom is used during sex (USAIDS, 2015; Patel et al., 2014; Weller and Davis-Beatty, 2007; Holmes et al., 2004; Weller and Davis-Beatty, 2002).

In the first phase, an infected person is often unaware of the virus, although it can be transmitted. Consistent use of a condom reduces the risk of HIV infection, of contracting another STI, and of an unwanted pregnancy (USAIDS, 2015; Boily et al., 2009; Weller et al., 2002). Consistent use here involves correctly putting on a male or female condom and using a condom during every act of penetrative vaginal intercourse (Weller and Davis, 2007). While consistent use does not eliminate the risk of HIV transmission, inconsistent use is as risky as non-use (Weller and Davis-Beatty, 2007; Ahmed, 2001). Past studies have shown that the inconsistent use of condoms during sex does not prevent HIV and STD transmission (Ahmed et al., 2001; Taha et al., 1996). Low condom use and sporadic condom use create a high risk of HIV (and other STDs) transmission, and a high risk of unwanted pregnancy. This confirms the finding of Boily et al. (2009) that every unprotected sexual encounter increases the chance of a person acquiring sexual and reproductive health problems. Having unprotected sex and never being tested for HIV, doubles the chance of HIV transmission (Gong, 2014; Allen et al., 2003). The use of a condom and HIV testing are important dual HIV preventions (UNAIDS, 2017; Denison et al., 2008). To understand the risk of HIV transmission, this study examines whether a person used a condom at their last sexual encounter and other indicators, such as behavioural factors.

2.4 FACTORS OF SEXUAL BEHAVIOUR AND THE RISK OF HIV TRANSMISSION

Several factors interplay to determine whether a person engages in safe sexual activity or in sexual encounters with a high risk of HIV transmission. Lorence et al. (2013) classify these into ‘*downstream*’ factors - relating to physical or personal characteristics - and ‘*upstream*’ factors - relating to the social conditions surrounding a person, which encourage or limit the person’s ability to live a healthy lifestyle. This section, together with section 2.9, will present a discussion on the personal, downstream factors, while section 2.10 will consider the upstream, social, structural factors, as personal characteristics are social and demographic and the HIV/AIDS attributes of a person prompt him/her to act independently (see Figure 2.5). Some of the characteristics of respondents are in-built while others are acquired and these act together to determine the choices that ‘make or mar’ a person’s sexual health (Serra et al., 2020; Woolley et al., 2019; Kalibala, et al., 2016; Ayoade et al., 2015). The following discussion reviews literature that relates to the factors illustrated in Figure 2.5.

Figure 2.5 : Individual factors influencing sexual behaviour



2.4.1 Gender and Gender Inequality

Unlike biological sex, gender is regarded as a social construct (Lindsey, 2013; Udry, 2000). Gender has been defined as the:

“... socially constructed characteristics of women and men, such as norms, roles, and relationships of and between groups of women and men. It varies from society to society and can be changed” (WHO, 2019, p. 1)

“...roles and responsibilities of men and women that are created in our families, our societies and our cultures. The concept of gender also includes the expectations held about the characteristics, aptitudes and likely behaviours of both women and men [femininity and masculinity].” (UNESCO, 2003, p. 1).

Men and women perform different roles, which expose them to differing experiences, and require them to acquire differing knowledge and abilities for their personal development. Equality is expected between the genders in terms of their rights, privileges or opportunities as partners in society. Existing social institutions are responsible for supporting men and women to take charge of their lives to ensure self-confidence and independence in their different roles (March, et al., 1999). Often, through diverse cultural practices, one gender has been accorded a status higher than the other, with men treated as superior to women (Brandt, 2011; Lorber, 2001). The literature highlights that unequal treatment is responsible for women being disadvantaged to men in access to education, employment and income, and resources and rights for informed sexual and reproductive health decisions (Jayachandran, 2015; Ridgeway, 2011; Fenstermaker et al., 2002; Lorber, 2001; Dollar and Gatti, 1999; Lorber and Farrell, 1991).

The concept of gender plays a key role in understanding sexual health and the risk of HIV. This is because a person's gender influences their sexual behaviour. Society accepts that men, due to their masculinity, have a higher sexual drive than women (Fleming et al., 2016; Courtenay, 2000). This attitude increases risky sexual behaviour. Studies show that, due to gender inequality, women's insistence on safe sex in a heterosexual relationship is less likely to be effective, thereby increasing the risk of HIV transmission (Arnold, 2020; Davis et al., 2018; Corbett et al., 2009; Kordoutis et al., 2000). Globally, gender inequality deprives women of sexual health rights and empowerment, and this increases their vulnerability to HIV infection (UNAIDS, 2019).

2.4.2 Age and HIV Risk

Age is a downstream factor. The term refers to a person's period in life, measured in years and the span of events that the person has experienced (Chandra et al., 2013; Adekun, 2006). Age has phases, each with unique behavioural characteristics (Chandra et al., 2011). In terms of sexual behaviour, sexual debut at an early age is a risk factor for HIV transmission (Pettifor et al., 2004). The risk increases with the time spent unmarried after the first experience (Bongaarts, 2007). With the increase in age into adulthood comes increased exposure to sexual relationships in or outside marriage (De Visser et al., 2001; Macaluso et al., 2000). Older people engage in sexual relationships without the use of a condom more often than the young (Balkus et al., 2015; Bankole et al., 2007) and this is also responsible for the spread of HIV in many settings in sub-Saharan Africa (Halperin, and Epstein, 2004).

In Malawi (Beauclair et al., 2018, 2016), South Africa (Maughan-Brown et al., 2016; Brouard, and Crewe, 2012), Zimbabwe (Schaefer et al., 2017) and Nigeria (Oyediran et al., 2011), sexual activities often involve significant age differences and this is associated with a risk of sexually transmitted infection. Older men are often more able to provide security to young women and girls than men of their own age (Kelly et al., 2003). The same factor can operate in the case of some mature women who prefer younger men as sexual partners, contesting the heterosexual social norms and barriers that have deprived them of sexual freedom over time (Alarie, 2019; Kuate-Defo, 2004). A qualitative study by Zhou et al. (2014) found that a number of factors were responsible for sexual risky behaviours among men. The causes they reported include: the wife's menopause, which made them turn down requests for sex, financial freedom, peer influence and fun seeking-behaviour. Sexual relationships with young people grow into a network that encourages multiple, concurrent partnerships (Morrison-Beedy and Passmore, 2013) in which a condom is often not used (Beauclair et al., 2012).

2.4.3 Marital Status, Marriage and the risk of HIV Transmission

Marital status refers to whether a person has entered into a union with a member of the opposite sex, has never entered into such a union, or is not presently in such a union. This concept of marital status is applied various ways in research, which may employ categories, such as currently married, unmarried or single, never married, preparing to be married or formerly married (Pullum and Staveteig, 2017; Huijts and Kraaykamp, 2011; Williams and Uemerson, 2004). The formerly married may be separated, divorced, or widowed following the death of their spouse. A married person can legitimately engage in sexual activity and has social security

and support (Lemptey, 2017). Biology assigns to women the role of childbearing, while society assigns to women the role of childrearing. This role has been a barrier for exercising the agency to demand safe sex, and sexual and reproductive health rights (Baumeister and Twenge, 2012). Risky behaviour may be the reason why women in a union become infected with HIV by their husbands and are diagnosed when seeking healthcare during pregnancy (du Loû, and Coleman, 2005; Cohen and Reid, 1999).

The pressure to reproduce reportedly explains why women who experienced delayed childbearing engaged in extramarital sex in order to have a child to save their marriage (Hollos, 2003; Ezugwu et al., 2002; Pearce, 1999). The vulnerability of women means that risky sexual behaviour is prevalent in marriage with severe implications for HIV transmission and prevalence (Osuafor and Ayiga, 2016). In sub-Saharan Africa, marrying more than one wife is legitimatised. The practice encourages concurrent sexual relationships and increases the risk of HIV infection among the married (Saddiq et al., 2010; Mitsunaga et al., 2005; Adimora, and Schoenbach, 2002; Newmann, 2000). Separate studies undertaken by Isiugo-Abanhe (1994) and Mitsunaga et al. (2005) on extramarital sex among Nigerian men found that polygamous men were at greater risk from extramarital sex. In Malawi, Clark (2010) found that men engaged in extramarital sex with close female friends. A sexual relationship with a person other than their married partner or spouse is a concurrent sex relationship and heightens the risk of HIV transmission. Apart from the risks facing those in a union, as highlighted in sections 2.7.1 and 2.7.2, unmarried people are susceptible to excessive alcohol use, the use of hard drugs, and unprotected sex (Biney et al., 2020; Olatunji et al., 2019). The literature highlights a number of downstream and upstream factors that influence risky behaviours (Buse et al., 2016; Cole, 2015; Lorence et al., 2013; Osorio et al., 2012; Cavazos-Rehg et al., 2010).

2.4.4 Religion and HIV Risk

Globally, eight out of every ten people are affiliated with a religion (Hackett et al., 2014, 2012). Religion refers to conviction about the reality and power of a divine being and to rituals connected to the supernatural, which is given different names in different religions (Koenig et al., 2012; John and Kruger, 2004; Pargament, 2001; Preus, 1987). The concept of religion has been defined as follows:

“... a multidimensional construct that includes beliefs, behaviours, rituals, and ceremonies that may be held or practised in private or public settings... an organised system of beliefs, practices, and symbols designed (a) to facilitate closeness to the transcendent, and (b) to foster an understanding of one’s relationship and responsibility to others in living together in a community” (Koenig et al., 2012, p. 45)

Affiliation to a religion means the membership of, or identification with, a religion. Devotion or commitment differs from affiliation because they involve active involvement in a religion’s activities and acceptance of its values, which will then impact on one’s decision-making and behaviour (Shaw and El-Bassel, 2014; Brañas-Garza et al., 2013). Studies have shown that consistent involvement in religious activities reduces exposure to risky sexual behaviour (Burdette et al., 2015; Gyimath et al., 2010; Goggin et al., 2007).

Religion has a significant role in the lives of people (Brañas-Garza et al., 2013; Chatters, 2000). It has a great influence on health-related behaviour (Chatters, 2000), as it reduces unmarried sexual behaviour (Burdette et al., 2015; Adamczyk and Hayes, 2012). Previous research has found that people who were affiliated and devoted to a religion delayed their sexual debut (Anarfi and Adobea, 2011) and abstained from sex (Somefun, 2019). The literature highlights that religious beliefs and values restrain extramarital and non-marital sexual relationships, thus reducing risky sexual behaviour (Adamczyk and Hayes, 2012; Agwu, 2010; Odimegwu, 2005; Takyi, 2003; Bairer and Wright, 2001), and thereby reducing the risk of STIs and unwanted pregnancy (Zhang et al., 2017). In sub-Saharan Africa, Christian religious conviction has been found to constrain risky sexual behaviour (Zhang et al., 2017; Agwu, 2010; Odimegwu, 2005). Other studies, however, found that risky sexual behaviour is more likely among Christians than among Muslims in Nigeria (Rumun, 2014; Agha 2009), across African countries (Muula, 2010; Gyimah et al., 2010; Rigillo, 2009) and worldwide (Adamczyk and Hayes, 2012). The dissimilarity of outcomes may be due to differences in study settings.

Koenig et al. (2012) and Chatters (2000) assert that religion has a negative impact on social behaviour through a mechanism that is linked with health. The effect arises from participation in an activity whose process is to install appropriate behaviours which culminates in the exclusion of those who do not comply with norms because of their social lives (Koenig et al., 2012; Chatter, 2000). Those who fail to conform to religious norms and values are sanctioned (Bhargava, 2004; Kabeer, 2000). They may be isolated and may suffer from stigma and discrimination (Smurda et al., 2006; Battaglia, 1998). These forms of social exclusion, in turn, have a negative impact on health behaviour, including behaviour related to the sexual risk of

HIV transmission (Chatter, 2000). Studies have also indicated that religious people were more likely to engage in risky sexual behaviour in South Africa (Garner, 2000), France (Moreau et al., 2013), Ghana (Gyimah et al., 2010), and the United Kingdom (Religion Media Centre, 2018). Muun (2010) argues that religion discourages the use of condoms among members, putting the lives of those perceived to be 'in sin' (who are socially isolated) at risk. The discussion suggests that religion both facilitates and constrains conditions that expose people to the risk of HIV infection through sexual behaviour.

2.4.5 Place and HIV risk

The place where a person lives significantly affects their health (Lengen and Kistemann, 2012). Places are locations or settings in which people live and interact with one another in families, workplaces and communities (Short and Mollborn, 2015). Hence, a place where a disease occurs, and its distribution provide a geographic perspective to the nature of the problem (CDC, 2012; Curtis and Jones, 1998). Place of residence serves as a unit for the observation and analysis of a set of relationships and distinct information is obtained to understand health behaviour (Yin, 2014). The effect of a place on health, especially in the context of variations in HIV/AIDS prevalence across a population, can be examined by reference to three dimensions. Curtis and Jones (1998) describes these dimensions as: firstly, spatial patterning and diffusion, secondly, a space for social interactions, and, thirdly, a landscape in the sense of a location. This three-dimensional perspective can be explicated further as follows:

- Spatial patterning and diffusion involves biological and physical risk factors, such as circumcision, STDs, climate, environmental pollution, which influence the probability of a disease, including HIV (Kaul et al., 2011; White, 2009; Rebbapragada and Kaul, 2007).
- Space and place, as related to human relationships and realities that exacerbate close-ties and social exclusion (McMunn et al., 2011; Bourdieu, 1990; Moon, 1987).
- Landscape and sense of place in terms of the psychological attachment to the culture of a place, physical endowment or the symbol of power for the health value of a setting (D'Alessandro and Léautier, 2016; Rubenstein, 2013; Curtis and Jones, 1998; Gesler, 1992).

A place can be an urban area and rural area depending on its thresholds (Meit et al., 2014; Pateman, 2011). Curtis and Jones highlighted that a place gives meanings that shape the way people reason and utilise the surroundings for wellbeing (Cresswell, 2004; Wilson, 2003; Eberhardt et al., 2001). This implies that a place of dwelling is more than a physical area, but

is, in fact, a point of entry into a world of social reality, a context in which interactions occur which produce and reproduce norms, and which attach values and meanings to human experiences (Fenner, 2011; Wiersma, 2008; Williams, 1998). Some studies characterise urban and rural areas with certain barriers to health including inadequate facilities and poverty (Henderson et al., 2018; Hall et al., 2006; Hartley, 2004; Heckman et al., 1998) as relationships in rural settings provide access to social support and social capital (Sandra et al., 1998). In terms of function, urban areas have better healthcare than rural areas (Pateman, 2011). The settings associated with sexual risk (Gang et al., 2009; Dodoo et al., 2007) vary both between and within countries (Eberthardt et al., 2001; Curtis and Jones, 1998).

In health and medical geography, a setting provides a unique spatial identity to an occurrence and a disproportionate distribution of disease and well-being (Vearey et al., 2010; Kearns and Moon, 2002). Place is a geographer's laboratory for exploring the relationships people have and how the available resources in their social and physical landscape determine health (Moon, 2009; Rediscovering Geography Committee and National Research Council, 1997). John Snow, for instance, in 1854 first studied the significance of the place in understanding the incidence of cholera disease in England (Snow, 1855, 1849). His study highlighted that a disease relies on human contact to spread from an area of high concentration to an area with low or no concentration (Potterat et al., 2002; Haggett, 2000). On the relevance of place to health behaviour, Jongsthapongpanth and Bagchi-San (2010) observed that most health studies are population-based and often require high levels of funding, which hinder a thorough evaluation of health phenomena in local settings. Piot et al. (2015) observes that the tendency towards a lack of local coverage enables diseases like HIV and AIDS to thrive. HIV/AIDS distribution in sub-Saharan Africa, particularly Nigeria, differs greatly between and within locations (FHoH, 2019; Djukpen, 2012; Obidoa, 2004). Understanding the local pattern and the variation of conditions that influence the risk of disease diffusion is of great relevance (Feldacker et al., 2010; Kalipeni et al., 2004).

2.4.6 Education, Employment and the risk of HIV

Education and employment are somewhat connected. Education involves access to appropriate knowledge, skills, values and habits. Simply put, it is an experience a person has that influences the way he/she thinks, feels or behaves. Knowledge and skills may be acquired formally or informally. The education a person receives is a key social condition that influences health

(Glymour and Kawachi, 2014; Winkleby et al., 1992), including HIV transmission (Leon et al., 2017; Aggleton et al., 2011). Knowledge affects behaviour and decisions regarding risk reduction about health as related to HIV infection (Painter et al., 2012; Bingenheimer, 2010; Vandemoortele, and Delamonica, 2000). Health-related behaviour significantly differs with educational attainment (Glymour and Kawachi, 2014). Song et al. (2011) highlighted that a low level or absence of education limits a person’s health-seeking behaviour. The World Bank President, Jim Young Kim, said:

“... education promises young people employment, better earnings, good health, and a life without poverty... spurs innovation, strengthens institutions, and fosters social cohesion... schooling without learning is a wasted opportunity. More than that, it’s a great injustice: the children whom societies fail the most are the ones who are most in need of a good education to succeed in life” (World Development Report 2018, pp. xi-xii)

Table 2.4: Benefits of Education with effect on Health Behaviour

Benefit Type	Individual /Family	Community/Society
Monetary	<ul style="list-style-type: none"> ▪ Higher probability of employment ▪ Greater productivity ▪ Higher earnings ▪ Reduced poverty 	<ul style="list-style-type: none"> ▪ Higher productivity ▪ More rapid economic growth ▪ Poverty reduction ▪ Long-term development
Non-Monetary	<ul style="list-style-type: none"> ▪ Better health ▪ Improved education and health of children/family ▪ Greater resilience and adaptation ▪ More engaged citizenship ▪ Better choices ▪ Greater life satisfaction 	<ul style="list-style-type: none"> ▪ Increased social mobility ▪ Better-functioning institutions/service delivery ▪ Higher levels of civic engagement ▪ Greater social cohesion ▪ Reduced negative externalities

Source: World Development Report, 2018.

Education conveys information and promotes the development of a knowledgeable society (Turčínková, 2012). Glymour and Kawachi (2014) argue that education is an important social condition in achieving wellbeing and highlights the benefits as follows:

- Education can function as a gateway to the achievement of a higher income from employment, which in turn has an effect on personal wealth with significant consequences for personal health.
- Education can convey factual information about disease prevention and can inculcate an ability to make health-promoting decisions, an ability which individuals can exercise throughout their lives.
- Education can increase individuals’ ability to think, control their impulses, and defer gratification.

- Education can promote individuals' adherence to group norms.
- Education can help individuals to access a well-educated social network and to access social capital

While Glymour and Kawachi provide an individual-centred perspective on the benefits of education to health, the World Development Report 2018 presented education as having multilevel effects on individuals, families and the community at large (see Table 2.4).

Studies carried by de Walque (2005) in Uganda, and by Baker et al. (2008) on 11 African countries show that, at the early stage of HIV through the 1990s, people with higher education were at higher risk of HIV infection than those with low or no education. A decade later, young adults who were highly educated adopted information on the prevention of HIV/AIDS that effectively reduced sexual risk behaviour. The explanation for this is connected with the study that indicated that educational attainment opens the way for improved information and/or a good job with better remuneration. Socio-economic changes reduce the risk of HIV transmission through sex (Painter et al. 2012; Bingenheimer, 2010). However, higher educational attainment was also found in a study to have increased risky sexual activity because those with resources can afford the costs of managing the infections that are the consequence of risky activity (Barhan and Berhan, 2015).

In contrast, Leon et al. (2017) and Hargreaves and Glynn (2002) reported that new HIV infection is more likely among people with a low level of education than among those with a high level of education. At the national level, countries like Malawi, Tanzania, and Botswana, among others, were highly impacted by the HIV/AIDS pandemic because their populations had low levels of education (Gauthier, 2018; Leon et al., 2017; Ogunbodede, 2004; Hargreaves and Glynn, 2002). Glymour and Kawachi emphasised that the good quality education of young children impacts their lives and health behaviour. Lucas and Wilson (2019), in their study of 32 sub-Saharan countries, found that increased rates of completion of primary education might not mitigate the transmission of HIV. In Nigeria, however, out-of-school children and primary school pupils have not benefited from Family Life and HIV/AIDS Education (FLHE) and this may have been responsible for the rise of early sexual debut. ENR (2015) examined out-of-school young people and found that they engaged in sexual activity with multiple partners and had low condom use. The lack of education among children who did go to school increased their vulnerability to HIV risk. Those who went to schools benefited from FLHE, and the awareness they gained may have improved their sexual and reproductive health (Igbokwe et al., 2020; Udegbe et al., 2015). As a 'social vaccine' in the prevention of HIV, education provides

adequate information on the appropriate skills that shape health behaviour by delaying and avoiding actions that increase HIV transmission (Hepburn, 2002; Vandemoortele and Delamonica, 2000).

2.4.7 Living Standard and HIV Risk

The wealth index is an economic factor that measures the distribution of a standard of living by estimating the ownership of certain assets in a society (Rutstein and Staveteig, 2014; Howe et al., 2009; Rutstein and Johnson, 2004). This measures wealth distribution and classifies people as rich or poor. The literature establishes that inequality in the distribution of wealth has a significant impact on sexual behaviour and the risk of HIV transmission (Berhan and Barhan, 2013; Fox, 2012; Dinkleman et al., 2008; Bingenheimer, 2007). In sub-Saharan Africa, people from rich households engage in unprotected non-marital sex and extramarital sex (Fox, 2012; Gillespie, 2007). Poor people, especially poor women and girls, are often compelled by their difficult economic conditions to engage in risky sexual behaviour (possibly with the rich) in order to make a living (Faust et al., 2017).

Wealthy households do not need to worry about their basic needs, and are able to focus on the pleasure associated with sex (Awusabo-Asare, and Annim, 2008). A similar study found that women who have control over resources are less likely to participate in higher risk sexual behaviours (Atteraya et al., 2014). In comparison, Ajayi and Somefun (2019) recently reported that children from a poor household in Nigeria who attend school in tertiary institutions engage in transactional sex for survival.

2.4.8 HIV/AIDS Knowledge and Attitudes

The General Assembly on HIV/AIDS held in June 2001 adopted a Declaration of Commitment that prioritised the prevention of HIV infection as the backbone of responses to the epidemic. The Declaration stated that it was important, “to ensure that people everywhere know what to do to avoid infection” (UN, 2001). This effort encouraged campaigns on HIV awareness to increase knowledge among individuals at risk and the general population (Painter, 2005; UN, 2001). Knowledge about HIV and AIDS is a powerful way of fostering a positive and healthy attitude to health behaviour (Kickbusch, 2001), while the lack of knowledge is responsible for increased risks of HIV infection, stigma and discrimination (Herek et al., 2002).

One thing that enhances awareness of HIV/AIDS and of prevention is being able to know one’s infection status. HIV testing is a critical gateway to HIV prevention services (WHO, 2012).

Early knowledge of their HIV status prepares people not infected with the virus to protect themselves and permits those infected to quickly access treatment (WHO, 2013). This prevention method is in line with the UNAIDS universal access to HIV test for zero HIV infection (Haghdoost and Karamouzian, 2012). Ignorance of one's HIV status poses a major obstacle to efforts to fight the epidemic (Cherutich et al., 2012). In Nigeria, the HIV testing rate remains low, despite the high prevalence of HIV (Ogbo et al., 2017; Bolagun and Owoaje, 2016; FMoH, 2005).

Comprehensive knowledge about HIV requires awareness that a healthy-looking person may have HIV, and knowledge of someone who died of AIDS increases both personal risk perception and HIV prevention behaviour. The literature establishes that people who consider themselves at low risk of HIV are less likely to use protection during sex, while those perceived to be at high risk, use a condom to prevent infection (Sewell and Blankenship, 2018; Fagbamige et al., 2017; Lammers et al., 2013). Personal experience of an AIDS-related death brings home the reality of the risk of HIV infection (Slavin et al., 2007). Studies in Zimbabwe (Muchini et al., 2011) and Tanzania (Lugalla et al., 2004) found that the death of a close family member or a friend to AIDS-related sickness increased perceived risk of HIV that motivated a reduction in the number of sex partners and an increase in condom use. Fear of AIDS-related death has been established to promote changes in behaviour and the decline of HIV (Slavin et al., 2007; Green and Witte, 2006).

As reviewed in section 2.3, those with inadequate knowledge of HIV/AIDS generated misconceptions about the cause and method of prevention of the virus (Tenkorang 2013). For example, Bernardi (2002) found that people believed insects, like mosquitoes, could transmit HIV, while others saw the infection as God's wrath against those who practice immorality (Cunningham et al., 2011; Harris, 2010). The lack of HIV/AIDS awareness is associated with a stigmatising and discriminatory attitude toward people because of their health conditions (Stang et al., 2019; Beyene and Beyene, 2015; Feyissa et al., 2012). As discussed in section 2.11, this attitude is a major barrier for people living with HIV and AIDS to seek health care and utilise prevention activities (Andersson et al., 2019; Grossman and Stangl, 2013; Mahajan et al., 2008).

2.5 SOCIAL NETWORKING AND SUPPORT

Social-level factors include social capital, which are the, "features of social organisation, such as trust, norms, and networks that can improve the efficiency of society by facilitating

coordinated actions” (Putnam, 1993, p.56). In these networks, Hawe and Shiell (2000) state that individual members secure benefits in material resources as they secure better access to assistance, information and opportunities for a livelihood. Studies have also shown that membership of religious groups and youth sports clubs promotes self-esteem, coping skills, positive emotions and behaviour change. Social capital empowers members in groups with resources and prevention information that encourages the adoption of protective behaviours against HIV infection (Frumence, et al., 2014; Campell et al., 2013). On the other hand, membership of groups involved in risky social behaviour was found to increase the risk of HIV infection (Takyi, 2003; Campbell et al., 2002). These social contexts exist in communities that connect people through all levels of the society. It is important to note that networks in social relationships are a potential route for both HIV transmission and the prevention of information diffusion (Soskolne and Shtarkshall, 2002). This section will examine the role of social networks/capital to understand how both the HIV virus and prevention measures are diffused in different dimensions of networking, as exemplified in Table 2.5 and Figure 2.6.

Table 2.5 Dimensions of Social Capital

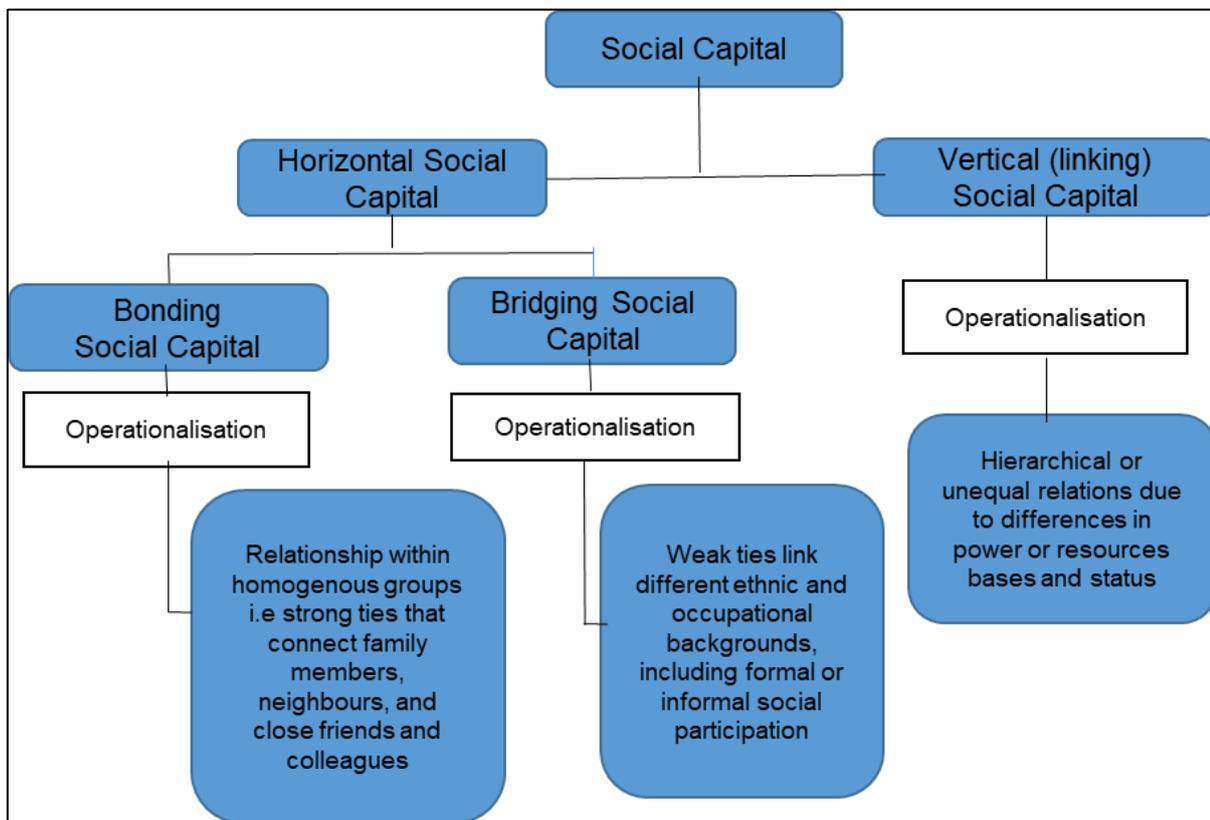
Type of social Network	Dimension of social capital	Conceptualisation of dimension of social capital	Author
Horizontal	Bonding	<ul style="list-style-type: none"> • Close ties in relationships among people who are homogenous, such as families, friends and ethnic groups (within or between local settings) • Interactions that exist between people living in the same locality or close neighbourhood • Ties among groups of people with similar characteristics • Relationships amongst members in a network who are similar in some form 	<p>Woolock, 2001; Gilchrist, 2004</p> <p>Wallis and Crocker, 1998</p> <p>Putnam, 2000</p>
	Bridging	Relationships with people who share different characterises between or across groups with weak close ties	Ferlandner, 2007
Vertical	Linking	Relationships that vertically connect people across the social scale, i.e. up and down the social scale	Woolcook, 2001)

Social capital occurs at different levels (Table 2.5) namely with family and friends, the surrounding environment, the community, and organisational and governmental (Fine and Lapavitsas, 2004). Dimensions of social capital are identified as informal, formal, trust, and norms of collective action (Liu and Besser, 2003). Three other separate dimensions of how people network to mobilise resources for common use are bonding, bridging, and linking capital. Each dimension, as conceptualised by different authors, is further described in Table 2.5.

2.5.1 Dimensions of Social Capital

In this research, the conceptualisation of social capital draws from, and hinges on, all multiple concepts discussed above, while the analysis of social capital rests on all three dimensions indicated in the literature. Horizontal and vertical social capital is considered useful in this study. This is because, on many occasions, the line between bonding and bridging is too thin to be identified in some relationships. As such, this research intends to discuss the outcomes of this study based on the horizontal and vertical networking dimensions to benefit from social support, as highlighted by Islam et al. (2006) and Narayan and Cassidy (2001) and explained in Figure 2.6.

Figure 2.6: Classification of Social Capital



Adopted from Islam et al. (2006) and Narayan and Cassidy (2001)

2.5.2 Social Capital, Health and HIV/AIDS

The literature reveals that membership of groups, like religious, youth and sports associations, promotes self-esteem, efficacy, coping skills, positive emotions and behavioural change (Takyi, 2003; Campbell et al., 2002; Ellison and Lavin, 1998). However, Portes (1998) argues that individual membership in a group limits opportunities for non-network or non-group members

while exerting undue demands on group members; moreover, Portes further argues that, where individual freedom is restricted, risky behaviours are reinforced. Campbell et al. (2002) found that the membership of social groups influences, for example, alcohol consumption and increases the risk of HIV/AIDS in South Africa. However, interaction in a group can also provide support that promotes wellbeing and reduces the chances of HIV/AIDS infection.

2.6 STIGMA AND DISCRIMINATION

The word stigma is Greek in origin and referred originally to a stain on the body, which was a symbol of a person's poor morals. In 1963, Goffman (1963) expressed the idea that stigma is a severely humiliating attribute attached to a person in a social interaction. Stigma is a mark of discredit for deviation from behaviours specified by the society as a standard rule for how people should present themselves (Stang et al., 2019; Goffman, 1963). Noncompliance with social standards reduces a person's status, leading to a denial of rights, and prompting a group or individual to refuse social recognition as the stigmatised person is treated with contempt (Rao et al., 2019; Tyler, 2018). Discrimination is a concept that refers to action or the treatment in any form that excludes a person because of personal characteristics (Lawson et al., 2006). In a broad dimension, Mahajan et al. (2008 p.5) said, “... *discrimination is a behaviour or an action in which a distinction is made against people that results in the person being treated unfairly or unjustly on the basis of belonging, or being perceived to belong to a particular group.*” Discrimination emanates from stigma and these concepts are significantly related (Stang et al., 2019; Nachaga et al., 2012). As a social process, stigma is a struggle for power in a social network as some people dominate while others are excluded (Brown et al., 2010; Link and Pelen, 2001; Parker and Angleton, 2002).

Stigma and discrimination are well-documented barriers in social relationships with implications for health-seeking behaviour, including in relation to HIV/AIDS (Andersson et al., 2019; Grossman and Stangl, 2013; Mahajan et al., 2008; Carr and Gramling, 2004; Parker and Aggleton, 2003). Among the root causes of stigma and discrimination related to HIV/AIDS are a low level of understanding about the disease (Khan et al., 2020; Khe et al., 2019; Beyene and Beyene, 2015; Feyissa et al., 2012), a fear of HIV transmission (Gesese et al., 2017, Aniley et al., 2016), and its association with immoral behaviour (Tsang et al., 2019; Cunningham et al., 2011; Harris, 2010). Attribution of blame to one's social behaviour or health conditions leads to isolation (Biordi and Nicholson, 2013; Nachwga et al., 2012) and prevents some people from accessing HIV treatment (Bohnert and Latkin, 2009) and testing services (Ford et al., 2013). Studies report that stigmatising attitudes prompt people infected with HIV to hide their status

and not seek treatment (Arrey et al., 2017; Marsicano et al., 2014). The experience of stigma and discrimination causes health inequality in a population through the aforementioned mechanisms, which heightens risky behaviour and results in poor health (Hatzenbuehler et al., 2013; Scambler, 2009).

Globally, studies have indicated that stigma and discrimination have different sources (Tsang et al., 2019; Odimegwu et al., 2017). Stigma and discrimination can occur at the societal/cultural or individual level. At the social level, they are evident in laws, policies, expressions and conditions that discriminate against people living with HIV/AIDS (Herek and Captino, 1999). At the individual level, stigma and discrimination manifest in attitudes, judgments or feelings that are unfair to people living with HIV/AIDS (Hibbert et al., 2018; Odimegwu et al., 2013). Stigma and discrimination are expressed in avoidance, social isolation, intimidation and a lack of support, leading to low self-esteem and the discouragement of health-seeking behaviour (Manjok and Essien, 2009; Kalichman and Simbayi, 2003; Jacoby, 1994).

2.7 THEORETICAL/CONCEPTUAL FRAMEWORK

This segment of the literature review discusses relevant conceptual literature that informed the research process; these are related to disease diffusion, the social epidemiology of HIV/AIDS, and agency and structure.

2.7.1 Disease Diffusion

Understanding the way that disease and prevention information spreads is important for both policy and practice to ensure wellbeing and sustainable development (UN, 2015). For infections like HIV that have multiple modes of transmission and multiple sites of impact, it is critical to understand the ways in which diffusion from its origin to other places and populations occurs (Sadikov et al., 2011; Haggett, 2000). HIV is an infectious disease that relies on close contact between infected individuals and those at risk of transmission. As a result, it is assumed that person-to-person contact is essential to the spread of disease, especially in areas where there is high population density and good communication routes (Jenkins, 1999; Gould, 1993). This sexual contact involves groups of persons connected to one another sexually and if the number of persons in the network is large, the risk of HIV transmission within is also large (Potterat, et al. 2002; Gupta et al., 1989). Similarly, prevention information about a disease, such as HIV/AIDS, diffuses from an origin (where the disease leads to a response) through individuals and different social networks in a population (Rogers, 2003).

In 1952, Hagerstrand developed a diffusion wave model to explain how fast new ideas or information about innovations in farming practices spread across Sweden. Hagerstrand's account of diffusion – the diffusion wave model – has been adopted in epidemiology to understand the spread of disease (Jenkins, 1999; Gould, 1993). The diffusion wave model shows that contagious infections often spread through populations in waves. A person has to come into contact with someone who is contagious to be infected with a disease, after which they infect others, who in turn infect a greater number of people (Cliff, 1981). In the case of the HIV virus, unprotected sexual intercourse with an infected person or sharing objects, like syringes, with an infected person transmits the virus (Helleringer and Kohler, 2007).

The lack of cure for HIV and AIDS has prompted emphasis on behaviour and social change among the countries most affected in order to hasten the decline of infection and reduce the burden of the epidemic (de Wit et al., 2011). This approach was informed by the philosophy that people who are given proper transmission and prevention information are likely to inform and influence their networks faster (Rogers, 2004). Rogers (2003) posits that individuals are introduced to a new idea within their interpersonal groups, which determines the rate at which people adopt a change in behaviour. This suggests that people accept and adopt new behaviours more quickly if they are based on the awareness communicated to them by other members in their group. Rogers (2003) argued that the information received influences opinion and judgment very quickly and produces modified behaviour.

In Plateau State, the HIV virus diffused in waves to neighbouring states in the North Central geopolitical zone (Djukpen, 2012; Balogun, 2010). As asserted in diffusion innovation theory, it is expected that HIV reduction in Plateau State is a reflection of the diffusion of key prevention measures through relationships among individuals in social or community groups. However, HIV infection declined in Plateau State but failed to decline in surrounding States. Therefore, this study will explore how behaviour among individuals in their social networks or groups was modified.

2.7.2 Social Epidemiology of HIV/AIDS

Social epidemiology is concerned with the distribution of health and disease in a society and examines the socio-structural factors that affect this distribution, and how those factors influence individual and population health (Berkman and Kawachi, 2014). It provides a basis for understanding the underlying social mechanisms that cause disease patterns within a population (Honjo, 2004). Social epidemiology explores the influence of social processes on

health and health-seeking behaviour (von dem Knesebeck, 2015). These social conditions are the “*core social processes and arrangements, reflective of social and cultural norms, values, networks, structures and institutions, that operate around and in concert with individuals’ behaviour and practices to influence HIV epidemics in a particular setting*” (Auerbach et al., 2011, p.3). These social conditions are responsible for the behavioural choices that make people vulnerable to diseases, like HIV and AIDS. Poundstone et al. (2004) identified the individual, social, and structural level factors that influence both the risk of HIV transmission and behavioural change.

2.7.2.1 Individual Level Factors

Individual level factors include the biological, socio-economic, and behavioural characteristics that predispose people to the risk of HIV infection and disease progression. These constraints relate to the strong association of HIV transmission with individuals’ attributes. For example, low educational status and low income earning activities constrain people into the earlier initiation of sexual activity and the inconsistent use of condoms (Adler, 2006). These individuals are targeted with prevention information to modify behaviours that increase vulnerability to HIV transmission and in turn influence their peers, who equally spread information to their larger networks (Coates et al., 2008; Hallett, et al., 2006; UNAIDS, 1999). Studies have shown that HIV infection decline is a function of behaviour change from implemented prevention programmes that addresses awareness and social-structural factors (Keyayi et al., 2012; Halperin et al., 2011; Muchini et al., 2011). In the absence of preventive measures, changes in behaviour, which are reflected in the HIV infection decline, may result from personal experience or a growing concern for the realities of AIDS morbidity and mortality (Green and Witte, 2006; Brown, 2000; UNAIDS, 1999; Anderson and May, 1987). This study will examine how the different levels of factors (in Figure 2.7) drive individuals to decide on forms of sexual behaviour that enable/limit vulnerability to HIV transmission.

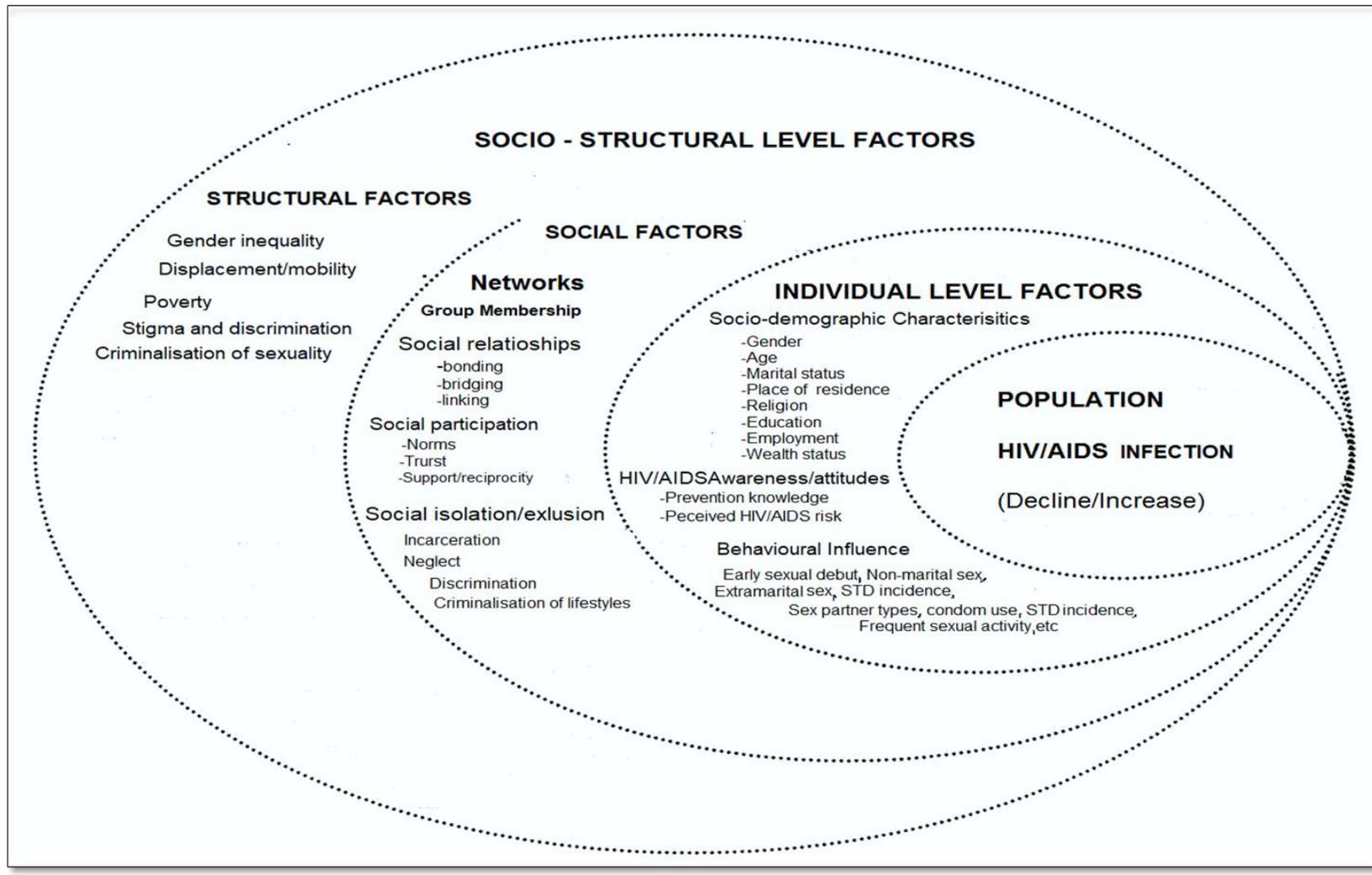
2.7.2.2 Socio-structural Level Factors

Socio-structural factors define the conditions that shape the circumstances and actions that make people vulnerable, but at the same time these conditions can facilitate change in behaviour that limit the transmission of HIV (Choby and Clark, 2014; Williams, 2003). These conditions relate to structures that surround human activity, among which are the social norms in society, discrimination, violent conflict and displacement (Poundstone, et al., 2004). Populations, as in the case of this study, affected by violent conflict are more vulnerable to HIV spread (Spiegel,

2004). Violent conflict forces displacement/movement and disrupts economic activities, creating financial distress which increases the risk of HIV transmission (Whiteside et al., 2006).

These structures include a person's characteristics, cultural norms and practices on gender, religion and sexuality that make people vulnerable to HIV infection in sub-Saharan Africa (Sovran, 2013). The growing recognition of the socio-structural barriers to the prevention and control of HIV allowed for structural interventions that aimed to change the conditions in which people live, affecting individual behaviour rather than targeting the behaviour itself (Coates, et al., 2008; Barnett and Whiteside, 2002). These individual and socio-structural level factors are important for the examination of conditions that shape intention for action taken by an individual or community that relates to HIV infection.

Figure 2.7: A Heuristic Framework for the Social Epidemiology of HIV/AIDS



Source: Adopted from Poundstone et al. (2004, p.24)
 (The dotted lines only delineate the different levels of factors as connections exist in reality between the levels)

2.7.3 Agency, Structure and HIV/AIDS

In order to understand the social epidemiology of the HIV epidemic in Nigeria and how it presents differently between and within states, this research draws on Giddens' (1986) concept of structure and agency to understand their role in contributing to the HIV situation. Agency resides within an individual and positions him/her with the motivation, potential and capacity to influence others to produce intended and foreseen effects (Spencer, 2013; Wrong, 2012; Foucault, 1991). Kippas et al. (2013) argue that individuals are autonomous agents who can adopt protective actions if given appropriate information about the risk of HIV infection, how to prevent it, and access to prevention strategies such as condoms. Accordingly, achieving a reduction in HIV infection relies (in part) on the agency of individuals who have acquired the infection, and who are capable of making decisions and choices that can change the course of their social lives (van Rooyen, 2013; Ritzer, 2012). In line with this research, individuals experience behaviour change through the provision of information and skills in their social groups. These individuals are motivated to adopt the information from and to influence their circle of family members, friends or associates, among whom the information can spread quickly and lead to behavioural change. This study explores how individuals are driven to make choices and decisions that either increased or limited their vulnerability to HIV transmission in their social groups or organisations.

Structures are the rules and resources that enhance or constrain peoples' practices (Sewell, 1992; Giddens, 1986). Structural conditions can influence individuals and configure their lifestyle patterns in particular ways, but individuals can reject or modify these patterns (Cockerham, 2005; Sewell, 1992). Key literature highlights the ways that policy, cultural and social environments in which individuals live constitute barriers to their well-being and serve to promote conditions in which HIV/AIDS thrives. These barriers include poverty (Alsan et al, 2011; Obi et al., 2010), racism/ethnicity (Huebner et al., 2014; Ford et al., 2009), and gender inequality (Zierler and Krieger, 1997).

2.8 CONCLUSION

This chapter reviewed literature on sexual behaviour and the social conditions that encourage or constrain the risk of HIV transmission. Section 2.1 introduces the process involved in the literature review. The literature review outcome begins with the understanding of HIV and AIDS, the various stages and progression of the virus in the human body in section 2.2.1. Also reviewed in section 2.2.2 was the character of the virus and its spread, as generated by myths and misconceptions that increase the risk of infection in section 2.2.2. Sections 2.2.3 discuss the rapid emergence of different forms of the disease's mutation and distribution from the literature, which provides a context for the current condition of HIV prevalence. In section 2.3, the study argues that heterosexual relationships contributed significantly to the spread of HIV. Conceptually, the research engaged literature on the personal, social and structural factors that influence sexual behaviour. Details of the socio-demographic and HIV/AIDS-related attitudes as downstream elements are examined in section 2.4. These social conditions have been reviewed in sections 2.5 and 2.6. In section 2.7, the conceptual research framework highlighted that a disease like HIV/AIDS relies on sexual contact and networks to thrive; a person has the power within him to prevent the infection, but the conditions surrounding him can serve as a barrier and increase the risk to wellbeing.

CHAPTER THREE

MIXED METHODS RESEARCH METHODOLOGY

3.1 INTRODUCTION

The previous chapter reviewed key concepts and empirical evidence that contextualise sexual behaviour, HIV/AIDS, and the scholarship of social epidemiology from the wider body of literature. The burgeoning literature informed the gaps and the need to focus on the personal, social and structural dynamics of HIV risk and epidemiology. This chapter details the plans and procedures undertaken in a mixed-methods research approach to address the research problem, which is presented in three major components. The first section highlights the purpose of the study, addresses questions raised by the study, and considers the specific objectives to be addressed. The second largely focuses on the strategies within the methodological framework, the philosophical worldview underpinning the study, the methods of data collection and the analytical approaches. Thirdly, the chapter discusses the ethical issues, positionality (including reflexivity), and the limitations associated with the implementation of the research project.

3.2 THE RESEARCH PURPOSE

The main aim of the study is to determine sexual behaviour, explore the social-structural conditions that influence the risk of HIV, and gain insights to how the infection declines in one setting but rises or persists in another. Understanding the reasons why the epidemiology varied in each study location can support the process for sustainable sexual health and halt the HIV/AIDS epidemic in line with the Sustainable Development Goals (SDGs). Thus, the following questions are addressed:

1. What are the forms and trends of sexual behaviour in the study locations?
2. What indicates sexual behaviour that carries risk of HIV transmission?
3. How do individual background characteristics determine sexual behaviour that increase the risk of HIV transmission?
4. How are people motivated to engage in behaviours that contain or facilitate the risk of acquiring or transmitting HIV and the epidemiological conditions in the study settings?
5. What are the existing social and community groups, and which do people affiliate with?
6. What are the mechanisms through which people develop rapport and raise support to facilitate or constrain sexual behaviour and the risk of HIV?
7. What HIV/AIDS and health-related prevention programmes are implemented in the study settings?

8. What role do the HIV/AIDS programmes contribute to the HIV/AIDS situations in the study locations?

The above questions focus on the key problems and form the basis for the research through the data required to answer them. To provide order to the research questions and achieve the primary aim of the study, specific objectives emerged, which are outlined below:

1. To understand sexual behaviours in relation to HIV transmission in Plateau and Nasarawa States:
 - a) To describe the forms and timings of sexual behaviour in the study settings;
 - b) To determine factors associated with risky sexual behaviour and the likelihood of acquiring or transmitting HIV;
 - c) To explore underlying factors, including personal motivations that explain the concentration of sexual behaviours and the risk of HIV transmission.
2. To investigate the role of social groups/networks and social capital in the prevention of HIV transmission in the study locations:
 - a) To identify the key characteristics of social groups and networks related to HIV transmission and prevention in the study sites;
 - b) To describe the mechanisms through which social groups and networks construct social capital that constrains or facilitates exposure to risky sexual behaviour and HIV transmission.
3. To analyse the roles of HIV/AIDS prevention programmes on the epidemiological situations in Plateau and Nasarawa States.
 - a) To characterise HIV/AIDS prevention and health-related activities in the study locations;
 - b) To explore the mechanisms through which the implementation of HIV/AIDS activities may have influenced the HIV prevalence in Plateau State and Nasarawa State.

The overall research design is summarised in Table 3.1. Details of the entire process are then discussed in the subsequent sections.

Table 3.1: Research objectives, approaches, and justification for use

Research Objectives		Data collection methods	Justification for use of methods and types data required
To understand sexual behaviours in relation to HIV transmission in Plateau and Nasarawa States	<ul style="list-style-type: none"> ▪ To describe the forms and timings of sexual behaviour in the study settings. ▪ To determine factors associated with risky sexual behaviour and likelihood of acquiring or transmitting HIV. ▪ To explore underlying factors, including personal motivation that explain concentration of sexual behaviours and the risk of HIV transmission. 	Survey method	Survey method is useful in providing data that address problems that focus on <i>What, Where, how many, and When</i> . The National Demographic and Health surveys obtained were randomly standardized and reliable for generalisation of results that supports practice. (Bell, 2014, Field, 2013, Creswell, 2009). Survey is best for accessing data on behavioural and detail account of background characteristics to set a tune for qualitative research that directs on answering the <i>why and how</i> questions in research (Yin, 2018, Bell, 2014) in adding value on the results.
		Semi-structured interview	Survey method is inadequate for deeper insight into why <i>and how</i> social conditions occur. Forms of sexual behaviours from surveys were useful in the design of questions that guide in-depth discussions that were flexible in exploring personal opinions and narratives around sexual experiences (Yin, 2014). The outcomes are better for finding meaning to the motivations on peoples' sexual choices that encourage or constrain the risk of HIV acquisition.
		Key Informants interview	
		Participants' observations	A close look at real live sex hawking, street prostitution, late-night drinking and disco/clubbing hot spots for social activities that trigger behaviours link with sexual risk of HIV/AIDS.
To investigate the role of social groups/network and social capital on HIV transmission situation in the study locations	<ul style="list-style-type: none"> ▪ To identify key characteristics of social groups/networks related to HIV transmission/prevention the study locations 	Survey method	Survey provides background detail information like socio-demographic, and HIV/AIDS awareness and attitudes that guide the identification and selection of participants for in-depth interviews.
			Allows for trust and rapport with participants on one-to-one in a face to face informal talks about their day to day activities that offers access to details about participation in social group, network or organisation and their benefits link to social and sexual risk of HIV acquisition.

Table 3.1: Research objectives, approaches, and justification for use (cont.)

Research Objectives		Research Objectives	Justification for use of methods and types data required
	<ul style="list-style-type: none"> ▪ To describe mechanisms through which social groups and networks constructed social capital that constrain or facilitates exposure to risky sexual behaviour and HIV transmission. 	Key Informant interviews	Allows to engage professionals, community elites or gatekeepers for their personal insights to obtain first-hand on past and present events in the community for experiences about activities on HIV/AIDS prevention programmes/projects and implementations in corroborating with other evidences in addressing the research purpose (Bryman, 2015)
		Participants' observations	Give access to settings where real live involvement in community and social groups, rapport, and supports that motivate people to draw and utilise social advantages/resources or hindrances to mitigate/facilitate the risk of HIV/AIDS.
		Policy Document Review	Provides access to past and present philosophy of groups/organisations, their activities and the manner which they support and influence HIV prevention measures. Details on HIV/AIDS prevention programmes/projects policies, implementation reports and evaluation of impacts of specific activities are obtained and verified with other data to address the research objectives
To analyse the roles of HIV/AIDS prevention programmes on the HIV situations in the study locations	<ul style="list-style-type: none"> ▪ To characterise HIV/AIDS prevention and health-related activities in the study locations ▪ To explore the mechanisms through which the implementation of HIV/AIDS activities may have influence HIV infection situations 	Semi structured interviews	Probe the opinion and experiences of specific prevention/intervention activities provided or observed (key Informants) or benefited/participated (semi-structured). The evidence from the prevention activities is helpful explore the benefits of the implementation.
		Key informant interviews	
		Policy Document Review	Useful for contact with content of Sexual behaviour, HIV/AIDS and health-related reports, policies, intervention appraisal for classification into related themes for the reality on evidence (Bowen, 2009) to corroborate data for empirical research output

3.3 THE PHILOSOPHY OF MIXED METHODS RESEARCH

The editors of the Encyclopaedia Britannica describe philosophy as a “love of wisdom”, or a rational, abstract, and methodical consideration of reality as a basis for understanding human existence and experience (Augustyn et al., 2010). Therefore philosophy is concerned with a set of beliefs about a logical understanding of ultimate truths about the universe and human nature. Such understanding is drawn from the phenomena, approaches and procedures of that analysis, and the value of the outcome (Creswell and Creswell, 2018; Bhai, 2013). Thus, the philosophical assumptions in which a researcher positions an inquiry typically articulates the associated empirical values (Mertens, 2013). Table 3.2 presents the key paradigms that inform debates around the theoretical perspectives widely held and described in the literature.

Table 3.2: Common Research Paradigms in the Literature

Research Paradigms	Authors
Positivism, Interpretivism, Critical Inquiry, Feminism and Postmodernism	Grey (2013)
Positivism, Constructivism or Interpretivism	Bryman (2012); Lather (1992)
Positivism, Constructivism and Critical Theory	Guba and Lincoln (2005)
Postmodernism, Poststructuralism, and Deconstructivism	Clegg and Slife (2009); Pierre (2000); Crotty, (1998)
Positivism, Social Constructionism, Critical Paradigm, and Postmodernism	CeCarlo (2018)
Positivism, Critical Realism, Interpretivism, Post-Modernism, Pragmatism	Saunders et al. (2019)
Positivism, Constructivism, Transformative, and Pragmatism	Creswell and Creswell, (2018) Mertens (2013)

Although the theoretical worldviews that guide research are many (as shown Table 3.2), researchers are advised to focus on the specific set of beliefs that best suits the nature of the social world in their inquiry (Creswell and Creswell, 2018; Gray, 2013; Crotty, 1998). To this end, this study only discusses the basic philosophical position that underpins this study; summaries of other worldviews and related literature are highlighted in Table 3.2. A philosophical worldview is key to understanding the nature of truth or reality, and the knowledge and relationship between the knower and would-be known, as based on the ontological, epistemological, and axiological values (Sanders et al., 2019; Žukauskas et al. 2018; Guba and Lincoln, 2005).

Accordingly, ontology studies ‘being’ or ‘what exists’, with a focus on the nature and structure of existence or an account of what genuinely exists (Bricker, 2014; Crotty, 1998). Epistemology is concerned with the nature and form, and acquisition and communication of legitimate and

acceptable knowledge in an inquiry (Bryman, 2013; Cohen et al., 2007; Crotty, 1998). Meanwhile, axiology is a rationale that gauges value in the process by seeking to understand, explain or predict phenomenon. In this case, axiology primarily concerns the lens through which the researcher judges and values entire relationships involved in the process of an inquiry in order to achieve the study objectives (Saunders et al., 2019); indeed, the value system of a researcher informs the choice of action (Heron, 1996). In short, ontology seeks to identify general assumptions to perceive the real nature of “what is out there”. Epistemology explores the appropriate parameters and assumptions of “what is to know” and relates to the approaches and processes involved in constructing questions, the research design, and adopting the right methods to understand the ‘real world’ (Yeganeh et al., 2004). An axiological position considers the role of values and morals on the choices of participants; it particularly concerns their views, rights, beliefs and experiences in the study (Saunders et al., 2016; Grey, 2013). As is shown in Table 3.2, positivism, constructivism/interpretivist and pragmatism are the key research philosophy, where pragmatism believes there is no single way to understanding reality, as there are multiple realities; but focuses on the most important design and strategy in organising reliable and appropriate data to address practical outcomes of research problem (Creswell and Creswell, 2018). As this studies utilised a mixed methods approach, the pragmatic approach is best suited, and this is discussed next.

3.3.1 Pragmatism Research Paradigm

This is one of the key research paradigms that is based on the rationale that human actions are the result of beliefs and behaviours that originate from past experiences (Morgan, 2014; Creswell and Clark, 2011). Creswell (2009, page 10) further indicated that it “*arises out of actions, situations, and consequences*”, meaning that the action people take is driven by its possible consequences, which forms the basis for similar outcomes in future. In order to gain insight into the nature of society (ontology), pragmatism posits that various ambiguous single and multiple truths exist, which depend on the language, history and culture of the researcher and the objects of inquiry (Creswell and Plano, 2007; Dewey, 1999). Epistemologically, pragmatism is founded on the belief that knowledge is unique to individuals and derived from our social experiences, which informs the way we view the world and relationships, and shapes the way we manage our existence. Morgan (2014b, pp.26-27) noted that pragmatism generally focuses more on experience than on the nature of reality, where “*action cannot be separated from the situations and contexts in which they occur... actions are linked to consequences in*

ways that are open to change. As such, the consequences of actions reflect the beliefs and habits of the people...”

In understanding the world, pragmatism portrays a mixture of positivist, social constructivist or interpretivist, and realist ideas to produce knowledge (Feilzer, 2009; Rorty, 2000, 1999). The flexibility in pragmatism supports the use of elements and skills that characterise the values in both quantitative and qualitative research. Pragmatism is concerned with ‘what works’ when considering the truth informing the questions in an inquiry; this contrasts with assumptions based on absolute and objective reality (Tashakkori and Teddlie 2010). Morgan (2014), and Goles and Hirschheim (2000) highlighted that pragmatists believe in utilising anything to achieve their goals through evidence-based research outcomes. In a broader sense, pragmatism is not just simply a philosophical position, but a set of philosophical tools and a research paradigm with values that are best oriented to addressing real world problems (Creswell and Clark, 2011; Biesta, 2010). Pragmatism functions as a methodological tool that links philosophical ideas and seeks to understand the social world (Morgan, 2007) in the process of constructing knowledge. It is generally unique, as it goes beyond the relay of one mutually exclusive research assumption; instead, it combines the strengths of both positivist (quantitative) and constructivist/interpretivist (qualitative) research strategies.

This study adopts a mixed methods approach that avoids controversies surrounding ‘truth’ or ‘reality’ and instead focuses on what works best in establishing an appropriate context to create knowledge (Mertens, 2013; Feilzer 2010; Morgan, 2007; Tashakkori and Teddlie 1998). Therefore, epistemologically, pragmatism has a multifaceted research worldview that accommodates both quantitative and qualitative strategies, and is compatible with mixed methods research. Morgan (2007) emphasises that the pragmatist’s approach to research is flexible in that it ensures reflective and reflexive choices in the conduct of research; therefore, it is appropriate for identifying solutions to research problems. This perspective helps in determining research strategies, instruments, and the analysis of numerical data and text from in-depth narratives to achieve evidence-based results.

Generally, the pragmatic philosophical stance has helped this study to rationally align elements in other research paradigms under a mixed methods approach, as it is expansive, creative, inclusive, pluralistic, and complementary to best practice (Johnson and Onwuegbuzie, 2004; Hallway and Tordres, 2003). In line with Morgan (2014b), pragmatism has informs this research by:

- Revealing the practical nature of sexual behaviour and socio-structural conditions by establishing their relevance as problems for inquiry;
- Identifying subjective conditions in relation to prevailing daily experiences and new perspectives to understand risky behaviour and HIV epidemiological situations;
- Permitting the development of designs, choices and practical actions that address specific questions raised in the research;
- Allowing for critical review and reflection on the methodological tools and methods to ensure the adoption of what works best and thereby validate solutions to a problem, and;
- Implementing research based on specific outlined activities that achieve the expected outcomes and provide evidence grounded in best practice.

The mechanisms in this pragmatic research approach are outcome oriented, and focus on the study context to address practical nature of sexual behaviour and HIV situations in a variety of settings. A detailed discussion on the different designs and strategies follow in the upcoming subsections.

3.4 RATIONALE FOR CHOOSING MIXED METHODS

Mixed methods research is a key tool with principles that guides the systematic ways in which appropriate data are collected and analysed to provide evidence-based for the construction of knowledge (Creswell, 2009; Creswell and Tashakkori, 2007). The method considers the use of quantitative and qualitative techniques to gather data and thereby understand the phenomena under inquiry (Teddlie and Tashakkori, 2006; Greene et al., 1989). The quantitative and qualitative research methods' principles better adaptable in the pragmatism research paradigm (see details in 3.3.1, page). Pragmatism stance in doing research has practical significance as a unique paradigm with an inherent offer of complementary that supports a mix of different research approaches for data collection and various modes of analytical techniques in a single study (Feilzer, 2010; Johnson and Onwuegbuzie, 2004). Pragmatism offers the appropriate research paradigm for numerical and textual data collection and analysis to adequately address research questions (Williams, 2007; Johnson and Onwuegbuzie, 2004).

The paradigm is driven by the philosophical position about the nature of reality and values that inform the problems under investigation (Green and Carecelli, 1997). The practice perspective concerns the strategy that looks at the traditional root-cause of an existing phenomenon in its natural setting by using direct or direct discussion to explore, generate, share, develop and

challenge ideas (Creswell and Tashakkori, 2007; Tashakkori, 2006). A methodology offers a comprehensive design that is informed by underpinning philosophies, questions, and data management, and incorporates the interpretation of the research results (Creswell and Creswell, 2018; Tashakkori, et al., 2000). These perspectives are important underlying principles in research. Consequently, this mixed-methods study integrates the paradigm, practice and methodological perspectives by adopting multiple strategies in the collection of data to enable a deeper and broader understanding of the reality and related value systems in the context of inquiry (Kitchin and Tate, 2013; Creswell and Tashakkori, 2007).

A mixed methods design considers triangulation, complementarity, initiation, development, and the expansion benefits of a study (Greene et al., 1989). Basically, *triangulation* is concerned with more than one methodological approach, multiple sources of data, a team of investigators, and more than one theoretical assumption. *Complementarity* denotes the use of results from one research approach to improve or explain the initial results from another research approach. *Initiation* is where a new understanding emerges from research, which motivates a new perspective on a research problem or a question for greater depth. *Development* concerns results and insights from one research approach, which gives a dimension to another relevant research methods. *Expansion* is where different angles of an inquiry are addressed by different but equally suitable research methods.

The motivation for using a mixed methods approach in this study is informed by its compatibility with pragmatism research philosophy, which enables the use of approaches that are not restricted to a particular research perspective, but focuses on addressing the research problems. Mixed-methods has significance for complementarity of data and evidence from two different research phases discussed in section 3.5.1, pages 89-91 and also allows for the triangulation of data and analytical procedures in providing evidence-based outcomes (see details section 3.8, pages 139-147. Here, only the compatibility of mixed methods with pragmatic research philosophical stance have been discussed avoid repetition of the sections mentioned (3.4.1 and 3.8).

3.4.1 Compatibility with Pragmatism Research Perspective

This study seeks to critically explore and understand complexity in the social epidemiology of HIV with a focus on sexual behaviour and the risk of acquiring or transmitting the virus. This novelty aims to provide evidence of the ‘what’, ‘when’, ‘how’ and ‘why’ concerning the risk

of HIV infection and its distribution in settings with declining and rising/high situations. HIV/AIDS has evolved over the last four decades; its approach has solely relied on a quantitative paradigm in which the biomedical model and the use of experimental observations have dominated the procedures (Rosengarten, 2010). This quantitative approach held that only one objective reality exists and is independent of the researcher's view. The researcher does not influence the phenomenon under inquiry and is not affected by it. This approach is based on positivism research paradigm whose, "*hegemony is being challenged by a social scientist who argues that experimental methods often are not appropriate for addressing social-level questions... [that] must come to accept a range of 'ways of knowing' in which evidence is derived from different methodologies appropriate to the question and level of analysis*" (Auerbach, 2009, page vi-vii). Subsequently, the qualitative research paradigm emerged which is founded on the belief that multiple realities exist and that the researchers' experience is significant. In this approach, the researcher and phenomenon under study cannot be separated as it is primarily focused on the process, rather than the outcomes. It enables insights into how people make sense of their lives and experiences, and their view of the world around them (Danzin and Lincoln, 2008; John and Onwuegbuzier, 2004; Sale et al., 2002).

A quantitative approach follows the quantitative models, which collect data to test theories by examining relationships among variables. In comparison, the qualitative approach is drawn from a research qualitative paradigm that is 'exploratory' or 'inductive'. It entails the collection of narratives about experiences and their textual management in order to understand the depth of meaning that individuals or groups attribute to their social realities (Creswell, 2014; Danzin and Lincoln, 2008). The biomedical and social approaches have been criticised for failing to independently address sexual and social questions surrounding HIV (Marks, 2002). Indeed, Muijs (2010, p.10) argued that the underlying philosophy in each of the approaches are "*warring incommensurable fraction*" that limit insight into the depth and breadth about HIV, which have both single and multiple sides of truth in a setting (Creswell and Clark, 2007). The weaknesses of research independently based on positivism or constructivism/interpretivism highlights the need for a paradigm that bridges both perspectives and is sufficiently flexible for integration within single study (Kippax, and Stephenson, 2012; Biesta, 2010). Combining the opposing research perspectives could provide robust data and evidence-based results about the complex phenomena reflecting local social understanding (Maarout, 2019).

Hence, the emergence of pragmatism suggests a way of conceptualising and addressing methodological issues in social epidemiology by "*recognising the validity of a variety of*

interests, perspectives, and forms of knowledge... [and is] suspicious of any effort to privilege a single point of view.” (Cornish and Gillespie, 2009, p.23). The appearance of pragmatism has legitimised the argument for blending quantitative and qualitative research perspectives to move away from two discrete conflicting approaches. Rather, these represent two ends of a continuum, with mixed-methods research located towards the middle (Maaroutf, 2019; Creswell, 2018; John and Onwuegbuzier, 2004).

Morgan (2014) argued that pragmatism validates the process of deciding purposeful questions in an inquiry and chooses appropriate methods and actions to find an answer. Hence, mixed methods is the only compatible research approach with the belief that single and multiple realities can be open to empirical inquiry (Creswell and Clark, 2007). While Teddlie and Tashakkori (2009, p.99) highlight that pragmatism is the ‘best paradigm’ for mixed-method research as it does not emphasise specific philosophical assumptions as much; moreover, it offers the researcher the freedom to decide ‘what works’ best in the process of addressing a research problem (Onwuegbuzie and Johnson, 2006), but does not imply that ‘anything goes’ (Denscombe, 2008, p.274).

In designing this study’s mixed method research, pragmatism informed the process and meant that the investigation had no preconceived assertions about the contextual realities, variables, and outcomes of the study (Scott and Briggs, 2009). The paradigm is concerned with research questions that inform the type of data and the specific methods required for collection (Creswell and Plano Clark, 2011; Tashakkori and Teddlie, 2010). Combining quantitative and qualitative research suggests the need for an abductive process that involves the integration of deductive and inductive approaches from a large body of relevant literature (see section and 3.6.1 and 3.7.1 for detail). The exercise supported the development of assumptions and operational concepts that measure and identify variables to establish significant statistical relationships, and the best explanations for the social phenomena. For instance, past literature confirmed that HIV has no cure, is infectious, and is mostly acquired or transmitted through heterosexual relationships. It was, however, not clear which specific behaviour occurs in each of the study settings. Quantitative techniques observed social distance from research participants to limit influence on the information they willingly supplied; this information yielded significant indicators of sexual behaviour in each study setting, while the qualitative approach provided key explanations of the motivations for engaging in HIV risky. The corroborating shreds of evidence in this mixed methods research are only possible through a pragmatic philosophy that

is action-focus and evidence-based in order “*to create practical solutions to a social problem*” (Shannon-Baker, 2016, p.322).

The pragmatic philosophical position adopted in the research does not rebuff interaction between researchers and participants, as rapport is important in developing trust and acceptance to pursue research in unique ways. Consequently, mixed-methods allow for contact with persons who volunteer to share their experiences using questionnaires (in the quantitative approach), and for rapport with individuals in different research communities for informal to enable in-depth discussion, and the observation of social activities in their natural settings. The use of these methods is only possible in a mixed research design, where singular and multiple social realities are simultaneously investigated to understand the implications of the experiences and actions associated with the social epidemiology of HIV (Morgan, 2014; Creswell and Clark, 2011; Rorty, 1999). Moreover, the compatibility of mixed-methods research with a pragmatic stance means the identification of evidence-based contextual factors of the declining and rising epidemiological situations in the study settings. The knowledge gained from combining quantitative and qualitative research approaches in each of the study settings are transferable to other similar circumstances. This allows for a more flexible research procedure to answer a wider variety of research questions

3.5 MIXED METHODS RESEARCH

The debate regarding the best choice of research technique between quantitative and qualitative has existed for over a century (Onwuegbuzie and Leech, 2005). Disputes emerged from two categories of intellectuals: First, those devoted to positivist or objectivist principles of inquiry who believed in deductively driven research to understand a phenomenon (Cooper et al., 2007; Campbell and Stanley, 1963; Campbell and Fisk, 1959). Secondly, there are those committed to constructivism/interpretivism or subjectivism, which is a qualitatively focused research tradition that originated from the social science disciplines (Creswell and Poth, 2018; Clandinin and Connelly, 2000), which held that reality exists within multiple perspectives that can be measured, discovered and the meanings interpreted based on the views of the social actors involved (Mertens, 2010).

The two scholarly worldviews are independent and mutually exclusive in their premises and approaches; each is inherently subjective and limited when attempting to address evolving complex contemporary social phenomena (Bhaskar, 1991; Greene et al., 1989). One of the early works that attempted to combine the two approaches was that by Julnes George (1995). He

developed the “*deduction versus induction and molar versus molecular*” approach that integrated the two and relied on the strength of both the positivist and interpretivist perspectives to enrich the understanding of a phenomenon (Caracelli and Greene, 1997, p.21). Julnes’ assumptions represent a pragmatic research tradition. A stance that is action-oriented and perspectives that address substantive research problems integrate both quantitative and qualitative methods (Johnson and Turner, 2010; Losch, 2009; Kell, 2006), such as mixed methods (Creswell and Clark 2017; Morgan 2014).

Mixed methods has been understood and described differently. The common definitions are:

“research in which the investigator collects and analyses data, integrates the findings, and draws inferences using both qualitative and quantitative approaches or methods in a single study or a program of inquiry”
(Tashakkori and Creswell, 2007, p.4).

“... combines elements of qualitative and quantitative research approaches (e. g., use of qualitative and quantitative viewpoints, data collection, analysis, inference techniques) for the broad purposes of breadth and depth of understanding and corroboration.”
(Johnson et al., 2007, p123).

However, a more *comprehensive* definition states that it is a:

“... research design with philosophical assumptions as well as methods of inquiry. As a methodology, it involves philosophical assumptions that guide the direction of the collection and analysis of data and the mixture of qualitative and quantitative data in a single study or series of studies. Its central premise is that the use of quantitative and qualitative approaches in combination provides a better understanding of research problems that either approach alone”

(Creswell and Plano, 2007, p.5).

A mixed method approach offers a significant, widespread and focused way to undertake a study by using multiple tools, for example multiple data and multiple analytical procedures. The approach adds a wide range of value to a study outcome by ensuring only the best procedures that comply with the nature of the data are used (Creswell, 2008; Bryman, 2006). Mixed methods is sufficiently flexible to adopt when investigating the complex, real-world daily reality of individuals and communities, where social, political, historical, economic, and cultural contexts are entwined with behavioural and health outcomes (Fawcett and Pockett, 2015; Creswell 2014; Curnish and Gilleppe, 2009). This study uses both quantitative and qualitative methods consecutively and triangulates the numerical and textual data gathered (Punch 2015; Oaches and Kaufman, 2014; Gell, 2013) in order to “*increase... the likelihood of*

arriving at a more thoroughly researched and better understood set of results” (Gell, 2013, p.10) in the context of HIV and health-related issues.

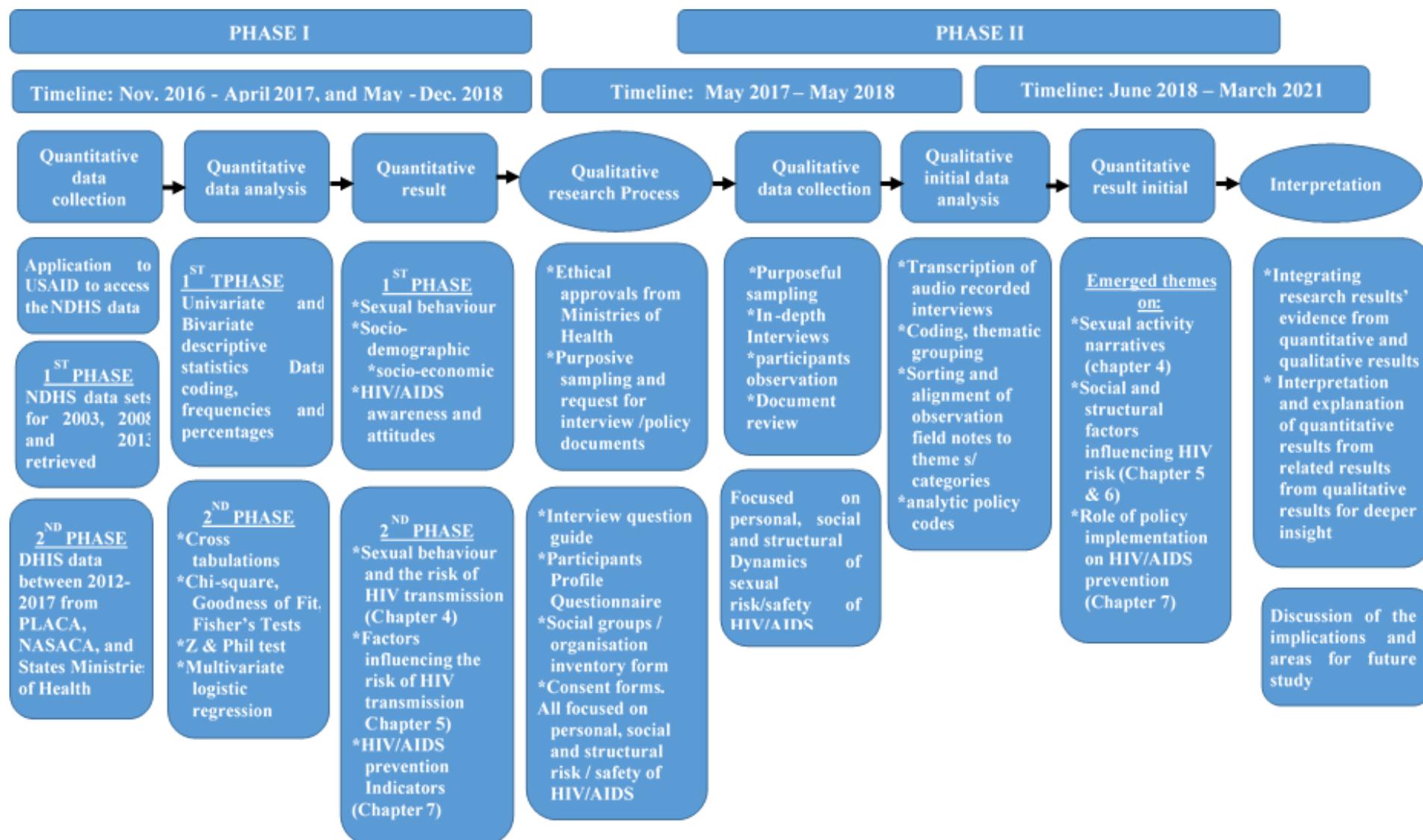
3.5.1 Mixed Methods Design

Creswell and Clark (2012) highlighted four basic mixed methods design. The designs are significant in prioritising the nature of consecutive integration of phases when implementing quantitative and qualitative approaches. A researcher is left with the choice of selecting an appropriate strategy that best suits the inquiry. These designs are outlined thus:

- i. *Convergent design* uses quantitative and qualitative approaches concurrently to collect data, analyse, compare and interpret the outcomes.
- ii. *Sequential explanatory design* uses quantitative research to collect and analyse data in the first phase of a study, followed by qualitative research approaches to support the initial findings with additional data. Both results are subsequently integrated and interpreted together to create knowledge.
- iii. *Sequential exploratory design* prioritises the qualitative research process in the first phase, which is followed by a quantitative approach in the second stage to enable a detailed account of the phenomena under study and the generalisation of results to the wider population.
- iv. *Embedded design* is where the researcher obtains, analyses and interprets the result from both the quantitative and qualitative research at different stages (before, during and after) of the inquiry on the same samples.

This study aims to understand sexual behaviour and the risk associated with HIV transmission. Two different approaches and sets of data are required to understand how the epidemiology differs in the study locations. A sequential explanatory approach best fits the strategy as it allows for follow up quantitative procedures to address the research problem with qualitative approaches in a single study. Design complementarity is the type “*in which result from one dominant method type are enhanced or clarified by the results from another method type...using interpretivist interview that aim for depth and contextual relevance to supplement positivist surveys conducted for breadth and representativeness...*” (Caracelli and Greene, 1997, p.23). In the first phase of the study, a quantitative approach is used for the data collection and analysis. The results from the quantitative procedure yields statistical estimations, which are supported by the collection and analysis of qualitative data, whose results provide explanations as to why specific variables suggest a greater risk of HIV (see Figure 3.1).

Table 3.1: The Sequential Explanatory Mixed-methods Design



In addition, Creswell and Creswell (2018, p.358) support the value of a sequential explanatory research approach by noting its reciprocity value where:

- The strong quantitative research context obtains data on sexual behaviours and predicts HIV risk within the initial stage of the study.
- The results from the first phase are then used to plan the qualitative study in the second phase; the results build on the significant statistical variables with textual evidence to enable clarification and thus help to make sense of the phenomena.

Figure 3.1 illustrates the first and second phases of the research by contextualising sexual behaviour, HIV/AIDS and health-related risks. The quantitative and qualitative approaches enable the researcher to obtain and analyse data exclusively, while answering the research questions substantiates the results. The complementarity of the design facilitates the utilisation of different methods, and the collection of diverse data and results from quantitative and qualitative approaches in order to simultaneously complement each approach, and ensure reliability and validity

3.6 RESEARCH APPROACHES

This section discusses the approaches to theory development, which inform the primary source of knowledge through engagement in critical thinking to understand the phenomenon under study (Mertens, 2013). The literature relates the main approaches in an inquiry as deductive / quantitative and inductive / qualitative. Generally, these approaches help to engage in more informed contextual design to consider appropriate issues, data types, analyses and results which address the problem. Saunders et al. (2019)

3.5.1 Quantitative Study

Quantitative research has a worldview rooted in positivism, which assumes that knowledge exists 'out there' that a researcher can observe and discover with less or no direct contact or influence on the subjects (VanderStoep and Johnston, 2009). Quantitatively, knowledge creation involves the use of surveys research, correlational research, causal-comparative research or experimental research, which are linked with statistical analysis that describes and predicts relationships (Creswell and Creswell, 2018). In this study, the survey, a quantitative procedure was used to collect data that "provide[d] a description of trends, attitudes, and opinions of a population, tests associations among variables of a population, by studying a sample of the population" (Creswell and Creswell, 2018, p.153).

Quantitative studies often use a structured questionnaire that generates numeric data to characterise population samples (Creswell, 2014; Kelly, 2003). Data for this study are retrieved through multiple pre-existing or secondary sources of cross-sectional surveys: (i) the Nigerian Demographic Health Surveys – NDHSs, and (ii) the District Health Information System -DHIS (see details in sections 3.5.1.3 and 3.5.1.4). These data sets are reliably sourced and help to develop descriptive and inferential analyses that establish trends and cause-effect relationships to inform changes in sexual behaviour and HIV risk experiences across different socio-demographic, and health-related attitudes in Plateau State and Nasarawa State. The quantitative approach is instrumental in prompting the need for qualitative research in this study.

3.5.1.1 Deductive/quantitative approach

Burke and Larry (2014) describe the deductive approach as a process of making informed decisions about a phenomenon in research based on a premise that is true. Understanding a phenomenon begins with investigating its universal perspectives to arrive at specific details; this is also called “top-bottom” reasoning to enable knowledge creation. Literature describes deduction as a strategy in research that focuses on a compelling theory, which relates to the critical issue at hand and infers its ideas and consequences with data (Bryman, 2016; Mertens, 2013; Creswell, 2009). The deductive method characterises a scientific approach to inquiry, where phenomena and hypotheses from past works are thoroughly examined and reviewed, and emerging assumptions are connected and analysed with current data for the purpose of accepting or rejecting a relationship. This approach is associated with positivist research principles, whilst quantitative assumption are also used in social sciences to provide a backcloth and logical basis for knowledge creation and to offer a framework for understanding the world around us (Bryman, 2016). Hypotheses are evaluated to explain casual influences and relationships between variables to confirm, refute or modify an existing truth (Silverman, 2013).

This study examines sexual behaviour and the HIV/AIDS phenomenon from a general perspective that is narrowed down to local realities within the literature. Sexual and social phenomena are operationalised, theorised and quantitatively measured. The study postulates that HIV tends to be sexually driven, and the risk of acquisition or transmission is encouraged or constrained by multilevel factors. These factors include personal characteristics, social relationships, or/and structural barriers. The variables that emerge from the measurements are analysed using various statistical estimations that describe patterns of behavioural indicators and significant factors. Moreover, the predictors associated with likely exposure to a high risk

of HIV are analysed, and relationships are established and generalised. The inductive exercise is independently limited by its focus on understanding why certain risky sexual behaviours and HIV transmission possibilities are more concentrated in one study setting than another. Looking at the key phenomenon in this study, testing the hypothesis raised in the study are better achieved in a cross-sectional survey approach that have been discussed below. The limitation of the deductive approach for this study is its positivist philosophical position, which means some studies also require an inductive process.

3.5.1.2 Cross-sectional survey in quantitative study

Every study has a timeframe in which to achieve the research. The time horizon in research typically accommodates the realisation of strategies and their implementation to address the research purpose (Saunders et al., 2016). There are two types of time horizon that a study can undertake: cross-sectional and longitudinal (Saunders et al., 2019; Bryman, 2012). Kosow and Gaßner (2008) classified the timings within which a study can be well completed as follows: *short-term*, can denote any timeframe lasting between a days or up to 10 years; *medium-term* means as far as 25 years, while *long-term* covers periods over 25 years. Cross-sectional is generally classed as short-term, when data are collected within a period that is adequate to reach all the estimated and desired number of participants at single point in time. The data required in cross-sectional research approach usually deploys a survey strategy to collect data at more than one point, and from different sets of participants, such as individuals from diverse socio-demographics and other relevant characteristics (Flick, 2011). The cross-sectional design examine people with different demographic, social, and economic characteristics to compare whether their unique background differences influence the sexual behaviour and risk of HIV/AIDS acquisition or transmission. The survey data have the value in a randomly selected large group of people for the measurement of their sexual behaviour and the risk associated with HIV/AIDS transmission. Moreover, a cross-sectional strategy has a relatively low cost in terms of resources (time and money), when conducting research, such as key backgrounds, behavioural, and health-related data, in developing countries (Vanderstoep and Johnson, 2008). The cross-sectional approach has largely served as time horizon for this study, which gathered data that were quantitatively managed and corroborated with results from the qualitative research that provided explanations for the sexual risk in the disproportionate epidemiology of HIV/AIDS in the study settings.

In the Cross-sectional survey research strategy, questionnaires are used to ask individuals who agreed to participate in the study to respond questions in a face-to-face interview (Rea et al., 2014). Statistical techniques are used to analyse data after conducting a data validation process that assured its quality in addressing the study problem (Bryman, 2012). As a widely recognised research strategy used by most researchers, a survey describes numerical information that is collected about the individual socio-demographic features, and the social, political and economic behaviour represented (Fowler, 2014). Indeed, Creswell and Creswell (2018, p.203) argued it, “*provides a quantitative description of trends, attitudes, and opinions of a population, or tests for associations among variables of a population, by studying a sample of that population.*”

This highlights that surveys help to address study objectives descriptively, relationally, and predictively. This study deploys the survey strategy, and the data are collected predominantly through the completion of a questionnaire by individuals at a single point in time. This enables the researcher to obtain quantifiable details that consist of socio-demographic characteristics, HIV/AIDS knowledge/attitudes, and forms of sexual behaviour in three survey periods that describe and establish patterns of relationships (Bryman, 2012). This achieves the first and the third research objectives. Based on a quantitative approach, frequencies, percentages and logistical regressions are estimated to produce evidence of relationships between the manipulated (independent) variables and the sexual risk behaviour variables (dependent). The outcomes are used to explain the underlying factors that influence the risk of HIV/AIDS acquisition or transmission. A survey research strategy is a globally standardised procedure that is often deployed in validating the reliability of data for subsequent management (Measure, 2017, 2015). This study retrieves and uses the Nigerian Demographic and Health Surveys (NDHSs) and District Information Health System (DIHS) data.

3.5.1.3 National Demographic Health Surveys (NDHS)

National Demographic Health Surveys “*are nationally representative household surveys that provide data for a wide range of monitoring and impact evaluation indicators in the areas of population, health, and nutrition.*” (The DHS Program, 2020, online). The NDHS provides secondary data obtained from the United States Agency for International Development (USAID). The data is useful in this research as it helps to answer the research questions, which seek to identify forms, trends, and factors of sexual behaviour in Plateau State and Nasarawa State. Managed by USAID, the NDHS is an internationally reliable and most used data source

in 92 participating countries (MEASURE DHS, 2013; Corsi et al., 2012). The Nigerian datasets are representatives of the entire population and involve variables on the social, economic and demographic characteristics of women and men, their sexual behaviours, HIV/AIDS and health-related indicators (Corsi et al., 2012). Countries and researchers around the world use the survey data for its robustness and standardised indicators to produce statistics for monitoring and evaluating health impacts (Rutstein and Rojas, 2006). HIV/AIDS and the sexual behaviour indicators of the DHS data provided a wide range of information on specific countries (HIV infection component is not available on Nigeria) for tracking and monitoring progress related to the Millennium Development Goals (MDGs), the President's Emergency Plan for AIDS Relief (PEPFAR) and currently the Sustainable Development Goals [SDGs] (NPC, 2018; Corsi et al., 2012; Macro and Calverto, 2006). Data for this research comes from the 2003, 2008 and 2013 surveys. The surveys are the third, fourth and fifth series to obtain demographic and health information relating to HIV/AIDS. Section 3.5.1 from page 91 to 112 gives a detailed discussion of the processes involved in the surveys, including the sampling design and frame, the instrument design. The construction of the variables are later discussed (see detail in ICF International, 2012ab).

3.5.1.3.1. NDHS sampling techniques

Sampling involves the selection of units, a boundary is set consisting of specific conditions, people, organisations or documents as a viable domain for the researcher to obtain data related to the research questions (Bryman, 2012). The selection of units to gather data in a study can be done randomly or purposefully in quantitative or qualitative research. Mostly, random probability sampling is based on a quantitative approach that is positivist in principles, an orderly process, where every person in the population has an equal opportunity of being selected to offer research data. The representativeness of a target population significantly validates the generalisability of the research results to the entire population (Mertens, 2013). This study uses probability sampling to inform the size of the population that will enable generalisation to the total population. As such, combined, systematic, stratified-random, multistage sampling was used for the quantitative data. The assorted sampling methods helped to source multiple data sequentially and on multilevel.

NDHS represents national data on men and women at reproductive ages. The survey used a stratified sampling approach that focused on the entire country in order to obtain consistent indicators of demographic, sexual behaviour, HIV/AIDS and health-related information. A

two-stage sampling process was used as the primary sampling unit in the 2013 survey and three stages were adopted in the 2008 and 2003 surveys. Each of the 36 states in the country, including FCT Abuja, were included in the selection, which were then grouped into six geopolitical zones. Moreover, all LGAs were included in each of the states in the geopolitical zones. The LGAs in each state were further divided into smaller communities. Enumeration Areas (EAs) were used in the 2006 Population Census, which helped to identify each of the smaller communities for the exercises. An EA has an average of 211 people or 48 households. The EAs were used to select interview respondents. Small sized EAs were merged with closed ones to make a minimum of 80 households.

Table 3.3: Sampling Allocation of Clusters and Households in the Study Location

Study Locations	2013						2008	2003		
	Clusters			Households			Clusters	Clusters		
	Urban	Rural	Total	Urban	Rural	Total	Total	Urban	Rural	Total
Plateau	5	18	23	225	801	1035	23	3	6	9
Nasarawa	7	17	24	315	765	1080	24	1	3	4
Total	12	35	47	540	1566	2115	47	4	9	13

Source: NPC and ICF 2004, 2009, 2014

The sample design for the survey first stratified the identified communities into urban and rural localities. Households were then selected through equal probability sampling (see Table 3.3). The selection process is “*for the purpose of determining parameters or characteristics of the whole population*” (Adams et al., 2007, p.88). A sampling weight was computed due to the clustered nature of the exercise to ensure representation of the general population (NPC and ICF 2014). The stages for sampling involved the following:

Stage I: Localities, urban and rural areas with proportional sizes, as designed in the sampling exercise, were carefully selected.

Stage II: A random selection was made of one enumeration area (EA) from the selected localities and more than one EA in a few larger localities. Then, the listing of households in each EA was carried out, where EAs with below 80 households within a close neighbourhood or the nearest EA was merged to constitute a cluster for the selection of households. The 2003 and 2008 surveys recognised the Local Government Area (LGA) as urban and EAs as rural. A locality with a population of less than 20,000 was identified as rural in an LGA.

Stage III: Systematic random sampling was used to select 45 households in each urban and rural cluster from the lists of households taken. Then, a female was selected from each household, while a male was selected from every second household, implying that males selected comprised half of the samples in the 2013 and 2008 surveys. In 2003, males comprised one-third of the sampled households.

Stage IV: Females and males were selected systematically from the stratified units, and were further validated based on their willingness to give their consent to participate in the study. The number of people eligible for the data collection was statistically determined and the details reported elsewhere (see NPC and ICF, 2004, 2009, 2014). Data cleaning resulted to total sample size in each the study location in Table 3.4 have used for analysis and results presented in Chapter Four. Table 3.5 are total samples of the study participants included in statistical analysis presented in Chapter five respectively.

⁴Table 3.4: Sampled size in Plateau State and Nasarawa State

Survey years	2003	2008	2013
Plateau	302	1465	1268
Nasarawa	139	1401	1275

Source: NPC and ICF, 2004, 2009, 2014

⁵Table 3.5: Sampled size of Respondents who engaged in HIV Risky Behaviour

Sexual behaviour	Pooled HIV Risky Behaviour	
	Plateau State	Nasarawa State
Age at first sex	2620	2379
Non-marital sex	410	515
Sex in Marriage	1894	1797
Sexually active the last four weeks	2562	2703
Types of sexual partners	1970	2043
Reported STDs	3030	2041

Source: NPC and ICF, 2004, 2009, 2014

The probability sampling techniques in the cross-sectional surveys of 2003, 2008 and 2013 were applied to the general population, where participants were drawn from units in the

⁴ The statistical analysis of results in Chapter Four have variables whose case response rate is less or equal the total sample size due

⁵ Determining the sample of HIV risky behaviour respondents who have never had sex were excluded and case response were uneven.

population that gave an equal chance of selection. The sampling approach was objective and replicable based on international best practice (see sampling and design in details in NPC AND ICF Macro, 2003, pages 211-215; 2008, 443-473; 2013, 377-383).

3.5.1.3.2 How NDHS data were collected

Questionnaire data from both sets of respondents were fit for use in this study; robust information was separately obtained on gender basis, yet the structure of the tools used for women and men in the three different surveys sought similar data (see Table 3.6 in page 99 below) shows the identical themes across the the surveys' questionnaires used in this study. Field assistants for the data collection were drawn from the 37 states - including from FCT, Abuja - and trained for three weeks prior to the conduct of the fieldwork in 2003 (February-March), 2008 (May-June) and for a four-week period in 2013 (January-February). The interviews involved a face-to-face questionnaire administered in Hausa, Igbo, Yoruba or English languages, depending on the primary language of the participant (NPC and ICF, 2004, 2009, and 2014). The data collection exercise was pre-tested, and the tools validated based on professional expertise before they were finally used for the original data collection exercise. For example, the 2008 survey was pre-tested in six states, and one from each of the six different geo-political zones, where the dominant and preferred languages in each pilot test community were used. The data collection exercise took place for over a five-month period in the 2003 survey, four months in 2008 and five months in the 2013 survey. Completed questionnaires were sorted, cleaned, and a database created for each of the survey years.

The instrument used in the collection of data and creation of relevant variables for statistical analysis in order to address the study objectives. Creswell and Creswell (2018) highlighted that the instrument used and variables produced in the data collected offer strong bases to validate and ensure internal consistency through the repeatability of the study. One of the tools designed and used for the collection of data in this study was a structured questionnaire. Two categories/levels of questionnaire were used, namely: household-based and individual-based. The household-based questionnaire was designed to obtain information on people in a home, in which all such people receive their mail from the same source, where the female household members of reproductive age and eligible for the interview were identified and selected. Individual questionnaires were administered to the qualifying women and men at the household level.

Table 3.6: Structure and themes of the questionnaires for 2003, 2008 and 2013 NDHS

Questionnaire Structure	Survey period		
	2003	2008	2013
Respondent's Background	X	X	X
Reproduction			
Contraception			
Pregnancy, Postnatal and Breastfeeding			
Child immunisation, Health and Nutrition (child and woman)			
Marriage and Sexual Activity	X	X	X
Fertility reference			
Husband's background and woman's work/Employment and gender roles			
AIDS and other Sexually Transmitted Infections	X	X	X
Female Genital Cutting (Circumcision)			
Other health issues /Obstetric Fistula (VVF)			

3.5.1.3.3 Variables Classification

The data collected had basic variables, which were essential to understand the sexual behaviours and associated risk of HIV acquisition or transmission. As debated in the literature, sexual behaviour and the risk of HIV infection are best understood through the lens of the social epidemiology of HIV/AIDS. The theoretical framing argues that the acquisition or transmission of HIV is facilitated or constrained by multilevel factors consisting of individual, social and structural factors. Variables were re-organised for harmony across the three surveys and new ones created by combining some of the original variables; these were retrieved to substitute certain variables, which were absent. The essence of the variable construction is to normalise the data sets across the surveys, across that location and to suit the statistical technique requirements. Theoretically, the variables are meant to situate individual factors into the following categories: (i) behavioural, (ii) socio-demographic characteristics, and (iii) HIV/AIDS knowledge and attitudes.

(i) Behavioural variables:

These involved heterosexual practices, including sexual activities that mean a person may be exposed to acquiring or transmitting HIV infection. Based on the literature reviewed in section 2.7, this study has identified eight behavioural variables from the survey databases that constitute the indicators of sexual behaviour, and the dependent variables for use in the statistical analysis. The behavioural variables were coded as binary. If a sexual activity occurred, the response was: 'Yes' and coded = 1, otherwise, it was: 'No' and coded = 0.

Age at first sexual Intercourse:

This is a retrospective question that asked each participant the age at which they first had sexual intercourse. The raw ages given by participants were recorded. This study constructed and grouped the responses as those had sex before the age of 15 and those who had sex at or after the age of 15 years. The variable is named “*age at first sexual intercourse*” and the responses dichotomised as: <15 years and ≥ 15 . If a person had sex before he/she was 15, the answer was ‘Yes’ coded=1 otherwise, ‘No’, coded=0. The rationale for the classification of the age at which individuals first had sex was because sexual debut at an early age is characterised with a lack of insistence on condom use, when women have an immature cervix, and an altered immune milieu in the genital tract is prone to hurting and increased risk of HIV and STIs in adolescent girls and their partners (Jarín et al., 2015; Ghebremichael et al., 2009; MacPhail et al., 2002; White et al., 2000).

Non-marital sexual activity:

Information on non-marital sex was obtained in order to understand the sexual attitudes among the unmarried participants on whether they practise abstinence, which is safe from the sexual transmission of HIV or whether they have had sex. ‘Yes’ is the response if they had non-marital (premarital) sex and ‘No’ is they did not have sexual intercourse prior to marriage. Sexual behaviour among those who were unmarried helps to explain whether a population is at risk of HIV infection. Whether a predominantly younger population practises safe sex or not considerably influences sexual and reproductive health (Wu et al., 2018; WHO, 2015).

Sex in marriage:

Respondents were asked whether they had had sex with someone other than their spouse(s) in the last 12 months. If sex was within a marital union, the responses were coded ‘sexual fidelity’ = 0, otherwise they were recorded as ‘extramarital sex’ = 1. The variable is useful for understanding whether sexual relationships in an association occur with a primary partner or someone outside, who is secondary, which limits or encourages the risks of HIV transmission (Coma, 2013; Mah and Halperin, 2010).

Sexual partners:

The variable was created from participants’ responses to the sexual relationships with their last sex partner. The partners included were: spouse, acquaintance, cohabitant, casual friend, boy/girlfriend, commercial sex worker, relative, or others. Spouse/husband/wife and cohabitant constituted a ‘regular/consistent partner’, i.e. partners who live under the same roof, while other sex partners formed the ‘irregular/casual partners’ grouping.

Frequent sex:

This variable seeks to understand the frequency of sex. Participants' responses on their recent sex were categorised as: 'Never had intercourse', 'Active in the last four weeks', 'Not active in the last four weeks (postpartum abstinence)', and 'Not active in last four weeks (not postpartum)'. Those who were sexually active during the previous four weeks indicated 'Yes'. All other responses were 'No'

Use of a Condom:

The respondents were asked if they used a condom during their most recent sexual intercourse, and the responses were recorded as 'Yes' or 'No'. The study used this behaviour to measure consistent condom use. Non-use of a condom during each sexual encounter is risky if a partner is infected with HIV or any other STI (Baggaley et al., 2010; Boily *et al.*, 2009; Varghese *et al.*, 2002). An HIV test is a non-sexual variable. When a condom is not used during sexual activity and no HIV test has been taken, this denotes risky behaviour that facilitates HIV infection (Gong, 2014; Mhlongo *et al.*, 2013).

Self-reported STDs:

Respondents indicated 'Yes' or a 'No' if they had, or did not have, a sexually transmitted disease (if known). The presence of an STD in a person makes it easier to acquire an HIV infection. An STD can cause swelling, soreness or the opening of the genital tract, which facilitates HIV infection and the susceptibility of an uninfected person (Frazier et al., 2016; Røttingen et al., 2001). This information was used to further understand of sexual behaviour and HIV infection risk.

(ii) Socio-demographic variables:

This refers to the variables that indicate the social and demographic context in which the study respondents live. Literature has found an association between the sexual risk of HIV infection and the social and demographic characteristics, such as gender, age, and marital status (NDHS, 2019, 2014; Ayoade et al., 2015; Akwara et al., 2003). Other studies found that affiliation to a religion, the place where a person resides, his/her educational status, employment and living standards determine sexual behaviour and the risk of HIV infection in a setting (Amoateng et al., 2014; Socrie et al., 2014, 2010; FMOH, 2012; Poundstone, 2004). The description of the development of the socio-demographic variables is presented below:

Gender:

The NDHS records female and male data separately. The two data sets were merged after carefully standardising the variables and became one file to ease data management and to conduct the statistical relationships and comparisons. The female and male respondents were coded as, female or women =1; male or man =0

Age:

This describes the current age of respondents, grouped as younger age, 15-24 years = 0, or older age, 25 years or above = 1

Marital status/characteristics:

Respondents who formally or legally entered a union are described as being ‘married’ = 1, while those who were single, and not married at the time of the surveys, are termed ‘unmarried’ = 0. Married respondents were further asked about their types of marriage, the number of times they were married, and living arrangements in their marriage. For the purpose of the statistical techniques used, respondent’s responses were dichotomised and coded “0” if a respondent was a monogamist, married once, and living together under the same roof with a spouse. The polygamist, those who married more than once, and living separate from spouse (s) were assigned “1”.

Religion:

Religion plays a significant role in the lives of people. The surveys presented five religious groups, namely: Catholic, Protestant, Other Christians, Islam and Traditionalist and others. This study considered the two major religions, where the Catholics, Protestants and other Christians were grouped to be ‘Christians’ = 1, and ‘Islam’ as ‘Muslims’ = 0. Traditionalist and others were excluded given the small numbers involved.

Residence:

Respondents were sampled and interviewed from both rural and urban settings. The place where a respondent dwelt at the time of the survey was useful for this study and was labelled as Urban =0, or Rural = 1. As mentioned earlier, 36 States and FCT, Abuja comprised the locations where the surveys were conducted. This study only extracted data for Plateau State and Nasarawa State, thus data for all other states were not used.

Education:

The highest educational attainment of participants was obtained. Four responses were indicated: no education, primary education, secondary education, and tertiary education. The variables were recorded into three to contextualise: 'No education' = 1, 'Primary (Low) education' = 2, as secondary and tertiary were merged as 'secondary/higher (high) education' = 0.

Employment:

The respondents were requested to indicate if they were employed at the time of the survey. Those who had a job and were 'employed' = 1 and those who had no job, 'unemployed' = 0.

Wealth status:

This variable measures the household's standard of living, as derived from a household's possessions. The household transportation items included car/truck, bicycle, motorcycle, canoe, speedboat, animal-drawn cart. Household items consisted of radio, television, refrigerator, mobile phone, non-mobile telephone and land ownership. These durable goods were then used to produce a wealth index under the following quintiles: poorer, poor, middle, rich and richest. The index for this study was recoded as 'poor' = 1, 'middle class' = 2, and 'rich' = 0.

(iii) HIV/AIDS Knowledge/Attitudes Variables

These are variables for the HIV/AIDS measurement of the respondents' awareness of transmission, prevention, and risk of probable infection. Four variables examined knowledge and attitudes on HIV infection, as follows:

The awareness of a place for an HIV test:

The surveys inquired of participants: Do you know of a place where people can go to be tested for HIV/AIDS? Those who knew responded with 'Yes' = 0, and those who did not know, a 'No' = 1.

Perceived HIV risk:

Respondents' broad awareness about HIV infection risk was examined. Participants were asked: *is it possible for a healthy-looking person to have AIDS?* The responses were 'Yes', 'No', or 'I do not know'. The responses of those who did not know were excluded, and only 'Yes' = 0 and 'No' = 1 were used in this study. To measure a variable that ascertained the empowerment or assertiveness a woman in the event of a sexual health risk, a question was

given. Thus, if a wife knows her husband has a disease that she can get during sexual intercourse, is she justified in asking that they use a condom when they have sex? Respondents answered as 'Yes', 'No', and 'I do not know', which was modified to 'Yes'=0 and 'No'=1 for the purpose of this study. Stigmatising attitudes of the respondents were measured. The question asked was; 'Would you buy fresh vegetables from a shopkeeper or vendor if you knew that this person had the AIDS virus?' The three responses were: 'Yes', 'No', and 'I do not know'. For this study, the selection was reduced to 'Yes' = 0 and 'No'= 1.

3.5.1.4 District Information Health System (DHIS)

The DHIS is information technology designed to manage health system data. In a broad sense, the DHIS “... is a tool for collection, validation, analysis, and presentation of aggregate and patient-based statistical data, tailored (but not limited) to integrated health information management activities.” (DHIS2 User Guide, 2020, p.1). The literature documents the history and development of the tool as having arisen from a need to harmonise the fragmented health care structure in low-income countries (Dehnavieh et al., 2019; Braa et al., 2014; Braa et al., 2010; Brass, 2010; Braa and Muquinge, 2007; Braa et al., 2004; Braa and Hedberg, 2002). The introduction of DHIS offered benefits to the quality of healthcare through the provision of essential data to support the practical evaluation, planning and delivery of sustainable health (Dehnavieh et al., 2018; Chima, 2015). Currently, the DHIS has software functions as “a generic tool rather than a pre-configured database application, with an open meta-data model and a flexible user interface that allows the user to design the contents of a specific information system without the need for programming” (DHIS2 user guide, 2020, p.1). It is used for analysing national health data for the monitoring and evaluation of facility registry or service availability, and for the tracking of specific healthcare delivery options (DHIS2 User Guide, 2020).

The DHIS captures continuous health indicators and is a population-based data gathering process that starts at all healthcare service delivery points, including healthcare outreach services and mobile health services. Daily health services on health indicators range from maternal support and childcare, to sexual and reproductive health, including HIV/AIDS and other STIs. These are documented daily across all the LGAs in Plateau State and Nasarawa State. The electronic Nigerian National HIV/AIDS Response Information Management System (eNNRIMS) has an online database that centrally manages the DHIS in Nigeria (Magaji et al., 2018a). eNNRIMS has a hierarchy and order for the processing the health indicators data from

the service delivery points. Monthly data reports are undertaken and sent to the Monitoring and Evaluation Officer (M&E) at the Local Government Area (LGA) for certification. An LGA M&E officer reports periodically to the State Ministry of Health M&E. The State's eNNRIMS-DHIS committee validates data across the LGAs on a monthly basis, for onward reporting to the Federal Ministry of Health (FMoH) at the national level. The FMoH committee holds quarterly and semester-based data validation meetings, for a final endorsement of the data across the country before uploading it to the online database (Magaji et al., 2018b). The data are finally uploaded online as a database.

The authenticated DHIS national data on HIV/AIDS indications were obtained from the Plateau State Ministry of Health (PLSMoH), Nasarawa State Ministry of Health (NASMoH), Plateau State Agency for the Control of AIDS (PLACA), and Nasarawa State Agency for the Control of AIDS (NASACA). The different datasets collected were carefully assessed and corroborated for an understanding of the role of HIV/AIDS and health-related policy, and their implementation in the delivery of prevention strategies.

3.5.1.4.1 The nature of DHIS data

The DHIS data is a new approach to fast-tracking the health system records to ensure effective monitoring and determination of sustainable health and well-being. The HIV/AIDS data broadly relates to condom, HIV test, and antiretroviral treatment obtain on the population in Plateau and Nasarawa States as follows:

Condom distribution data:

A number of condoms distributed in Plateau State and Nasarawa State were collected from the DHIS to describe access to HIV preventive measures and how this influences the HIV situation in the states. The data on condoms distributed between 2013 and 2017 were certified for use at the time of data collection.

HIV testing data:

This DHIS data contained information about people who accessed voluntary counselling, were tested for HIV and had received their results. This is a policy intervention that was reviewed in 2014 to serve as a gateway for enrolment into treatment if tested and found to be HIV positive within two weeks. The data covered people who tested for HIV and those who were found to be infected from 2013 and 2017.

Antiretroviral Treatment:

The DHIS data indicates people who tested for HIV, were found to be infected and enrolled for treatment to suppress the virus that causes AIDS in order to prevent transmission and prolong life. This data is important to understand the treatment enrolment trends and the likely effect on reducing new HIV infections in the study locations. Pregnant women who went for antenatal, labour, delivery, and postnatal services were screened for HIV. The data obtained included women tested, those who received results and those who were subsequently placed on HIV treatment to protect their child (born or unborn) from infection. The data from 2013 to 2017 was used to better understand the effect of this on the HIV situation in Plateau State and Nasarawa State.

The results of the HIV/AIDS Programme Development Project (HPDP2) implementation in Plateau State and Nasarawa State between 2013-2015, were obtained to understand the level of implementation and the likely impact on infection rates (Appendices A and B). HPDP2 prevention implementation supported HIV/AIDS response in the public sector, private sector, and civil society. The information obtained essentially aimed to identifying target groups for HIV prevention in the different States and to understand the current HIV situation among those groups. As earlier mentioned, these quantitative data were obtained from two major secondary sources, the NDHS and DHIS. These data sources are reliable and useful to understand the forms and trend of sexual behaviour, factors influencing HIV risky behaviours, and how HIV programmes in Plateau State and Nasarawa State impacted the prevalence situations.

3.5.1.5 Quantitative data analysis

When the NDHS and DIHS database were collected and the relevant variables retrieved, a thorough cleaning was conducted using descriptive statistics, which also provided data summaries in frequencies and graphs, where applicable. A missing values analysis was run to see if the values were ‘Missing Completely At Random’ (MCAR), or whether there is some pattern among the missing data. Where no patterns were detected, pairwise deletion only excluded a case that missed the point of analysis, and used a same case where its information was complete. In cases where values were missing - due to the non-applicability of a question – ‘999’ was used as a replacement, which thus was excluded from analysis (Pallant, 2016). In addition, variables were categorised and cross-tabulated to discover the underlying patterns and the variable cases with small values were recoded. Statistically, analysis involving bivariate

and multivariate techniques were used after the data were organised. The process in each of the statistical techniques are presented thus:

3.5.1.5.1 Statistical techniques

Statistical Package for Social Sciences (SPSS) version 26 and Microsoft Excel 2017 were used to manage the quantitative data. Earlier in the data analysis, variables relevant to the research were identified and extracted from the large database. This was edited, used for the construction of new variables and codes were assigned, as described in Table 3.7 and Table 3.8. Using univariate analysis, missing variables were identified and narrowed for bivariate and multivariate analyses (Field, 2013).

Having cleansed the data for each survey year, the three surveys were merged to produce a pooled database of three surveys. The statistical process provided not only a detailed account of the background information on the forms and timing of sexual behaviour, but also related and compared variables relevant to the research. For instance, codes from the themes of the in-depth discussion, relevant to the statistical data, 'put flesh on the bones' of the outcome of the survey analyses (Field, 2013). Due to the nature of the data, the Chi-Square Test, Phi Test, Z-Test and Binomial Logistics Regression Model were deemed the most appropriate statistical techniques to use. The key analytical categories utilised in the research were descriptive bivariate (involving chi-square test, Phi test, z-test) and inferential modelling analysis (that consisted of univariate and multivariate logistic regression).

(i) Bivariate Analyses

The bivariate approach involves analysis that describes two variables - dependent and independent - which determines the direction and significance of their relationship (see Tables 3.7 and 3.8, pages 113 and 114). The bivariate involved the Chi-Square test, and z-test, which are described as follows:

Chi-square Test: This is a non-parametric statistical technique designed to show the relationships between categorical variables and to ascertain events. For instance, in the context of this research, to show if sexual behaviour (age at first sex under 15 years, non-marital sex, sex in marriage, etc.) occurred by chance, or to validate the independent variable or show whether variables differ from each other. The approach is robust based on its flexibility to

handle data for which equal distributions are met (McHugh, 2013). In the first instance, the Chi-Square Goodness of Fit Test was carried out separately, for urban and rural areas, to understand whether the proportion of respondents who either engaged or did not engage in each of the seven indicators of sexual behaviours were of equal proportion.

The statistical significance in the approach estimated sexual behaviour in the urban areas as independent from, or with no influence on, the rural areas and on state level results. Secondly, Pearson chi-square or Fisher exact test were used to examine whether the association between the types of risky sexual behaviour and the socio-demographic/HIV/AIDS-related characteristics of the respondents occurred by chance. The outcome of the chi-square test was useful for determining and predicting the likelihood of engaging in sexual behaviour with a high risk of contracting HIV/AIDS.

Z-Test

This statistical approach was used to test and compare the independent proportions of unprotected sexual encounters between Plateau State and Nasarawa State, as presented in Chapter Four. The proportional z-test allows for a comparison in similarity between two proportions of a two-sample population. It is an appropriate approach with categorical variables to establish statistically significant differences between Plateau State and Nasarawa State in the proportions of non-use of a condom during sex. The test aims to understand those most at risk of HIV infection by analysing the proportion of respondents who engage in unprotected sex. The results of these analyses are presented in Chapter Four (Tables with B reference). In instances where the sample is less than five and the total sample is less than 30, statistical significance is not calculated, since the requirement for a z-test estimation is not met.

(ii) Multivariate Analysis

Binomial Regression is a statistical tool specifically designed for the prediction of the likelihood of an event. It uses categorical data whose variables are dichotomous and takes the following values: 1 - indicating an event occurs, and 0 - that it did not occur. In this research, the outcome variable is allocated code 1 if he/she engaged in sex with a high-risk of HIV transmission, and otherwise code 0. Moreover, each explanatory or independent variable has a reference category (RC - used as *ref.* in this research) that serves as a standard variable for gauging the behaviour of an event or factor.

Six dependent variables have been constructed as dichotomous for the multivariate logistic regression modelling. Table 3.8 shows that a person is at high-risk of HIV if he/she ever had any of the indicators of sexual behaviour, had not used a condom at their last sexual encounter, and had never tested for HIV; these were all coded as '1'. In comparison, if a person ever had sex, used a condom at their last sexual encounter, had or never had an HIV test; these were described as low-risk and coded "0". Table 3.9 reveals the independent variables (gender, age, marital status, number of times one was married, marital living arrangements, types of marriage religion, place of residence, levels of educational etc). Multivariate analysis estimates the influence of the independent variable (s) on the possibility of an occurrence of the dependent variable by way of increased or decreased effect. The mathematical formula for modelling the likelihood of occurrence high-risk is thus:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \dots + \beta_P X_P + E$$

Where:

Y = is the dependent variable

X₁, X₂, X₃, X₄, + X_P = is the independent variables

β₀, β₁, β₂, β₃, β₄ β_P = is the coefficients

E is the error term.

The logistic model is binomial, which allocates values 0 or 1. Evidence of a statistical relationship between the dependent variable, which is the outcome, and the independent variables means that is the predictor usually is non-linear (s-shaped). The logistic regression model estimates the likelihood; thus, the result is an exponential function of the independent variables (Leavy, 2017; Black, 1998). Data can be built-in in the model equation as follows:

$$\text{Logit}(p) = a + b_1 X_1 + b_2 X_2 + b_3 X_3 + \dots + b_n X_n$$

Where:

Logit (p) represents the log of the odds of the dependent variables (HIV high-risky at age of first sexual debut, non-marital sex, sex in marriage, type of sexual partner, frequent sex, and sex with a person having STD) and is coded 1,

a = the intercept

b₁, b₂, b₃ b_n = the regression coefficients, and

$X_1, X_2, X_3 \dots \dots \dots X_n$ = represents independent covariates (the significant background characteristics of the study population). The outcomes of the multivariate logistic regression modelling have been presented as an Odds Ratios (OR) at a 95% Confidence Interval (CI).

Univariate and multivariate logistic models were used to explore the factors that predict the likelihood of exposure to sexual behaviour with a high risk of HIV infection. The univariate model predicted the influence of one independent variable (gender, age, marital status, etc) on the dependent variable (high risk). The univariate analysis produced a Crude Odds Ratio (COR) that indicates the likely effect of the single predictor of sexual risk of HIV transmission. The outcome of the analysis is gathered for each survey year - 2003, 2008, and 2013 - alongside the pooled data. The COR was useful in providing background information that helped to identify and select participants for semi-structured interviews on sexual behaviour and their motivations for engaging in such behaviour in the study sites.

The multivariate analysis simultaneously uses more than one explanatory or independent variable to predict the effect of a dependent variable. The analysis simultaneously used the socio-demographic/HIV/AIDS-related variables and the risky sexual behaviour variable to estimate the effect of each dependent variable together with other variables on the probability that a person engaged in a sexual behaviour that exposed him/her to HIV infection in Plateau and Nasarawa States. The multivariate analysis outcomes are interpreted in terms of the 'Adjusted Odds Ratio' (AOR) associated with the p values presented in chapter Five. The AOR accounts for the factors that influenced the chance of exposure to the risk of acquiring or transmitting HIV.

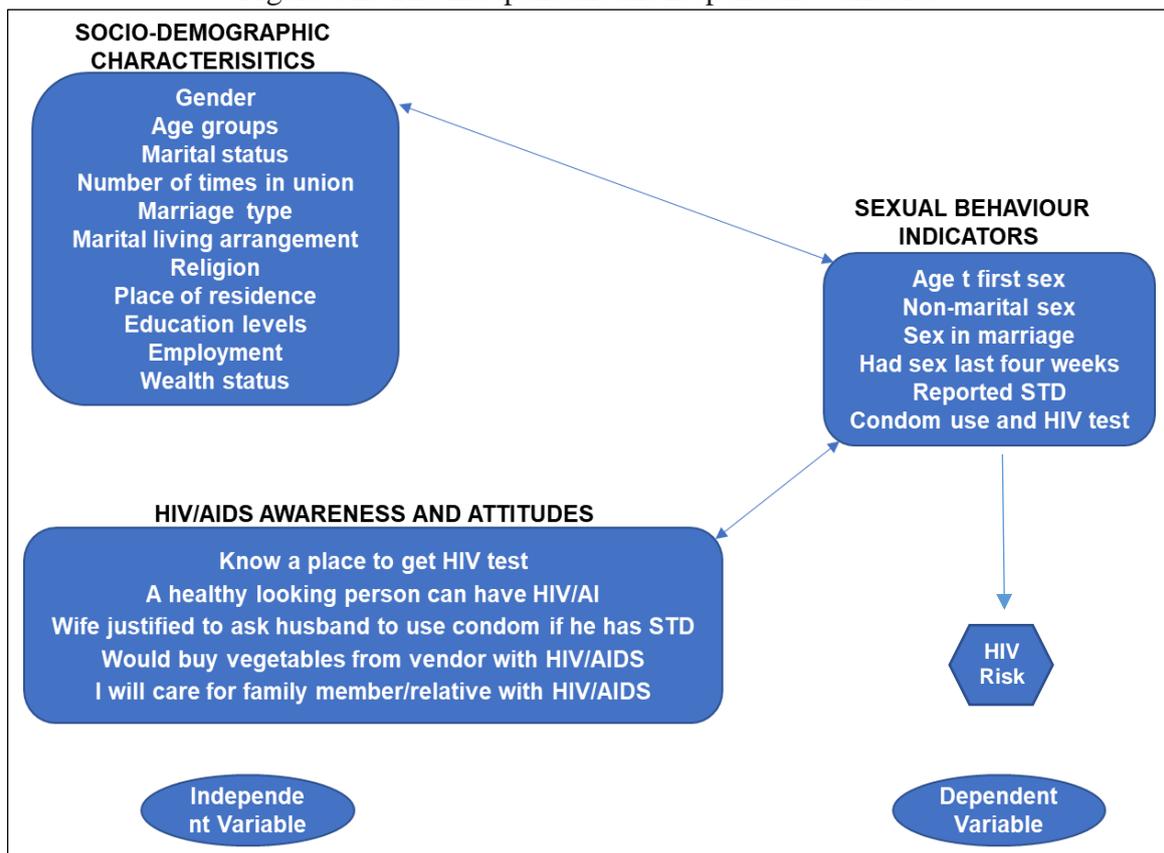
3.5.1.5.2 Dependent and Independent Variables

A variable is a characteristic or condition that assumes different values or categories. Sing (2006, p.136) defines it as *“any feature or aspect of an event function or process that, by its presence and nature, affects some other event or process”* under investigation. Two essential types of variables exist: independent and dependent. These types of variables characterise the scientific research paradigm, in which the positivist analyses functional or cause and effect relationships between the variables (Johnson and Christensen, 2019; Mertens, 2013).

The independent variable is also known as an explanatory, exposure, control or manipulated variable and is presumed to cause, affect or influence a change on the other (dependent) variable (Bryman, 2013; Creswell, 2009). The explanatory variables in this research consist of the socio-demographic and HIV/AIDS awareness/attitudes (see Figure 3.2 for detail). Sing (2006) highlighted that the essence of the exposure variables is the internal validity of a research outcome, as they distinguish situations in scientific field observations to make predictions.

The dependent variables in Table 3.8 are presumed to be influenced by the independent variables in Table 3.9. The dependent variables, also recognised as explained, outcome, controlled or response variables are usually affected or caused by the control variables (Creswell, 2009). Behavioural factors involving sexual activity (age at first sex, non-marital sex, type of sex partner, etc) constitute the outcome variables (see Figure 3.2).

Figure 3.2: The Independent and Dependent Variables



3.5.1.5.3 Coding Of Dependent and Independent Variables

In order to make sense of the data for logistic regression, the responses that formed the variables have been carefully coded. In the literature, the outcome variables relate to the sexual risk of HIV while the other STIs are categorised and coded as dichotomous or binary variables (Corno et al., 2019; Lwelamira et al., 2015; Noar et al., 2006; Schroder et al., 2003a, 2003b; Slaymaker et al., 2004; Weinhardt et al., 1998). Tables 3.7 and 3.8 show the categories and coding of the variables used in the multivariate analysis. The outcome variables are categorised and assigned “1” to indicate presence of high-risk and “0” to indicate low or an absence of risk. The predictor variables are coded into two or more categories and each are assigned a value; one of which is a *reference category*⁶ (ref.) and was assigned a value “0” (representing no risk) while others were each allocated a value (1, 2 ...n) as each has a potential risk.

As further discussed in Chapter Four, the predictor variables are manipulated and expected to ‘cause’ while the outcome variable ‘effects’ the relationship on sexual behaviours that increase the high risk of HIV/AIDS acquisition or transmission. The predictor and outcome variables were validated for statistical significance before they were statistically modelled to predict the cause/effect relationship of likelihood to engage in sexual behaviour with a high risk of HIV acquisition or transmission. The statistical modelling first modelled a univariate or binary, then multiple, followed by an *interaction effects* logistic regression. The phases in the statistical modelling are:

Model 1: Univariate logistic regression involving one independent variable and one dependent variable determining binary cause-effect relationships

Model 2: The socio-demographic independent variables that indicated a significant relationship. Models 1 and 2 were used together to determine their effect on predicting the chance of high sexual risk of HIV acquisition or transmission.

Model 3: The HIV/AIDS awareness and attitudes independent variables that predicted significant sexual risk of HIV transmission in Model 1 were used together to control for their effect on predicting the chance of high sexual risk of HIV acquisition or transmission.

⁶One of the categories that is used as standard for which others are compared in a logistic regression model

Table 3.7: Measurement of Dependent Variable

Variable Name	Measurement Codes
Age at first sexual Intercourse	First sex at age <15 years No condom at last sex Never tested for HIV } = 1
	First sex at age ≥15 years old Used a condom at last sex Never or ever had HIV test } = 0 (ref.)
Non-marital sexual behaviour	Ever engage in nonmarital sex, No condom at last sex Never had HIV test } = 1
	Never had sex Used a condom at last sex Never or ever had HIV test } = 0 (ref.)
Sexual activity in marriage	Engaged in extramarital sex, No condom at last extramarital sex Never had HIV test, } = 1
	Sexual fidelity Used a condom with spouse Used a condom at extramarital sex Did not use a condom only with spouse Ever or never had HIV test } = 0 (ref.)
Type of sexual partners	Sex with a casual partner No condom at last casual sex Never had HIV test } = 1
	Sex with regular partner Used a condom with a regular sex partner No condom at last sex with a regular partner Ever or never had HIV test } = 0 (ref.)
Frequent Sexual Activity	Had sex during the last four weeks No condom at last sex during the last four weeks Never had HIV test } = 1
	Had sex over the last four weeks Used a condom during sex over the last four weeks Used a condom during sex the last four weeks No condom during sex over the last four weeks Ever had HIV test } = 0 (ref.)
Sexual activity with STD	Ever had sex with a presence of a STD, No condom at last sex with STD, Never had HIV test } = 1
	Had sex with no STD Used a condom at last sex with STD No condom at last sex with no STD Ever tested for HIV } = 0 (ref.)

Table 3.8: Measurement of Independent Variables

Variable Name	Measurement Codes
Gender	Male = 0 (ref.), Female = 1
Age groups	Young adults = 0 (ref.), Older adults = 1
Marital status	Unmarried = 0 (ref.) Married = 1
Number of times in union	Once = 0 (ref.), More than once = 1
Marriage type	Monogamy = 0 (ref.), Polygamy = 1
Marital living arrangements	Living together with spouse = 0 (ref.), Living elsewhere = 1
Types of marriage	Monogamy = 0 (ref.) Polygamy = 1
Religion	Muslim = 0 (ref.) Christians = 1
Place of residence	Urban = 0(ref.) Rural = 1
Educational levels	No education =1 Primary =2 Secondary/higher = 0 (ref.)
Employment status	Employed = 1 Unemployed = 0 (ref.)
Wealth status	Poor =1 Middle class =2 Rich =0 (ref)
Have been away from home for over a month	No = 0 (ref.), Yes = 1
Know a place to get HIV test	Yes = 0 (ref.), No = 1
A healthy-looking person can have HIV/AIDS	Yes = 0 (ref.), No = 1
Wife justified asking husband to use condom if he has STD	Yes = 0 (ref.), No = 1
Would buy vegetables from vendor with HIV/AIDS	Yes = 0 (ref.), No = 1
Would keep secret family member or relative with HIV/AIDS	Yes =1 No = 0 (ref.)

3.6 QUALITATIVE STUDY

Qualitative research is a research approach that seeks to understand real-life phenomena within a specific context or settings (Golafshani (2003). For Patton Quinn, the qualitative study focuses on drawing meaning from a *"real-world setting [where] the researcher does not attempt to manipulate the phenomenon of interest"* (Patton, 2001, p. 39). Strauss and Corbin (1990) broadly defined it as *"research that produces findings not arrived at by means of statistical procedures or other means of quantification"* (Strauss and Corbin, 1990, p. 17). In a qualitative study, the opinions, experiences, feelings or inaudible expressions of the researcher as much as the participants are obtained, organised and interpreted for an in-depth understanding of a problem or new idea about a phenomenon in their natural setting (Corbin and Strauss, (2014; Denzin and Lincoln, 2005).

Qualitative research provides active, flexible and multiple techniques in the collection of data to better understand social phenomena and the context in which data are produced to reflect everyday reality (Silverman, 2013; Manson, 2002). Qualitative methods are premised on the constructivist or interpretivist worldview that often conducts in-depth interviews or informal talks to obtain narratives that are concerned with understanding people's perceptions; these tend to *"put flesh on the bones of a survey"* (Bell, 2014, p.12). These methods are also used as a means to seek answers to questions, such as 'what' 'how' or 'why' a social phenomenon occurs rather than 'how many' or 'how much' is present (Thorogood, 2018, p.8). Qualitative research uses interviews, information from document (s), and participant observations to explore and collect visual, audio and/or textual data, which can provide explanations of the evidence found in quantitative procedures (Green and Thorogood, 2018; Bhattacharjee, 2012). Vanderstoep and Johnson (2008) note that qualitative research methods allow data to 'speak', and prevent the examination of issues with predetermined ideas on what will be discovered

In addressing the research problems, the philosophical position of a qualitative approach allows for consistent and non-rigid ways to obtain data, values, opinions, understandings, interpretations, experiences, and interactions between the researcher and participants as significant properties of social reality (Mason, 2018; Creswell, 2014). Based on inductive reasoning, Creswell and Creswell (2018) emphasised that qualitative research procedures inform legitimate approaches to the data collection with open-ended questions and by engaging participants within in-depth talks. In such contexts, important verbal and non-verbal expressions are noted as broader patterns of issues emerging from the discussions are observed

and classified to account for the implications of an existing social phenomenon (Schwandt, 2014; Rallis and Rossman, 2012).

3.6.1 Inductive/Qualitative Approach

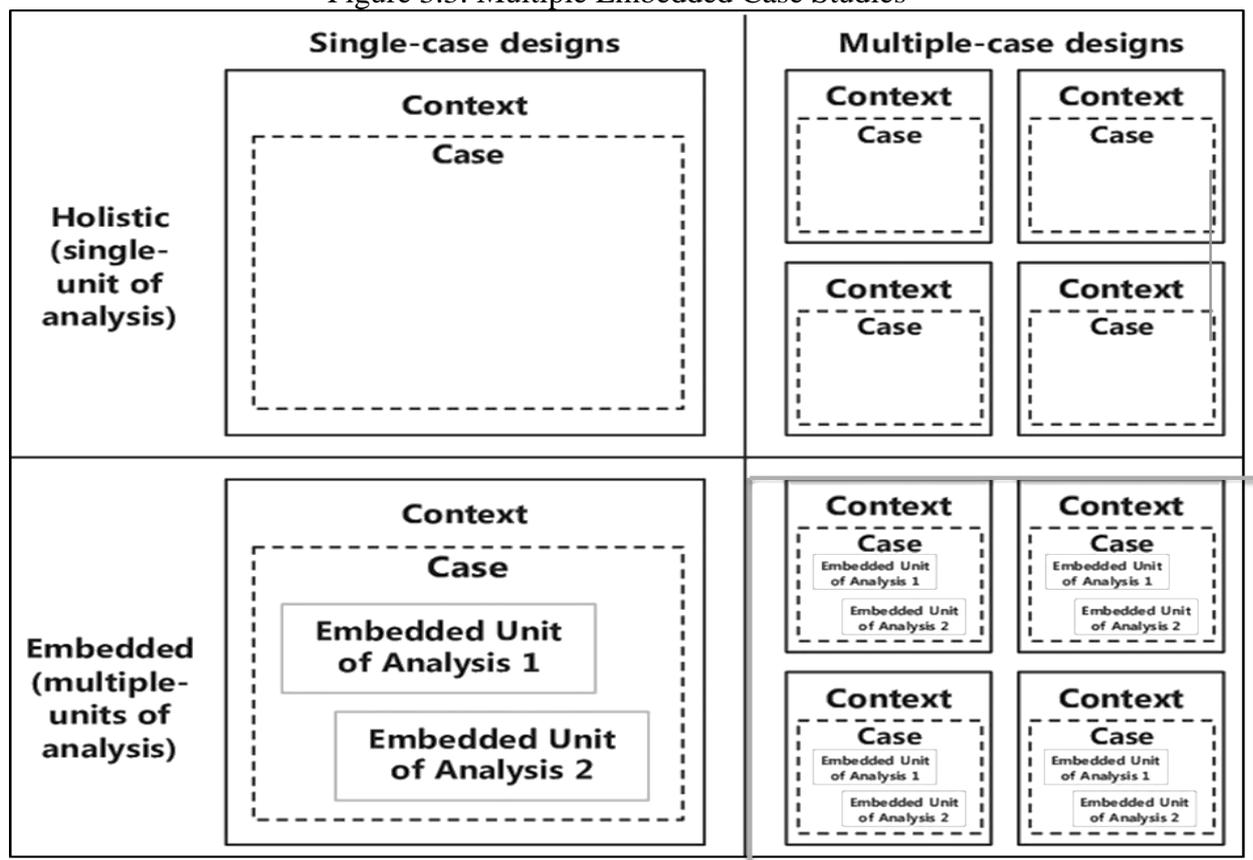
In contrast to the deductive approach earlier discussed, the inductive approach essentially concerns diverse rationales about certain phenomenon that are gathered in the course of conducting the study. For this study, a variety of views about an issue are initially explored, as those with similar ideas about the context of an inquiry are clustered in order to develop a clearer and more substantial picture of truth about the phenomenon. Bryman and Bell (2011) and Beiske (2007) argued that an inductive approach to reasoning is valued for its primary focus on observing phenomena, contemplating an issue of interest, and identifying the specific emergent indicators that offer possible ideas as to the root of the problem. The pattern of evolving issues is carefully noted through the production of statements of hypotheses or theories. The approach begins with a profound inquiry into why people are motivated to engage in certain behaviours that increase their chances of contracting HIV and health-related problems. This approach is particularly relevant where ideas about social phenomena are not apparent at the start, as it allows for the identification of numerous possibilities. The next stage involves the collection of views from research participants to gather detailed narratives about the phenomenon under study. The experiences shared by the study participants were closely appraised and categorised, and emerging patterns were identified and classified into related concepts of identity. These patterns involved, behaviour, gender issues, culture, family, beliefs, and relationships, which these enabled an understanding sexual risk of HIV transmission. This approach is a constructivist and interpretivist research traditions, which assert that social phenomenon and its meanings are linked to the social actors (Kennedy and Thornburg, 2018).

In sticking closely to data to explain a new understanding of the social epidemiology of HIV, patterns, concepts and theories emerge as the researcher interacts with the study participants to generate data. This takes place without initial presumptions on the outcomes of the study settings and considers the unique epidemiological contexts of each place. Quotes accounting for existing truths about the HIV situation are generated and interpreted as evidence that explains the risk and possible prevalence of HIV transmission. Kennedy and Thornburg (2018) highlighted that inductive and deductive approaches are mutually exclusive with conflicting worldviews. Hence, this study adapted a mediating approach, mixed methods that is rooted in in pragmatism research philosophy that combines deductive and inductive approaches undertaken in a case study research.

3.6.2 Qualitative Case study Design

There are three kinds of case study strategies, which were proposed and characterised by Stake (1995) as: intrinsic, instrumental and collective. Intrinsic primarily focuses on understanding a specific case that might be unusual. As a classic single-case design, intrinsic is focused on providing in depth descriptions about how a specific phenomenon operates. An instrumental case study strategy principally aims to understand an issue or condition, other than the specific case. In an instrumental approach, the case serves as the means to an end on a general phenomenon and makes inferences beyond the case. The focus of an instrumental approach is to gain better insights into how and why social reality operates in selected cases (Stake, 1995). The last type, namely the collective case study, focuses on more than one case (i.e issues and units) at the same time in a single inquiry. The selection of several cases allows for comparison, the testing of a theory, observations of case results and generalisations the results found in such case studies (Saunders et al., 2019).

Figure 3.3: Multiple Embedded Case Studies



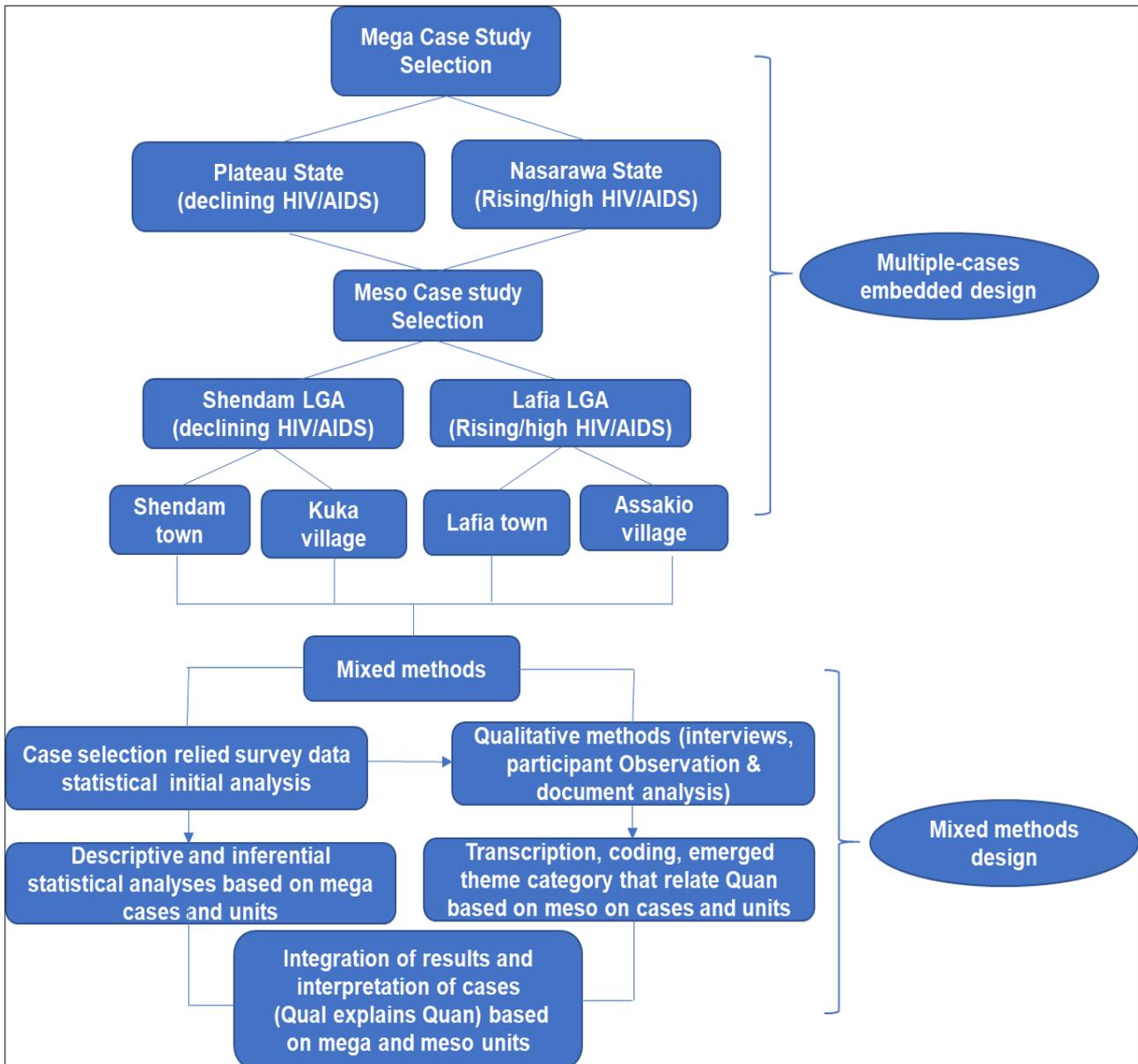
Sourced from Yin (2018, p.53)

Yin (2014) maintained that case study, as a research strategy, is basically classified as single-case, (which relates to intrinsic and instrumental) or multiple-case studies (collective). Figure 3.3 illustrates that the single-case study is a unique phenomenon with the same conditions under

one or more units of analysis. Multiple-cases examine issues with different conditions under one or many units of analyses for evidence-based results, offering a contextual comparison of cases, and the reproduction of findings in a process termed replication; this is more than a single case can provide. In practice, the two types of case study are undertaken as *holistic* and *embedded* design. The single-case holistic design examines a single issue in a study and is analysed under one geographical unit. The single-embedded design focuses on more than one phenomenon in just the one unit in which it is analysed. In multiple cases, the holistic design examines more than one issue and in more than one unit; however, each of the issues is analysed in a different unit. The multiple-case embedded design critically examines the many social conditions that a researcher may set out to explore, and analyses multiple cases under multiple units (Yin, 2018). Categorically, the multiple case study design is rooted in a tradition of complementary approaches, as multiple methods collect multiple data, and then conduct the analysis that best fits a mixed methods research approach (Guetterman et al., 2018; Yin, 2014; Lieber and Weisner, 2010).

A collective or embedded multiple case and unit design was supported with initial analysis from the survey design which generated quantitative data whose variables informed the selection of participants. Figure 3.4 shows that Plateau State and Nasarawa State were first selected as a mega instrumental case, with multiple units (two in each state) for data collection and analysis. Multiple sites were chosen to thoroughly investigate and understand the declining and rising/high HIV/AIDS situations in the study settings (see details in section 3.8.2.2). Behavioural conditions and social phenomena that facilitated or constrained the epidemic were explored for explanations on how and why they occurred (Yin, 2012). A case study design based (on the domain bordered in pink) on a mixed methods approach (illustrated in Figure 3.3) guided the collection of qualitative data on HIV/AIDS. The two HIV/AIDS situations were explored using interviews, participant observations and document reviews to addresses the research objectives on the multifaceted social epidemiology of HIV in Plateau State and Nasarawa State (Guetterman et al., 2018; Kaufman et al., 2014).

Figure 3.4: Multilevel, multiple embedded case study Mixed-methods Design

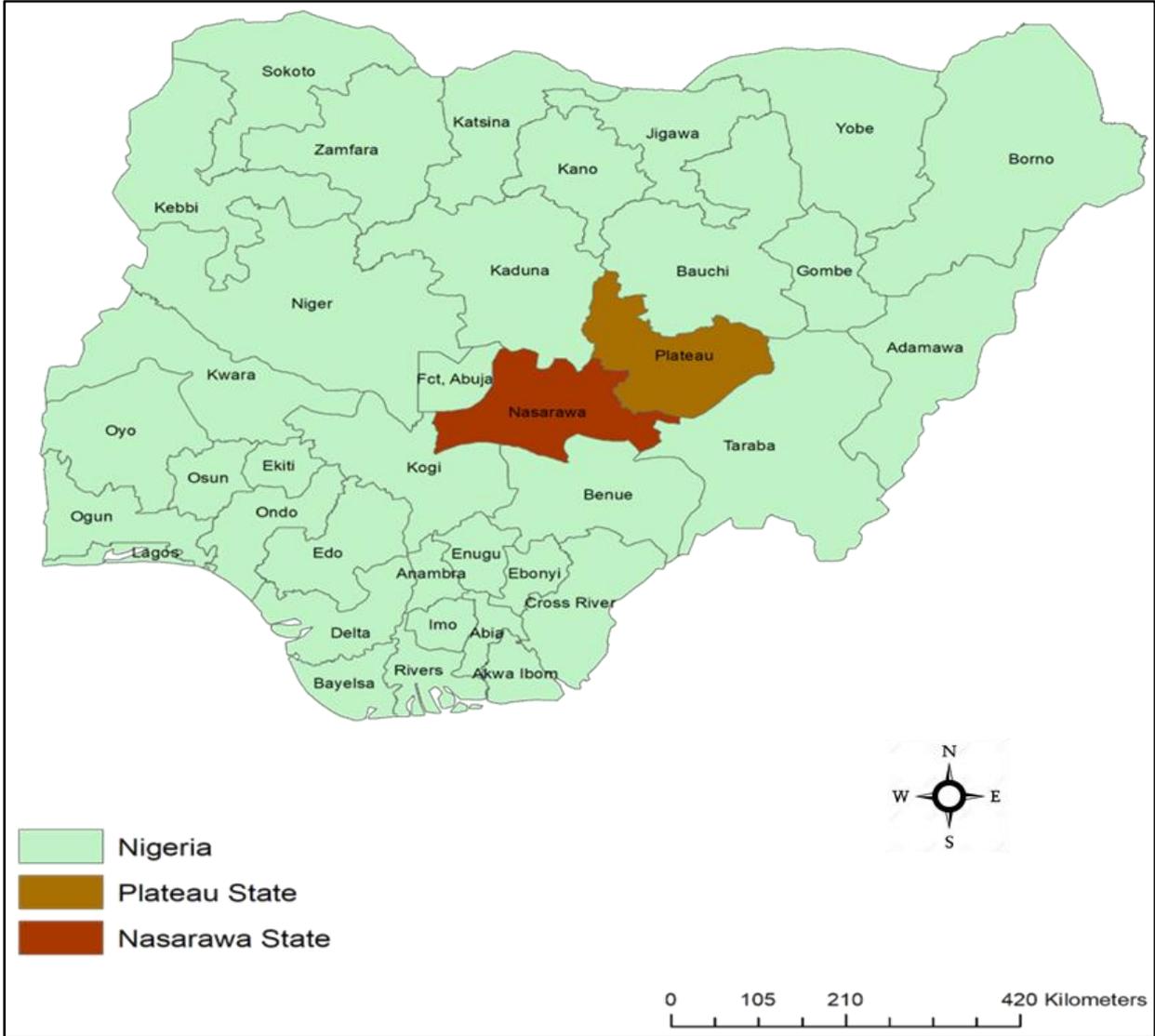


Drawing from Yin's and Stake's positions, this case study design closely examines the social and HIV/AIDS phenomena within the study context. The multiple cases, as earlier highlighted, consist of declining HIV/AIDS prevalence in Plateau State and the rising/high condition in Nasarawa State. In each of two situations, multiple units of analyses - one urban and one rural area - are selected. This multilevel-multiple design is important for allowing the exploration and comparison of in-depth information and for gathering a broad range of evidence (Yin, 2018). Given that a range of social HIV/AIDS epidemiology occurs between Plateau State and Nasarawa state, a multiple case study, mixed-method approach based on a pragmatist philosophical position enabled the collection and analysis of robust data that helped to achieve the study objectives.

3.6.3 Case Study Context of Nigeria

The case study context here refers to the lenses (philosophical positions, methodological, arguments, findings, interpretations, and conclusions) that help to shape this research. As such, a detailed description is given of the geographical units, unique conditions and the rationale for their selection, consisting of the mega, meso and micro levels of the locations (see section 6.2 for more detail) and the HIV/AIDS epidemiological situations.

Figure 3.5: Map of Nigeria showing Plateau State and Nasarawa State



Nigeria lies between Latitude 40 16'N and 130 14 53'N, and Longitude 20 40'E and 14 41'E along the coast of West Africa. It occupies a land area of approximately 923,789 square kilometres that stretches along the Atlantic Coast to the south, from the Gulf of Guinea to the borders of the Sahara Desert in the North. Nigeria shares a land border with the Niger Republic to the north, Chad to the south, and the Republic of Cameroon and Benin Republic to the east

and west (NPC, 2013). Nigeria is ranked as the most populous country in Africa, with approximately 203 million inhabitants. Globally, the country has the largest youth population, despite its position as the seventh most populous country (Population Reference, 2019). Nigeria has six geopolitical zones, 36 States, and the Federal Capital Territory (FCT), Abuja. Plateau State and Nasarawa State, the locations for this research project, are in the Northcentral geopolitical zone (Figure 3.5). As a multi-ethnic and culturally diverse country, it has over 350 tribes distributed across local communities. Nigeria has three major religions: Christianity, Islam, and Traditionalist.

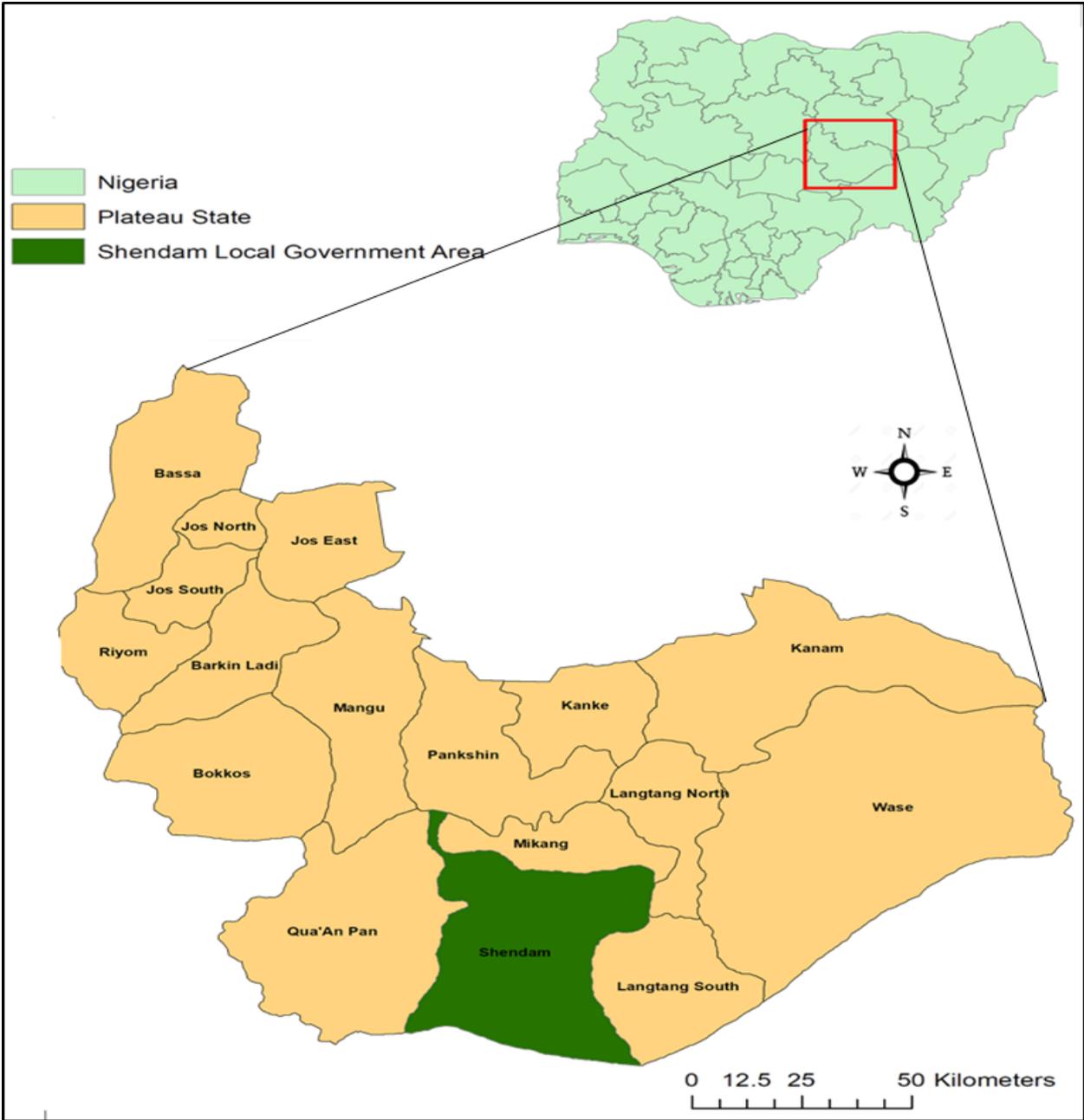
The country's population growth rate of 2.3% exceeded its economic growth of 1.9% in 2018 (World Bank, 2019). The growth rates contributed to the 19% unemployment among the economically active population age group of 25-54 year olds (NBS, 2019). The 2018 National Human Index shows that the country is ranked 158th out of 189 countries in terms of multidimensional poverty (UNDP, 2019). Inequality in income distribution, a key determinant of access to basic healthcare services, is reflected in its socio-economic indicators with over 70% of the population living on less than \$2 per day (World Bank, 2019). Adult HIV prevalence was put at 1.5% of the population in the 2019 national HIV/AIDS report. This implies that there are approximately 1.9 million people living with HIV in Nigeria. There is a need to understand the factors responsible for the significant changes to HIV/AIDS prevalence.

3.6.3.1 Plateau state

Plateau, like the Federal Capital Territory Abuja, is one of the six states that make up the Central Geopolitical zone. The twelfth largest state in the country, Plateau State has over forty indigenous tribal groups and is home to people from different cultural backgrounds across the country (Higazi, 2011). The State has three senatorial zones, 17 Local Government Areas - LGAs (Figure 3.6) with a population of 3,178,712 people (PLACA, 2009; NPC, 2006). As already noted, the State had the highest rates of HIV infection in Nigeria. The State's history of tin and coal minerals and tourism resources attracted migrants from outside and within the country for economic and social opportunities. Sexual relationships, one of the means through which HIV thrives, thus resulted in a higher incidence of HIV in the state than in any other state across Nigeria. This situation attracted numerous prevention interventions, and the diffusion of prevention strategies resulted in a decline of 86.4% of HIV prevalence in two decades. This makes the state an ideal location for the current research.

Plateau State is home to private and public health facilities involved in the provision of many services, including those for HIV and AIDS. The health facilities include 888 Primary Healthcare Centres (PHCs) distributed across rural and urban communities, as well as 12 General/Cottage Hospitals providing secondary health services in LGA Headquarters and receiving referrals from PHCs (Plateau State Ministry of Health 2016, 2010; PLACA 2007). At the apex are the tertiary health facilities where both routine and more complex health care and referral services are provided. The tertiary facilities in the state include: Jos University Hospital (JUTH), Bingham University Teaching Hospital (BUTH), Plateau State Specialist Hospital (PSSH) and OLA Hospital.

Figure 3.6: Map of Plateau State, Nigeria showing Shendam LGA



Situated in the State capital are internationally accredited laboratories including the Plateau State Human Virology Research Centre (PLASVIREC), the laboratory of AIDS Prevention Initiative in Nigeria, JUTH (APIN-JUTH) and the Faith Alive Foundation? There are, besides many other dispensaries, maternal and child welfare clinics and dialysis centres providing care services that include the treatment of common diseases and routine immunisation. All these health facilities play an important role in the prevention and treatment of HIV/AIDS for people within Plateau and the surrounding States (Plateau State Ministry of Health 2016, 2010; PLACA 2007).

Popularly called the ‘Home of Peace and Tourism’, Plateau State is geographically unique in Nigeria. Its boundaries surround the Jos-Plateau at high altitude, and it is characterised by the temperate climate where Jos town – the State capital – is the coldest city in Nigeria. The adjoining lowland area of the State has large areas of arable land. Besides the physical features that attract various ethnic groups from within and outside the country (Iirmdu et al., 2013; Higazi 2011; Gontul, 2006; Sha, 1998), the abundant social, economic and political advantages promote different forms of association and networking (Romer-Daza, and Freidus, 2008; Smith and Yang, 2005). Business and tourism opportunities may thus have contributed to the first case of AIDs diagnosed in a Malian International Businessman in 1990 (PLACA 2007). In the last two decades, neighbouring states to Plateau have been embroiled in a series of communal crises and conflicts that have resulted in loss, displacement and relocation to preferred neighbouring destinations in other states. Consequently, Plateau State has become a haven for internally displaced persons affected by the Boko Haram insurgencies in neighbouring states (Umeobi 2013; Higazi 2011; World Bank, UNDP, DFID, 2003). As indicated in the literature, situations such as these further enhance people’s vulnerability to HIV risk in Africa (Miles, 2003).

In choosing the research sites, insight into HIV prevention and information dynamics in the State were noted and its diverse social, economic and political activities were also considered. This gave credence to the choice of one urban and one rural community in Shendam Local Government (LGA), situated in the Southern Senatorial Zone of the State. Shendam LGA is comprised of seven districts that assist the town of Shendam, its headquarters, with local administration. The LGA connects urban and rural communities within the State and with neighbouring states. Through its road network, it therefore encourages movement/mobility. A consistently sampled study site for HIV, at both national and subnational levels, Shendam LGA provides the platform for an in-depth examination of the factors responsible for HIV prevalence in the State. For instance, in the last HIV sero-surveillance, the LGA ranked second highest in

HIV infection rate (Gomwalk et al., 2012; PLACA, 2009). Past national HIV/AIDS studies showed that Shendam had 5% HIV prevalence in 2005, 3.4% in 2008, and 4.5% in 2010. This figure increased to 12.6% in 2012 (Gomwalk et al., 2012). The rise may relate to conflict violence in most communities, which affected prevention activities. However, by 2018, there was a decline in HIV prevalence to 1.5% in Plateau State, this makes it crucial to understand the factors responsible for the decline in the State through virile locations such as Shendam (see Table 3.9).

Table 3.9: People Counselling, Tested and HIV Positive (Cumulative) in Shendam LGA

HIV services	2012	2013	2014	2015	2016	2017
HCTR	758	2660	2473	2009	5658	1691
HIV +	242	600	213	70	167	123
Percentage	31.9%	22.6%	8.6%	3.5%	3.0%	3.3%

Source: Plateau State Ministry of Health DHIS Data, 2018
HCTR=HIV Counselling, Tested, and received Result
HIV + = Tested HIV Positive

3.6.3.2 Nasarawa State

Nasarawa State, with Lafia as its headquarters, is the second location for the study. Nasarawa State comprises 13 LGAs and shares a border with Plateau State in the northeast (see Figure 3.7). The 2006 census has the State’s population at 1,869,377, with the majority residing in rural areas (National Bureau of Statistics, 2012; NPC, 2006). Women constitute over half the population, who are non-literate, poor and have limited economic and political rights and opportunities (Simpa, 2014; Nasarawa State Ministry of Health, 2010). The proximity of the State, and Karu and Keffi as the LGAs, to FCT, Abuja creates economic and social opportunities that have resulted in a growing influx of different groups of people to the State. The mix and mobility factor and the vantage location of Nasarawa as a neighbouring state to Plateau makes it a highly viable research location for this study. As with Plateau State, an urban and a rural community were chosen for the data collection, within Lafia LGA.

In place of Benue State, Nasarawa State was selected as a case for this study due to its relative peace and safety at the time the fieldwork was being planned. The State is close to Benue State and has experienced a similar rise in HIV infection levels. Moreover, the State is considered to have a concentrated HIV epidemic and has been included in the last two studies of the most at-risk population in 2010 and 2014 (FMoH, 2010, 2015). In 1999, HIV prevalence in Nasarawa

State was at 10.8% and it remained above the national average at 6.4% in 2014. Nasarawa State is currently one of the highest HIV hotspots, with a concentration of the HIV/AIDS most-at-risk population, and second highest rural infection in the country (NACA, 2015). The State was the fifth highest (out of 14 States with HIV infection) for brothel-based female sex workers contributing 27.7%. The central location of the State means that it serves as a stopping and connecting point for drivers and travellers. Karu and Keffi LGAs are close to FCT, Abuja, housing many temporary workers, and experiencing a daily influx of rural and urban dwellers seeking a better livelihood (NASCA, 2009). Moreover, women constitute over half the population with many illiterate, poor and with limited economic and political rights and opportunities (Simpa 2014; Nasarawa State Ministry of Health, 2010).

As with Plateau State, Lafia LGA was selected and, within this the urban city Lafia and rural community Assakio were further selected for data collection and as a case unit to illustrate the social relationships and risk of HIV infection in Nasarawa State, as discussed in Chapter Six. Lafia was chosen for its higher HIV prevalence than in Plateau State. For example, in 2003, Lafia town had 8.9% HIV prevalence, while it was 19.5% in 2008 and declined to 7.5% in 2010 (FMoH, 2004, 2009, 2010). Table 3.10 shows the recent HIV infection rates in Lafia LGA, which demonstrates higher HIV infection rates than in Shendam LGA.

Table 3.10: People Counselling, Tested and HIV Positive (Cumulative) in Lafia LGA

HIV Service	2012	2013	2014	2015	2016	2017
HCTR	-	3785	14775	25790	22496	47936
HIV +	-	231	1218	1612	1369	1875
Percentage		6.1%	8.2%	6.3%	6.1%	6.0%

Source: Nasarawa State Ministry of Health DHIS data, 2018

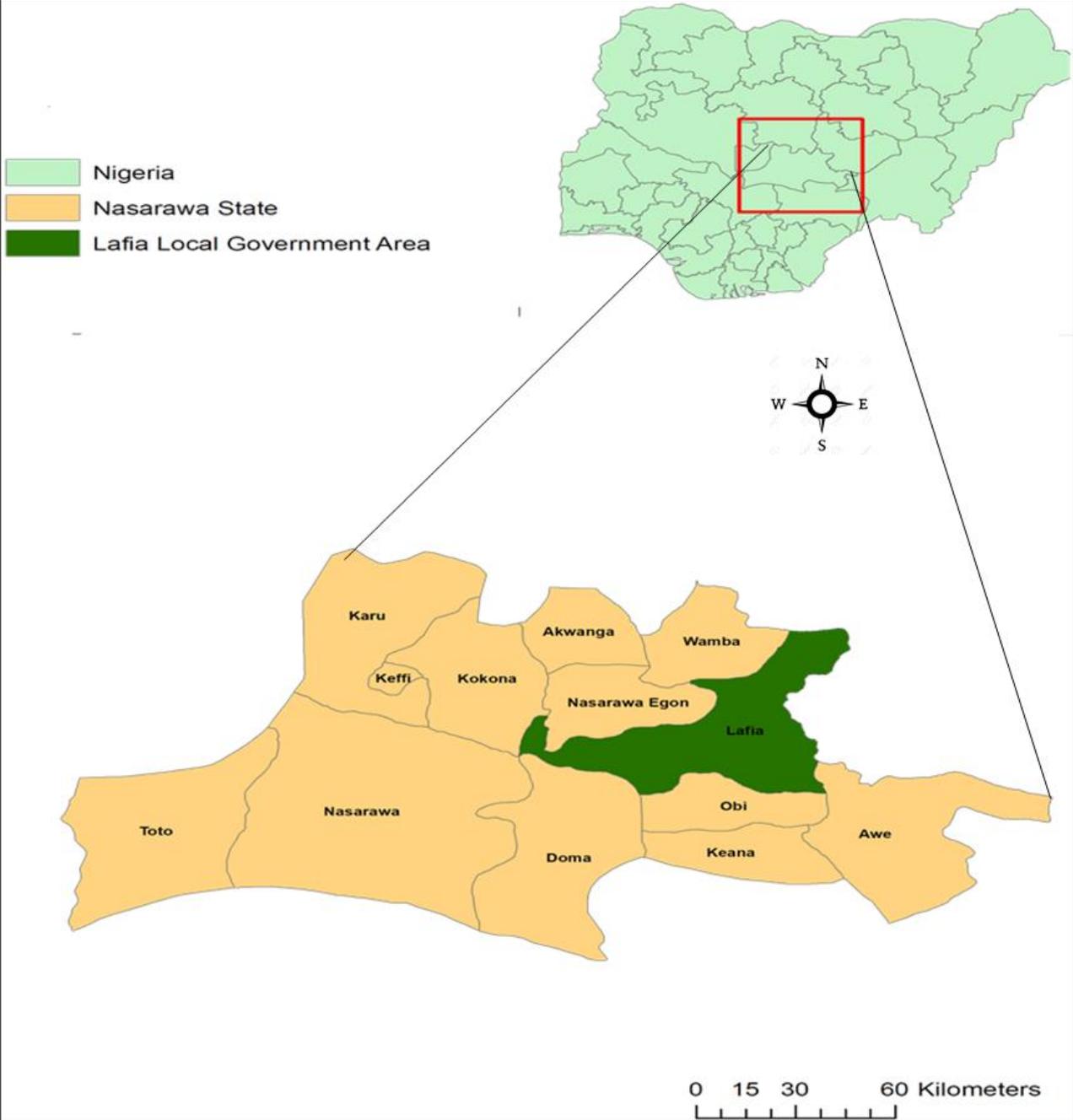
HCTR=HIV Counselling, Tested, and received Result

HIV + = Tested HIV Positive

The literature confirms that HIV infection declined in Plateau State among the most-at-risk groups, pregnant women attending antenatal clinics, and the general population (NACA, 2019; Magaji et al., 2018; Halima et. al. 2016; Isichei et al., 2015; Imade et. al. 2013; Gomwalk et. al., 2012; Bashoru 2010; PLACA 2009, 2007; FMoH, 2003). In contrast, Nasarawa State HIV infection reportedly rose/remained higher than in Plateau State (FHoM, 2019; NACA, 2019; Bako et al., 2017; Enuladu et. al. 2014; Bashoru 2010; NASACA, 2008). Factors responsible for the decline and rise in infections are not understood. With no cure for HIV virus at present, there is also a dearth of knowledge regarding how community and social groups contribute to

HIV prevention. By researching Plateau and Nasarawa States, this thesis intends to address these gaps and contribute new knowledge on the social epidemiology of HIV/AIDS in Nigeria. In all, it can be concluded that there is, at present, a clear need to contrast the dynamics of the HIV situation between Plateau State and Nasarawa States.

Figure 3.7: Map of Nigeria showing Nasarawa State, and Lafia LGA



3.6.4 How Participant were Selected in the Qualitative Study

In qualitative research, particularly in connection with a multiple embedded case design, criteria based sampling “*permits a logical inference about the phenomenon of interest*” (Bryman, 2013, p.419). This is useful in the selection of extreme cases of declining and rising/high HIV/AIDS prevalence in a multilevel-sites selection (Figure 3.4, page 119). A homogenous sampling strategy that allows for the identification of a subgroup of individuals who share similar characteristics, such as family, ethnic/tribal, professional, community or social characteristics, were selected to share their views and experiences on the questions posed by the study concerning the what, why and how of sexual risk and HIV/AIDS. People were also selected using a snowball or chain strategy having met the criteria. Participants, who were sampled purposely through the snowball technique referred the researcher to another person. The chain of referral was helpful in the identification and selection of appropriate people for in-depth interviews. The sites for the close observation of real-life social situations and access to documents for critical review were also subjected to particular criteria (see Table 3.11).

The selection of specific sites for the multiple case study was influenced by two key criteria; first, the nature of the HIV situation and the differences in trends of prevalence. As earlier illustrated in Figure 1.1, page 20, Plateau State was selected for its characterisation of declining HIV/AIDS prevalence, while Nasarawa represents a study site with rising or high HIV prevalence. The choice of Nasarawa State was predicated upon the security situation in Nigeria at the time of the project planning and data collection. Benue State (Table 1.1, page 22) offered the best case with high and rising HIV/AIDS in Nigeria; however, the security situation in the State prevented the research exercise (Adamu and Ben, 2017). Its neighbour, Nasarawa State, was selected for also meeting the criteria of a rising/high HIV/AIDS situation. Although, Plateau State had series of community crises, having lived there for decades, it was easier for the researcher to know places that were less security risk for the study. Hence, two Local Government Areas (LGAs), Shendam and Lafia, were selected as relatively peaceful, and were thus the location of the case selection.

In the convenience and snowball sampling techniques, criteria were checked to ensure they were adequately met (see Table 3.11) before engaging the interviewee. People selected were those above the age of 20 years. These are individuals who had passed adolescence and were considered responsible people in society. These potential participants were knowledgeable about the sexual and HIV/AIDS situations in the settings and were willing to share their

personal experiences in relation to the study context in order to construct knowledge (Creswell, 2016).

Table 3.11: Criteria in the Selection of Interview Participants and Documents

Qualitative Research Approach	Inclusion Criteria
Semi-structure Interview	<ul style="list-style-type: none"> ▪ Biologically male/female ▪ Married/unmarried ▪ 20 years and older ▪ Self-identified as heterosexual ▪ Lived in the community (urban or rural) for over three months ▪ Living with HIV/AIDS and/or receiving treatment ▪ Willingness to share personal sexual and HIV/AIDS experiences
Key Informants	<ul style="list-style-type: none"> ▪ Biologically male/female ▪ 20 years and older ▪ Sexual and reproductive, HIV/AIDS and Health-related Programme Officers, or Monitoring and Evaluation Officers for one year and above. ▪ Community Leaders: Youth leaders, District-Heads, Neighbourhood-Head (Mai'anguwa), Women Leaders; who has lived in the community for one year and more. ▪ Leaders of Social groups or organisations ▪ Willingness to share personal knowledge, skills, opinion, or experiences on sexual health and HIV/AIDS, community or groups customs and values in social relationships,
Participants' observation	<ul style="list-style-type: none"> ▪ Social gatherings, like weddings, burials, cultural festivals activities ▪ Dens of people who consume drugs, smoke marijuana and the like ▪ Drinking joints where Guskolo, Ogoro, local bear, are consumed. ▪ Host spots for street sex hawking and brothels ▪ Religious meetings
Document Review	<ul style="list-style-type: none"> ▪ National and State HIV/AIDS Strategic Plans documents ▪ National and State HIV/AIDS Policy documents ▪ National Gender Equality Policy ▪ National Empowerment and Economic Development Strategy Plan (NEEDS), ▪ Nasarawa State Empowerment and Economic Development Strategy Plan ▪ Plateau State Empowerment and Economic Development Strategy Plan ▪ Plateau State Peace and Conflict Strategic Plan ▪ HAF Reports

Programme Officers or Monitoring and Evaluation Officers, who were actively or previously involved in HIV/AIDS, sexual and reproductive health-related activities, and were social and community leaders, were each handed an interview invitation letter, alongside research information sheets (see Appendix B1, pages 463 -464). Table 3.12 shows the size of the participants sampled). Subsequently, those who received the letter were personally contacted for feedback on their participation in the study. Upon acceptance, a convenient time and venue

for the interview exercise were scheduled (see Appendix B in pages 463 - 467) for sample invitation letter/application letter for interview). Participants who accepted the interview arrangements were later reminded about the exercise before and on the agreed day, to confirm their availability for the interview.

Table 3.12: Qualitative Research Sample Size

Case study	Units		Interviews	
	LGAs	Interviews Units	Semi-structured	Key Informants
Plateau	Shendam	Shendam ^u	10	6
		Kuka ^r	8	5
Nasarawa	Lafia	Lafia ^u	9	6
		Assakio ^r	7	4

u = urban area, r = rural area

At the venue of the interview, the participants were assured that any information that may lead to identifying them would be anonymised. This represented best practice in assuring confidentiality and thus protected participants’ privacy when conducting the qualitative research (Queen and Thorong, 2018; Bryman, 2012). The participants were self-assured and relaxed enough to express their opinions and share experiences relevant to the research at the interview (Adeyemi, 2010). Meeting participants in the environment where they lived, and talking with them directly on sexual and HIV/AIDS exposure within their context was helpful in the implementation of the qualitative research design (Marshall and Rossman, 2016; Hatch, 2002).

3.6.5 How Qualitative Data were Collected

In social sciences, literature has highlighted several procedures for data collection (Creswell and Poth, 2018; Marshall and Rossman, 2016; Wolcott, 2009; Tesch, 1990). The common qualitative approaches with multidisciplinary application, those appropriate to this study and how they have been undertaken are discussed below. In the qualitative methods used, the researcher is the key instrument to collect data as he/she “examines documents, observing behaviour, or interviewing participants” (Creswell and Creswell, 2018, p.268). Therefore, the study protocol (Appendix E, pages 489-490), was used to guide the process as data were audio recorded, and later transcribed, analysed and interpreted. The data collection involved semi-structured interviews, key informant interviews, participant observations, and document reviews, as discussed below:

3.6.5.1 Semi-structured interviews

As previously described, the individuals for the semi-structured interviews were purposively sampled based on the initial outcome concerning background information from a descriptive statistic (discussed in Chapters Four and Five). The analysis provided concepts operationalised in the literature review based on the development of interview protocols, and background information. These concerned the identification of interview participants, characteristic indicators and factors of sexual behaviour that supported the selection (some of which were reflected in Table 3.11, page 128). The participants were primarily interviewed in their urban and rural communities within the selected LGAs in Plateau State and Nasarawa State. They were non-randomly sampled based on the criteria for flexibility that ensured continuous data collection with as many people as identified until no new insight or information emerged (Saunders et al., 2018; Bryman, 2015). Snowballing to reach participants was helpful as previous interviewees suggested other people who they believed were also able to support the study (Palikas et al., 2015). The referrals were utilised with caution to prevent over-representation of participants with certain characteristics or in the same network (Harrell and Bradley, 2009).

The semi-structured interview is the most commonly adopted method in qualitative research due to its flexibility, which permits participants to attribute significance to phenomena (Bradley, 2009; Michie, et al, 2011). This approach to data collection is better for addressing ‘what’, ‘why’ or ‘how’ research questions with individuals (Bell, 2014; Green and Thorogood, 2018). The interview method adopts questions that are easily redirected and asked in a more open-ended manner with a focus on depth and breadth in understanding the issue under discussion. In view of the theoretical design of the study, questions were framed around experiences related to sexual behaviour, HIV/AIDS awareness and attitudes, involvement in social groups/organisations, and social networks. The focus of the in-depth discussions was to elucidate the individual and socio-structural factors that facilitate or constrain the risk of HIV acquisition or transmission. Moreover, individual interviews were conducted to gain deeper insights into how and why participants were motivated, when making sexual choices that either increased or prevented the risk of becoming infected with HIV and other STIs. Interviewees provided information on their up-to-date sexual behaviour and offered explanations for engaging in such activity and the consequences.

The interviews also provided information on access to HIV/AIDS prevention activities, as well as the sources and benefits gained. The various responses helped to identify organisations and social groups involved in the implementation of HIV/AIDS prevention programmes, and policy documents for critical analysis. The in-depth discussions allowed interviewees to express their opinions and perspectives on the contextual issues raised (Bell, 2014). Information obtained in the interviews was triangulated with statistical results, the documents reviewed, and the findings from the participant observations by addressing the research objectives. The semi-structured interview method provided evidence that helped to understand the multilevel dimensions surrounding exposure to the sexual risk associated with acquiring or transmitting HIV in Plateau State and Nasarawa State.

This study is aware of the tensions associated with conducting a focus group discussion for a sensitive study like this. As such, interviews were considered to work best, and be most appropriate, given the rights of participants to protect their personal information, and who may not be free to share this in the presence of a third party. Even married couples who agreed to provide information, were interviewed separately as the nature of the subject required an atmosphere where each was free to express themselves. Moreover, cognisance of the cross-cultural differences in the study settings aided flexibility and reflexivity during interactions with participants. The research ethics reassured participants of confidentiality, which enabled them to freely express their opinions, and experiences relevant to the study (Adeyemi, 2010).

3.6.5.2 Key Informants or Elite Interviews

Key informants or elite participants are individuals who are heads of public, private or community organisations, or professionals with personal insights and first-hand knowledge of events related to the research topic (Bryman, 2016). In this study, key informants or elite participants consisted of HIV/AIDS programme officers from the government and CBOs, community and social group leaders, and religious leaders. Qualitative in-depth interviews with people who knew what was going on in the urban and rural communities of the study settings were helpful in providing the information needed, and ideas and deeper insights on sexual health, HIV/AIDS and health-related issues.

Visits to familiarise the researcher with the study community and environments were undertaken, and community gatekeepers were the first individuals on whom the researcher called for support. The Chairmen of the selected LGAs wrote a letter of introduction informing the gatekeepers of study. Upon entering specific communities to undertake interviews with key

persons, neighbourhood-heads were sent letters, while some were seen to personally seek permission to interview some members of their community (the same applied to semi-structured interviews). The advocacy visits mobilised support and the identification of relevant social facilities and groups, HIV/AIDS community resources, and health-related organisations. Letters of invitation were given based on the sampling approach and criteria, namely: Heads of HIV/AIDS of healthcare facilities; Local Government AIDS Control Agencies (LACAs); and community, social and women/youth groups (tribal/cultural, religious, family and friends, business/markets). Those who met the criteria for selection and were accepted to participate in the exercise suggested venues and times and remained close until the interviews were conducted. As in semi-structured interviews, key informants made referrals to individuals and organisations. For example, the agencies responsible for the control of HIV/AIDS and State Ministries of Health in the two main study locations snowballed their partners, who were contacted for useful information.

The key informant interviews were carried out based on one-to-one in-depth discussions in order to gain insight into the experiences of, and perspectives on, the research issue (Marshall, 2009). The key informants, or elite interviews, answered questions about their awareness and involvement in policies that influence people's lives in terms of HIV/AIDS infection. Participants' knowledge about sexual, HIV/AIDS, and health-related prevention programmes and implementations formed the major themes in the interview exercise. Issues concerning the impact of the health situation on the socio-economic and social lives of people in the past and present were also discussed. Key informants involved in HIV/AIDS programmes were asked about specific prevention projects, with a focus on the period of implementation, the target audiences and the outcomes of such interventions. Specifically, key leaders of social groups/organisations were asked about their activities and the forms of support that enhanced personal relationships and HIV prevention in the community. Success stories about behavioural and social changes that reduced or encouraged the risk of HIV acquisition or transmission were explored. Data obtained from the key participants were triangulated with the semi-structured interviews and information extracted from the policy documents to explain the results obtained from the survey and health population-based data analysis. The exercise yielded insights into the social and structural roles of the HIV/AIDS situation in Plateau State and Nasarawa State.

3.6.5.3 Participant Observations

This is a familiar method in social sciences that is associated with qualitative research whose ontological view is based on the way people interact, act, and behave and its epidemiological position on the evidence of the social world is best seen. Thus, it observes a real life setting to understand how sexual behaviour and the risk of acquiring or transmitting HIV/AIDS occurs, or are performed within the context of the study settings (Mason, 2018). In the approach, a researcher seeks to generate data through immersion in the study setting to experience and observe the socio-cultural and economic dimensions consisting of behaviours, interactions, events, actions, groups, resources, locational and temporal environments (Mason, 2018; DeWalt and DeWalt, 2014; Musante and DeWalt, 2010; Angrosino et al., 2000). In fact, learning to make sense of complex social phenomena, like the case of sexual risk of HIV behaviour, this study explored in these facets in their natural setting, which is the best way to obtain hidden and peculiar issues that have not been envisaged. Moreover, experiencing a naturally occurring phenomena unpacked multifaceted details and the ways a researcher interprets circumstances more precisely (Laurier 2010).

Some of the participants interviewed revealed specific hot spots, Community and social groups, and cultural festivals, where certain events and activities that relate to the study context occur. Unstructured and structured observations were undertaken in order to collect as much data as possible. The hotspots are places which people hawk sex, and undertake street prostitution, ‘go clubbing’ and partake of excessive alcohol; such locations experience the most at-risk population. Non-participation methods were used to identify hot spots where unobtrusive, simple observations were conducted of day to day activities involving sex customers coming to certain spots to negotiate for the day, weekend or days of “play within or away”⁷ sex services. The observed were unaware of the exercise and the observer had no influence over the situation observed (Spradley, 2016; Adler and Adler, 1994; DeWalt and DeWalt, 2014; Webb et al., 1966). The implications of the activities at the hot spots that relate to sexual risk and their implications in the neighbourhoods were probed at the in-depth interviews with individuals and key informants. Moreover, involvement was undertaken in some social day-to-day events within the communities in order to understand the nature of relationships and rapport both within and outside. In the study units, the following were considered: burial, marriage/wedding, child-naming, birthday ceremonies; this included cultural festivals and religious gatherings.

⁷ *Play within* means paying for sex services that take place in the locality while *play away* means the sex service is undertaken outside the locality.

The rationale for immersion in the traditions in the study communities was to exercise what Fine (2003) called ‘peopled ethnography’. This aims to understand and describe, using reflective field notes, and corroboration with interviewees. Thus, vignettes are developed of the context to understand the theoretical implications of people’s norms and relationships that influence their belief and support systems in connection with sexual behaviour, HIV/AIDS, and health-related conditions (Robson and McCartan, 2016). In some of the places visited, restrictions and the need for consent were non-existent, particularly in neighbourhood social group meetings. The acknowledgement received from community leaders, with labels such as ‘*dalabi mai bincike akan zumunci da lafiyan mu*’ that translates as ‘the student researching about our relationships and health’, further edified acceptance across the board and allowed access to some community members. The researcher’s acceptance by communities might be attributed to the study approach, which was open and non-judgmental in attitude, with a passion to learn more, and be mindful of the tendency for culture shocks.

Field notes were carefully taken as a primary way of obtaining data during the participant observations. Demuch and Sobo (1998) explain that notebooks are useful for the recording of experiences, personal reflections, and the plan of action for studies that involve observations of real life. Hence, the contextual issues observed were noted in a designed form, while informal chats with some participants, accounts of specific ceremonies, festivals, and actions were kept daily (Musante and DeWalat, 2010). The field notes offer important data and analysis when unpacking the exact picture of the phenomena observed as the products of the observation exercise (Demunch and Sobo, 1998). The literature agrees that field notes reflect exact quotes, describe activities in the order in which they occur, and reveal relevant contexts to situate the events observed. The researcher’s personal perceptions were separated from the variables observed, and the temporal and locational detentions were linked to the event issues observed (Musante and DeWalat, 2010; Schensul et al., 1999; Demunch and Sobo, 1998).

3.6.5.4 Policy Document Review

Many policy documents are in the public domain. It was not possible to identify and analyse every document on HIV/AIDS policy and programme implementations. Instead, documents frequently cited in the semi-structured interviews by key informants and interviewees and identified during literature search were carefully noted and subsequently stratified based on the related content upon review (Bowen, 2009). Access to policy documents was enabled through personal contact, where application letters were sent to selected relevant organisations, such as

the State Ministries of Health, State Ministry of Education, the State Agencies for the control of AIDS, and the Network of People Living with AIDS.

As an archival research strategy, a documentary review obtains existing data, which are unique and robust for a study. This method has the merits of being ready and accessible, with less cost and delay in terms of access to information; if found on the Internet, neither prior appointment, permission, nor ethical procedures are needed (Yin, 2009; Denscombe, 2007). Policy document analysis provided further evidence on access to specific prevention interventions or programmes in Plateau State and Nasarawa State. The documents reviewed show a significant level of reality based on the context in which they were produced (Morgan, 1992). For the purpose of repeatability, the selection of documents was based on reliability, preventiveness, and meaning. The documents reviewed were those of policy programmes implemented between 1999-2019, which specifically addressed sexual behaviour, HIV/AIDS and health-related conditions, and were linked to the issues and variables from the literature review, survey interviews and participant observations. The outcome of the document review revealed important historical perspectives on the initiation and delivery of sexual health, HIV/AIDS and health-related prevention efforts. Table 3.10 shows the designated document reviewed, which provided both quantitative and qualitative data that were organised and included in the appropriate analysis sections, and whose outcomes were corroborated with evidence from the survey, DHIS, interviews and participant observations to achieve the research objectives.

3.6.6 Qualitative Data Analysis

After the interviews were concluded, the audio recordings were listened to. The playback of the interviews helped to identify the emerging issues. Subsequently, interviews were grouped in separate folders based on individual semi-structured and key informant files and according to the communities from where they were obtained. This was followed by the transcription of the interviews. Interviews were obtained in English, Hausa, and Pidgin although languages were all transcribed into English. The process involved listening repeatedly to each audio recording, which was manually typed, transformed into text, and compared with field notes to validate the information. This process also provided an opportunity to note issues that were not identified during prior listening. The transcribed texts were inputted into a qualitative data analysis software, Nvivo 11. Using Nvivo facilitated the emerging coding of words and phrases for each section of the interview guides. The sections in the guides consisted of: (i) participant profile, (ii) membership of social groups, relationships and support, (iii) sexual behaviour, and (iv) HIV/AIDS prevention experience.

In view of the consideration of the Nvivo coding approach, which offers a top-bottom approach, some relevant words and phrases were omitted simply because they were not needed under the section. A manual coding approach was adopted, as it allowed the researcher to identify words, phrases and sentences that reflected the information required for the research. Although the manual coding process was time-consuming compared to the use of computer assisted analytical tools, like Nvivo, the flexibility offered through manual coding was important because it allowed the textual data to speak to the hierarchy of themes that emerged. This was subsequently combined with the top-down Nvivo approach. Multiple coding was useful in the organisation of robust textual information that addressed the study objectives; this enabled a focused on why and how social realities were experienced, which was missing from the quantitative data.

Following the manual coding, a Microsoft Excel spreadsheet was used to separately compile codes generated from each participant. Coded information was read through carefully to identify patterns. Codes that looked similar were grouped so that they generated a down- top hierarchy (minor themes grouped under developing main themes) based on the specific objectives of the study. Due to the study's mixed-method approach, only textual narratives and quotes relevant to the section of a theme were presented for discussion. The relevant illustrative quotes were extracted from the interviewed participants and triangulated with the quantitative results to provide relevant evidence on sexual behaviour, networking, and social support and isolation experiences in both Plateau State and Nasarawa State.

3.7 DATA TRIANGULATION

Triangulation emerged as a basis for connecting several points of reference, and was adopted in social science to assemble data using assorted approaches (Mertens et al., 2012; Sim and Sharp, 1998). Triangulation in mixed methods involves the "*mixing of data or methods so that diverse viewpoints or standpoints cast light upon a topic*" (Olsen, 2004, p.3). In practice, triangulation helps the researcher to fully appreciate multiple sources and perspectives to source data and assist in the corroboration of evidence.

Triangulation has two benefits for this research. The first is the use of a methodological tool to assess wide-ranging data, and the second is as a lens for corroborating evidence to gain a deeper insight into the process of creating knowledge about the research context. Denzin, (2017, 1989, 1978) explains that mixed method research triangulates data, investigators, theory and

methodology in unique ways. In this study, data collected from multiple study sites, and from a number of sources was only possible through mixed methods that measured the personal characteristics of the study population and understood the complexity surrounding sexual behaviour, HIV risk, and motivations shaping vulnerability to HIV acquisition or transmission (Guion et al., 2011; Thurmond, 2001; Moses, 1991). In particular, the robustness of the data triangulated in this study largely relies on the 2003, 2008 and 2013 NHDS, including the population HIV related health records from 1990 - 2017. These data were from USAID, PLACA, NASACA, the Plateau State Ministry of Health and the Nasarawa State Ministry of Health. Moreover, in-depth interviews, participant observations and the review of HIV/AIDS related documents add more information to the study (section 3.3.6 for detail). The analyses from these different approaches complement each other and corroborate evidence on sexual behaviour and the social epidemiology of HIV in the study locations.

In terms of triangulation, a number of people involved in the surveys and the HIV related data collection, originated from the sites in which the exercises were undertaken. Individuals engaged in different phases of the fieldwork and contributed their expertise as field supervisors, field assistants, and data analysts at different periods of the surveys. The qualitative phase of this research was organised by the researcher (me) and supported by members of the communities as field-guides and interpreters on certain concepts and cultures (these were translated to the researcher), which facilitated the entire data collection. The collection of survey data, HIV health records from the population and in-depth interviews constitute the quantitative and qualitative data in this study and involved the use of multiple researchers. Moreover, quantitative and qualitative advice from a number of statistical and NVivo drop-in sessions at the University of Sheffield (StarHelp, a team of professionals providing statistical support to students) and the ICT Help desk improved the quality of the study's data analysis and results. The data management of the study was enabled through multiple support from persons who were actively involved as supervisors, questionnaire administrators, in-depth interviewers, translators, and data analysts. The triangulation revealed and reduced biases that came from the conduct of a single method or approach.

Theory triangulation was significant to this study as it meant adopting multiple theoretical perspectives to guide the data categories, determining methods appropriate for the collection of data, and selecting suitable analytical procedures. The aim is to gather reliable evidence and explain the context surrounding the social epidemiology of HIV in order to address the research problem. As such, positivist and constructivist theoretical perspectives are integrated within a

pragmatic position and a multilevel conceptual framework to justify the nature of the data required and the collection process (see the first rationale for mixed methods) within a complex context characterised by declining or low, and rising or high HIV situations. This research combined the mutual strengths of quantitative and qualitative approaches to enhance the integrity and quality of the data and ensure a comprehensive understanding of the phenomenon investigated, thereby triangulating the research. Methodological triangulation can occur ‘within-method’ and ‘between/across methods’. For ‘within-method’, multiple complementary approaches are adopted where initial quantitative research is undertaken and its preliminary outcomes necessitate qualitative research that internally validates the study results. In ‘between-methods’ or ‘across-method’, the use of both quantitative and qualitative approaches are integrated to examine the sexual behaviour and social epidemiology of HIV, which increases the external validity of the study outcomes (Mertens, 2013; Hussein, 2009; Denzin, 1978).

Importantly, triangulating the evidence in this mixed methods research involved access to survey data for 2003, 2008, 2013 and HIV/AIDS and health-related population-based data for 1990 -2018 on Plateau State and Nasarawa State. The triangulation exercises involved the skills of different professionals, researchers, and field-assistants in collecting data, making entries, cleaning, coding, and creating the databases for each phase of the study and for the units of analysis. Quantitative techniques were used for the data analysis, where the preliminary results helped to develop the hypothesis and operational concepts in relation to the research problems. The initial result also assisted the selection of participants and the commencement of the qualitative research that significantly “*identified unobserved heterogeneity in qualitative data as well as previously unknown explaining variables*” that further widened the statistical analysis process, as in-depth interview results deepened insights and provided explanations (Kell, 2006, p.309) about participants’ motivations, which shaped sexual behaviour and the risk associated with HIV transmission in the study settings. Sex and HIV/AIDS are sensitive issues due to the secrecy and stigma attributed by society towards behaviours that often result from social desirability in research (Gregson et al., 2002). As such, triangulation benefits this mixed methods research and significantly reduces the biases, revealing different perspectives and developing greater in-depth understandings of the phenomenon than the insight, reliability and validity offered by a single-method approach (Risjord et al., 2002).

3.8 QUALITATIVE RESEARCH POSITIONALITY AND REFLEXIVITY

This section presents my experience and stance as a researcher when undertaking a study on a sensitive subject in social sciences that relates to public and population health. My exposure to socio-sexuality and HIV research adventure provided the inspiration to gain further insight into the social epidemiological context related to individuals, communities, and organisations. To achieve this research, the pragmatic paradigm was adopted in a mixed methods design to understand the nature of existing sexual behaviour and HIV/AIDS realities in settings with declining and rising HIV situations. The qualitative phase of this study accepted that social realities are better understood from first-hand experiences, and relating with the community helps to gain their trust and acceptance to volunteer and share personal stories and meaning from their perspectives. In doing this, the process involved reflecting on how my status and relationship with the study participants might have influenced the data obtained and my interpretations in the production of knowledge (Elliott, 2018; Finlay, 2002). For transparency, trustworthiness and to legitimise the research amidst fear of stigma, and potential social desirability biases, I ensured the respondents trusted me beyond our gender, ethnic, religious, socio-economic differences (Neuman and Neuman, 2015; Hammersley and Gomm, 2008). This was important because, the challenges of ethnic formalities in the Global South in relation to access and equity are different from the Global North. In the Global South, navigating class, educational and cultural issues in the fieldwork for a researcher who is an insider, outsider or in-between risks bias when it fails to distinguish between personal experiences and issues that relate to confidentiality on personal and complex social issues (Serrant-Green, 2002; Kanuha, 2000). Hence, my personal experience in the fieldwork was an ‘insider’ in Plateau State and an ‘outsider’ (at-home or within my country) in Nasarawa State.

At the start of my research career, the desire for knowledge inspired me to focus on understanding how adolescents and youths make sexual and reproductive health choices ignoring the future implications of their decisions. Subsequently, HIV and AIDS became key to my research interest and driven by the combination of behaviours I observed in the course of my involvement in HIV/AIDS prevention activities. I interacted with people infected and affected in North Central Nigeria. I began to meditate about the different levels of concern in place to mitigate the spread of the epidemic in a country whose current public health challenge is one of the highest in the world. On the basis of my supervisors’ wisdom, social dimensions in which people become vulnerable to HIV became the primary motivation of my study. Before undertaking this study, as a Peer Educator Trainer (PET), I trained adolescents and youths on

Family Life and HIV/AIDS Education (FLHE) on themes that cut across assertiveness, sexuality, reproductive health and HIV/AIDS. I also volunteered for People Living Openly with HIV/AIDS (PLOWH), among whom were the most-at-risk and vulnerable groups. Additionally, I joined the University, where I am involved with teaching, research, and community service. These opportunities exposed me to collaborations with my students who graduated and colleagues across the different identities that helped me to handle some blissful, bewildering, and challenging moments in the field.

Unwittingly, the experiences highlighted above have prepared me for this sensitive research in regards to gender, sexuality, culture, social status and attitudes on the health conditions of the study communities. The complexity in sexual, social and HIV issues raised the possibility of rejection in the process of selecting participants for in-depth interviews, using qualitative approaches that involved semi-structured interviews, key informant interviews, participant observations, and document reviews in multiple case study sites. The categories of people I engaged in the discussions included individuals in rural and urban communities, among whom were community elites and gatekeepers, policy-makers, traditional and social group leaders, and heads of development agencies. Generally, it was unclear to me how the fieldwork exercise would be conducted, because of my status as a student coming home to study in two different settings with HIV conditions that were declining, rising or high. One of the study locations, Plateau State, where I lived from my formative years for over four decades, made me an insider. An insider refers to a researcher who investigates phenomena he/she is either part of, has a natural access to, or bonds with people in the location (Alvesson, 2009; England, 1994). The second setting has a rising or a high HIV situation (Nasarawa State), which I only visited for this study, made me an outsider-at-home, 'outsider-within' or 'in the middle', akin to the term 'outsider-within' that Harrison (2008), Watts (2006) and Breen (2007) experienced in the field. In this regard, I was simultaneously an insider, outsider (at home, within or in-the-middle). Travelling back to my country for the data collection involved crossing geographic and cultural borders at home.

3.8.1 Insider Experience at Home

In one of the study locations, Plateau State, for instance, the shared multiplicity of my identity in the field, that involved ethnicity, language, marital status and religion, among other things, facilitated the relationship with participants. Interacting with my research subjects at the individual, organisational and community levels gave me sense of safety as a ‘Plateau-Man’ from the ‘Home of Peace and Tourism’⁸. I dressed alike, understood and spoke some common local languages, and valued the diverse culture that gave me a rapport and facilitated easy access to the people. I was familiar with the study settings, particularly, Kuka, a rural setting, Shendam town and Jos, the capital city of Plateau State where the qualitative research was undertaken. My indigenous identity is Gamai, through both parents. Although I originally came from Lu’ukwo, in Kwo district of Qua’an-Pan Local Government Council (LGA), I lived in Shendam LGA for over two decades. I resided in Yelwa-Nshar, an economic hub in Shendam LGA. My formative years - primary and secondary school, A Level, and undergraduate experiences - were completed while living with my parents and siblings at Pandam, in Yelwa-Nshar. In my secondary and university education days, I accompanied family and friends (during holidays and weekends) on their business trips at weekly market days and during the social activities that involved traditional festivals, weddings and youth conferences in the surrounding communities of the LGA. Returning to Shendam for research after a decade and half, with prior knowledge of the communities and traditional settings, and reconnecting old school mates, made me feel at home. I would have chosen Yelwa-Nshar as my study unit; however, Kuka was more suitable for its unique socio-economic and locational advantages in sharing borders with Taraba State and Nasarawa State which enabled an understanding of neighbourhood influences on the study context. While in the field in Kuka, I was accommodated by one of my childhood friends who I knew in Yelwa-Nshar (in Pandam). Moreover, on subsequent visits, I stayed with a relation who lived all his life in the community. In Shendam town, my sibling, who lives and works in Shendam town, accommodated me in his house throughout the period of my fieldwork. The familiar people I met supported me in making arrangements to recruit participants for interview.

The contact persons who assisted me were respected persons in their social networks and the local communities where they resided. Seeing them and introducing me as a PhD student studying abroad, and their schoolmate, friend or relation facilitated quick access and willing acceptance by key political, social, and community leaders to undertake the study. Subsequently, I gained enough confidence from members of the study communities, where many of them

⁸ A nickname or endearment that characterised Plateau State for which it is known within and outside Nigeria

volunteered to participate and shared relevant personal stories, and official / unofficial information. The research participants consisted of traditional leaders (Ward Heads or Sarkin Gari and Mai'angwas), heads of public offices, social group leaders and individual male and females, among whom were married and unmarried people. The co-operation I received from the research subjects in Plateau State study sites was overwhelming. A researcher who came from outside the study settings may not have experienced this support. As an insider, I was magnanimously supported due to the communalities I shared with the people and this bridged the differences from which an outsider would not necessarily benefit.

The rapport built, to a great extent, facilitated their kind reception and confidence, which enabled a supportive atmosphere and the freedom to share intimate personal experiences and knowledge regarding issues on which the study addressed. I observed that the participants were often happy to share their narratives with someone (me) who had a genuine interest in their experiences. Incidentally, I was aware of the extent to which I should examine their social experience, which essentially reflected their situation, because their story had not been previously shared; thus, I owed the duty of ensuring their views were respected. Most importantly, my awareness of the study communities, and my past knowledge and rapport with the participants were useful tools that worked best to understand social realities in the construction of knowledge to improve sustainable health. The field exercise was achievable because I set out unprejudiced boundaries in the selection and interaction with participants in order to gain insight into the experiences shared. Thus, my rapport did not affect data on sexual behaviours, HIV/AIDS knowledge and attitudes, social group, social capital and HIV/AIDS activities.

Quite frankly, my marital status, gender and religious identities, to a certain extent, became obstacles to access some communities and individual participants whose experiences were key to providing information for the research. Married men were easily accessible and open to listening to why I came to their communities. However, some of the unmarried residents I contacted thought I was attempting to snoop into their sexual and health lives to report to their friends or religious leaders, who could treat them as being promiscuous and harm their reputations. The married women, particularly Muslims, were initially doubtful and resistant. The suspicious attitudes displayed towards me were linked to cultural and religion beliefs that play a significant influence in the lives of the majority of people in the study locations. The tensions my gender and religious affiliation raised were due to the lingering disharmony between Christians and Muslims in Nigeria (Rudloff, and Vinson, 2021; Paden, 2015; Last,

2007; Aguwa, 1997). In Plateau State, most communities were separated by religion. The Christians clustered together, as did the Muslims (Rudloff, and Vinson, 2021). This divide raised much concern to me at the initial fieldwork preparation about free entrance into communities or streets were predominantly occupied by Muslims. Of more concern was that Muslims do not allow a male visitor to see single or married women nor permit close contact or entry into the house. The doubts about me were even more challenging, when I was suspected of being a potential spy, disguised to seek information that could be used in an attack. Literature indicated that Christians and Muslims have not been good terms, which translated into incessant conflict and violence over the last one and half decades; thus, it can be risky for a Christian to visit a mostly Muslim enclave (Oosterom, and Sha, 2019; Osaretin and Akov, 2013; Gofwen, 2011; Krause, J., 2010; Best, 2007; Fwatshak, 2006). The suspicion about my genuineness was one of the most difficult moments of my entire fieldwork experience, whose intensity I never envisaged as an insider.

The initial refusal to participate in the research by some research subjects due to certain personality traits I possessed, troubled me. However, I took a short break and strategised; then I returned with ideas about utilising my past experiences and networks to win the confidence of the communities. Consequently, I had access to individuals who volunteered to share their stories in an informal interview. While it was not possible for everyone to have confidence in me, the majority of people I met were willing to partake in the study, and subsequently referred me to another person in the community. The deep concern I naturally displayed on the social situation that most young and unmarried people were facing, and the unbiased approach to relating with them in their different clusters, facilitated conversations that inspired volunteers to open up to me, and consent to partake in the research. Moreover, my social network (of friends, past students, colleagues, including distant relations) among who at the time were natives or knew someone that resided in the communities, introduced me to key local community and religious leaders.

The leaders, upon hearing I was a student from a foreign University, and a University academic at home undertaking research, showed me goodwill. To them, I had the ‘potential to influence policy in the near future to leverage political, social and economic resources’ that could improve livelihoods. This experience created a rapport between us, from which they then advised that my first contact should always be the Local Government Council (LGC) Chairperson for notification about my research activities. The counsel given and actions taken, facilitated access to the District Heads, who introduced me to the Mai-angwas who ensured I was safe throughout

my fieldwork in the communities. To reduce contempt or rejection, I spoke some Arabic words that Muslims frequently use for salutation or to welcome a Muslim, such as “*assalamu alaikum*”⁹ and the reply is, “*Mualaikumsalam*”¹⁰ as the culture of the people requires. The flexibility in my approach to undertaking the data collection exercise prevented me from the social distance that my status would have created between the study communities and me.

Only one organisation in Plateau State rejected my request for the data collection and issued me a letter of refusal (see Appendix C7, page 474). Jos, where I lived and worked after leaving Shendam, and is indeed a home, was where I had close contact with the Coordinators and Project Officers of CSOs (some of whom were my colleagues and bosses). The rejections I experienced in the field were handled with caution to avert barriers to getting close to people and gain their confidence to volunteer to participate in the study.

3.8.2 Outsider ‘At Home’ Or ‘Within’ Experience

In Nasarawa State, one of the study locations with a high/rising HIV prevalence, I had experiences I can describe as an outsider-at-home or an ‘insider apart from’. Relph (1976) first described the concept as ‘existential outsidership’ in which I had a sense of being a stranger and feelings of being away from home. The field exercise was initially demotivating in Nasarawa State, particularly in Lafia town and in Assakio. I had frustrating situations involving refusals to participate in the study by key participants. While the refusal to participate in the study demonstrated agency, the participants had to exercise their will power on sharing personal information. Based on the significance of the pragmatic approach in understanding social phenomena, my experience as a researcher and my relationship with the research subject in Nasarawa State was essential (Morgan, 2014; Feilzer, 2010). As such, being assertive and purposeful in my attitude towards navigating issues arising from an unfamiliar setting was inevitable. The attitudes were essential to assure acceptance in bridging social distance between the researcher and the research participants (Burns, 2016) and ensure relevant information from the communities.

Similar to the procedures implemented in Plateau State in the strategies for sampling participants for an interview, I had preliminary visits to the communities I chose for the fieldwork based on the criteria outlined (see Table 3.11, page 128). Besides other individuals I targeted to recruit for interviews, my study participants involved sex service providers,

⁹ Interpreted to mean peace be unto/with you

¹⁰ Generally means peace be also with/upon you

commonly known Commercial Sex Workers (CSW), men who have sex with men (MSM), and people who inject and use drugs (PWID) who live in Lafia town. These groups of vulnerable people are often harassed by the security agencies, generally stigmatised and their lifestyle criminalised in the community where they live. The manner in which they are treated has made them devise means of survival and avoid the tricks used by state security services to track them. The defence was why, even at the request of the NGOs that directly support and empower them, should they meet me for an interview.

I understand their struggles. My experience in caring for people who live openly with HIV/AIDS shows that other researchers (both insiders and outsiders), have interviewed them and after disclosing intimate and sensitive information about themselves, they have ended up reading about themselves on the pages of public documents with details that can easily be traced to them. This suggests that some insiders in the past were unable to protect the vulnerable study population, and instead, some of whom the laws criminalised and the society discriminated against in terms of their sexuality, social behaviour and health condition (HIV status). The situation made it difficult for the most at-risk groups to volunteer or open up to researchers (like me) who were undertaking genuine studies, which respect and maintain research ethics that protect their vulnerability (Chamberlain and Hodgetts, 2018; Pawelz, 2017).

Individuals who were not part of the most at-risk subgroups mentioned above and civil society organisations refused to participate in my study. One of the participants declined an interview at the point we started talking about sexual behaviour and HIV/AIDS. To him, his wife might have conspired with me to find out about his private life and HIV status to report back to her. Incidentally, this man had some disagreements with his wife on issues that related to sexual infidelity and HIV risk that had raised tensions between them. Again, I approached a young lady to seek her participation in my research, after studying the research information sheet I handed over to her, she excused herself from offering any information to avoid recounting painful memories of past abuse that could traumatise her. Moreover, five Civil Society Organisations (CSOs) turned down my request to interview their programme or project officers about their involvements in social and development services, including HIV/AIDS, sexual and reproductive activities. The organisations suspected I was a spy, perhaps for one of their donors, who had sent me to investigate how they utilised funds disbursed for the implementation of HIV/AIDS prevention activities. While doubts and subsequent rejections to partake in my research were understood, possibly because of my status as a foreign student and an outsider (in Nasarawa State), collecting data in their organisations was a threat. The rejections I

experienced were shocking, probably because I initially viewed myself and approached the entire research as an insider, a foreign student who returned to his country to undertake research. However, the people and their culture made it challenging to access them, as in Plateau State.

It appears that people who volunteered to share their stories during the interviews were, in the past, given money as a reward for their time. Knowing I was a middle-class income earner, some participants thought I came with money to give whoever agreed to respond to my interview. Those who accepted to volunteer in the research anticipating payment expressed their disappointment because I did not meet their expectations. Ethically, giving monetary gains to research participants has great potential for inducement, as the interest to participate in research may be for their benefits, which often introduces social desirability bias. Also, as in Plateau State, my gender and religious background was a barrier to gaining access to some participants, which was more challenging in Nasarawa state, Lafia town that was predominantly Muslim. Although religious conflict violence was not as common as in Plateau State, the Ombatse cult militia group constituted a security threat that meant a particular community thoroughly grilled and denied me entry, and did not give me audience to explain my mission on the first visit.

At home, my experience in Nasarawa state was indeed as an 'existential outsider'; it was characterised by doubts and refusals that would have affected my relationships and the quality of the research data, if I had not been prepared to take the initiative. Most importantly, I took time to reflect on the entire experience in Nasarawa State and decided to rely on the research and ethical training I received at the University of Sheffield before my confirmation review and the fieldwork. This gave me the wisdom and skills that facilitated access to the multiple layers of the formal and informal processes associated with meeting community leaders for approval to undertake the data collection (Reeves, 2010). The ethical certifications and permissions obtained from relevant groups (see section 3.9, pages 147 -148) along with painstakingly explaining my research objectives, I was acknowledged and validated which enabled my visits to communities in the field chosen as the study locations. I observed the people culture that demanded bending low to show a mark of respect to elders. I also removed my shoes and sat on the floor (as tradition required) when meeting a top community leader. In building early contacts with participants, on many occasions, I bought some fruit, local drinks or snacks. I also quickly learned some of the words they frequently used in their local dialect for greetings and their names. The efforts were essentially adjustments as an outsider in Nasarawa State that aimed to successfully build trust and minimise social distances in the data collection. The opportunities that had shaped my belief, behaviour and knowledge ensured unbiased and

unrestricted interactions with the participants I interviewed and observed. Although I had no privilege to directly interview the MSM, I interviewed some key persons who provided them with social, economic and health prevention services. The key informants shared their experiences about societal and institutional barriers including laws and norms that discriminate and criminalise the people, who become isolated and exposed to behaviour that increases HIV risk. Moreover, the recognisance visits I made to the State AIDS Control Agency and the Ministry of Health, Primary Healthcare Development Agency recognised my status as a foreign scholar and thereby introduced me to their partner-organisations (mostly CBOs) and community leaders, who subsequently accepted and participated in the research.

In all, I had good and unpleasant experiences in the field; however, my status and experience as a researcher helped me to navigate the situations with no significant impact on the study. It was obvious that my understanding of some aspects of the participants' norms was limited. I was unable to unequivocally relate to certain individual participants and their subjective experience. Though I have been able to manage attitudinal and cultural shocks, as an insider and outsider-at home, the experiences the participants shared with me prompted contemplation on some retrospective questions, such as:

- Did my identity and participants' experiences during the interviews add value to this study?
- Was I compassionate to the participants and the conditions that exposed them to HIV risk or was I biased?
- Did I put myself in the participants' situations to know how they were feeling?

My sincere response to all these reflections is in the affirmative because the experiences they shared with me contextualised and provided evidence on the social epidemiology of HIV in the construction of knowledge. Hence, the research offered a privileged opportunity to explore sexual and social complexities in social epidemiology to support the local achievement of sustainable sexual health and the eradication of HIV/AIDS by 2030.

3.9 ETHICAL CONSIDERATIONS

Research on sexual behaviour, social relationships and HIV/AIDS are complex because they focus on the personal lives of people. There is stigma and trauma in research activities involving vulnerable people and on subject a society deemed as private; it is therefore important for the researcher to ensure their protect the rights and gain the confidence of participants (Orb, 2001). Based on the axiological position that underpinned this research and noted as the first layer,

ethics concern confidentiality including the protection of participant identities and anything that may link the information they provide to their personality. The privileges given by interviewees by sharing their personal views and private lives were highly respected, and their rights to the safety and protection ensured personal information. The essence is to ensure the ethics associated with conducting sensitive research, which was carefully observed to avoid harming the feelings, opinions and personality of the participants (Creswell, 2009). To this end, ethical approval was sought and obtained from the Ethics Committee (see Appendix C1-C6, pages 468 - 473) of the University of Sheffield, United Kingdom (with Reference Number: 009229, page 468). In Nigeria, ethical clearance to undertake the research was obtained from the Ethics Committee of the Plateau State Specialist Hospital, Jos (Reference Number: NHREC /09/23/2010b, 471). The Ethics Committee at the Nasarawa State Ministry of Health Lafia also issued approval (Number: NHRECI8/06/2017, page 471). Furthermore, permissions were also given by Plateau State Ministry of Health in Jos and the Nasarawa State Primary Healthcare Development Agency in Lafia (see Appendix C3 and C6, pages 470 and 473). In Nigeria, informal consultation with a psychologist was undertaken to manage a participant who could be traumatised in the process of providing information about past encounters with painful memories.

Each participant interviewed was first given an invitation letter along with the Research Information Sheet. Participants who agreed to participate and share their opinions and experiences were contacted to make further arrangements. Consequently, a convenient venue and time were scheduled for the interview exercise. Interviews lasted between 35 minutes to 1 hour 35 minutes. Interview questions guided the discussion with the key informant and semi-structured interviews. Prior to the start of each interview, the research information sheet containing details about the study and the role of the interviewee was again discussed, in case he/she had not read or understood the information before the interview. For participants who could not read the English Language, the information sheet was translated into Hausa, while for participants who could not read either English or Hausa, the document was read and explained to them and they were able to affirm a clear understanding. Emphasis was also verbally placed on anonymity regarding the personal information the participant would share; this aimed to provide reassurance before each interview commenced. After confirming that the information about the research and the participant's role was understood, written and signed informed consent was obtained before the discussion commenced (Bryman, 2102).

3.10 LIMITATIONS OF THE STUDY

This study utilised cross-sectional and community-based data on sexual behaviour and HIV/AIDS that had some shortcomings. Drawing from the indicators of sexual behaviour, as highlighted by UNAIDS and Slaymaker et al., the NDHS data had some inconsistent behavioural variables in the three survey years. Some variables were not within the datasets, such as: whether a respondent paid for sex or had multiple non-marital sex, and sexual behaviour amongst commercial sex workers, men who have sex with men and people who inject or take drugs. Social and structural factors were completely absent in the data. Thus, relevant variables not directly collected were subsequently constructed by merging or extracting from certain characteristics. This helped to develop a number of indicators of sexual behaviour (see behavioural variable construction (on pages 99 - 101.)). The qualitative approach was therefore used to collect social and structural factor variables that were completely unavailable in the survey datasets.

There were also low responses to variables such as extramarital and nonmarital sex. The problem lay with the extraction of state level data from surveys that were primarily designed as a national survey. The local or state response rate was inconsequential to the overall response rate. Moreover, the 2003 survey data had a low response rate because it was the first to involve a male sample in addition to the regular female samples in past surveys. As can be seen in the data, subsequent surveys had robust data. To enable validity in the results, the 2003 data was excluded in some of the analysis in Chapter Four, as it did not meet the requirements for certain analyses, like the Z-test. In addressing the low responses the analysis used percentages to standardise variations in the response share size; this enabled the easy comparison of occurrences. In situations where the responses did not meet requirements for statistical analysis, the variables were excluded. This was to prevent error and ambiguity in the examined pattern of sexual behaviour.

The selection of a case study of high or rising HIV may not adequately represented a perfect situation in Nasarawa State. Benue State was the initial appropriate location chosen when the research was conceived. However, due to security exigencies beyond the researcher's control, it became impossible to travel to Benue State. The State was enmeshed in violent conflict that claimed lives and therefore meant it was too risky for research activities. Hence the neighbouring state, Nasarawa, was selected as it also had a high and rising HIV prevalence. The HIV prevalence of Nasarawa State meant it was the only state consistently higher than

Plateau State in north central Nigeria. Moreover, both States were initially one before being split into their current boundaries (Figure 3.5, page 120). To carry out the fieldwork exercise, the researcher travelled between Plateau and Nasarawa States; this saved time and resources that would have otherwise slowed the process.

When engaging with the interview, married women were unwilling to share information about their sex lives due to uncertainty as to whether the information would reach their spouses and cause trouble within their marriage. Stigma and discrimination associated with HIV/AIDS meant some participants declined to offer further responses on issues that related to HIV/AIDS. The study relied on self-reported sexual behaviour and HIV status. Since there was no information elsewhere to confirm their sexual activity, there was the risk of a social desirability bias in the response, as participants tended to only report sexual experiences that society considered acceptable. Moreover, some relevant NGOs and Government institutions declined permission to access data related to the policy that the research intended to examine. These limitations indicate that caution is required when interpreting the study findings. In handling the challenge of women declining to respond to questions, men were asked about their spouses' sexual behaviour by using some pseudonymised scenarios.

The essence of the pseudonymisation was to trigger discussion and responses on extramarital sex, yet many married women were unwilling to provide their opinions. Instead of asking whether they had ever tested for HIV/AIDS and to disclose the result, participants were asked 'what would they do if they know their close friend had been tested for HIV and their result showed positive?' This approach was useful for initiating discussion about participants' HIV/AIDS prevention experiences. People living with HIV/AIDS were also contacted to share their experiences before and after infection. The assurance to anonymise participant information and the adherence to research ethics helped to reduce the response bias. AIDS control agencies in the two states were contacted for support in gaining an introduction to certain collaborating NGOs. The introduction and the ethical clearance gave access to the organisations interviewed. Arrangements to interview MSM in Nasarawa State failed; the FSW were interviewed and data obtained about the experiences of people whose social lives society stigmatised, discriminated and criminalised.

3.11 CONCLUSION

This chapter presented a detailed description of the methodological approach used in the research. The research utilised the mixed methods research design based on the pragmatism philosophical stance. The philosophical position underpinning did not worry about the debates surrounding the quantitative and qualitative methods, but combined strength of both methods that were suitable in the collection and analysis of data. The mixed methods research design had the quantitative approach at the first phase of the study to handle numeric data statistically, followed and supported by the qualitative research approach in organising narratives responses from the participants drawn from selected urban and rural communities. The robust quantitative and qualitative data collected were organised using appropriate analytical software. The data were analysed separately, and the results integrated and triangulated to provide evidence-based results and explanations to provide variables that show significant relationships. The chapter concluded with explanations on the research ethics and limitations of the study.

CHAPTER FOUR

SEXUAL BEHAVIOUR AND THE RISK OF HIV INFECTION

4.0 INTRODUCTION

HIV, like other infectious diseases in a population, depends on risk factors for it to thrive. UNAIDS (2008) highlighted that patterns of sexual behaviour in a setting influence the course of the transmission of the virus. Understanding sexual practises that predispose the possibility of acquiring or spreading Sexually Transmitted Infections (STIs) are useful for the prediction of the underlying dynamics in HIV transmission (Cleland and Ferry, 2013; Slaymaker, 2004). Therefore, this chapter examines the patterns and timings of sexual behaviour and the risk of acquiring or transmitting HIV infection across the two study areas, Plateau State and Nasarawa State. The States are sub-national units in Nigeria with distinctly different histories of past HIV infection. This chapter uses Nigerian Demographic and Health Survey (NDHS) data for 2003, 2008, and 2013 to understand of the forms and timings of sexual behaviour and the risk of HIV transmission in the study areas.

HIV infection has declined in Plateau State since 2003, while some neighbouring states, such as Nasarawa, have experienced an increase. It is unclear what has influenced the significant HIV decline in Plateau State and why this has not been experienced in neighbouring states; therefore, this is the focus of the thesis. The thesis answers critical questions on the factors that facilitate or limit the risk of HIV infection, for example: Why does the HIV rate continue to decline in Plateau State but fails to decrease in Nasarawa State? The subsections below draw on quantitative NDHS Analysis and qualitative interview data to investigate key indicators of sexual behaviour associated with HIV transmission in Plateau State. Each of the eight indicators is analysed by the place of residence (urban/rural) and survey year. Due to the small sample size in 2003, results on condom use are based on the 2008 and 2013 surveys. Within the tables throughout the chapter, statistically significant differences in behaviour are highlighted in bold.

The analysis of the NDHS focused on the seven essential indicators of sexual behaviour identified in the literature as significant to the acquisition or transmission of HIV/AIDS in a setting (Mercer, 2010; Slaymaker and Buckner, 2004; Slaymaker, 2004; Slaymaker et al., 2004). The literature revealed that where a person lives matters more to health behaviours than who that person is, which is explained by the substantial differences between place, especially between urban and rural areas (Matthew et al., 2017; Pateman, 2011; Kiadaliriet al., 2011: Hale et al., 2010; Chan and Godman, 2006). The analysis, therefore, includes the following seven

NDHS behavioural variables that constitute the sections of the chapter. These aim to demonstrate an understanding of the nature of human behaviour between urban and rural areas. The layout of the chapter is as follows:

- Section 4.1 examines the age at which a person first had sex <15 years.
- Section 4.2 describes sexual practises among unmarried people.
- Section 4.3 explores sexual practises among married people (in/outside marriage).
- Section 4.4 investigates types of sexual partner (regular and casual partners).
- Section 4.5 examines those who have been sexually active in the last four weeks (as a measure of frequent sex).
- Section 4.6 considers condom use with attitude towards HIV testing.
- Section 4.7 describes the incidences of sexually transmitted diseases (STDs).

In each section, a comparison of unprotected sex is conducted for the indicators of sexual behaviour to understand the likely sexual risk of HIV acquisition or transition within and between those living in Plateau State and Nasarawa State.

4.1 AGE AT FIRST SEXUAL INTERCOURSE

An individual's age at the time of their first sexual experience is a necessary measure of sexual health (Jarrett et al., 2018) and points to the susceptibility of the reproductive organs during the onset of intercourse (AFU, 2016; Nour, 2006). This particularly affects girls who have a higher tendency of establishing a risky lifestyle that includes multiple sexual partners and suffering violence at a later age (Yaya and Bishwajit, 2018; Cortez et al., 2015). The reason for this early sex may be due to variations in the age of first sexual consent and marriage among younger people. The national constitution specifies 18 years of age for sexual consent and for a person to marry. This provision varies as the Sharia Penal Code defines an age of 13 years as the age of consent (Cole, 2015). Moreover, parents have the power to give their daughter away in marriage without her consent (Antom and Umar, 2019). These acts facilitate early sexual intercourse which makes young people vulnerable to unwanted pregnancy and early marriage (Cortez et al., 2015). Research suggests that people who start sex early in life are likely to experience unsteady relationships and suffer sexual exploitation later in life (White et al., 2000) and it is also associated with HIV infection in Sub-Saharan Africa (Stock et al., 2013).

4.1.1 Age at First Sexual Intercourse in Plateau State

Analysis of the NDHS data revealed that, age at sexual debut at age ≥ 15 years decreases while it increases at first encounter at age < 15 years among both urban and rural residents (Table 4.1A). For instance, first sex before a person attains age 15 years rises for times (2.3% to 9.9%) between 2003 and 2013 in the rural areas more than in the urban areas. A close look at the results in implies rising HIV risky sexual behaviour in rural areas.

Table 4.1A: Age at First sex in Plateau State, Nigeria DHS 2003 – 2013

Age at First Sex		Age at First Sex		Goodness of Fit Test (χ^2)
		< 15 years	≥ 15 years old	
2003	Urban	3.0% (2)	97% (64)	64.000, $p=0.000^*$
	Rural	2.3% (4)	97.7% (171)	159.4, $p=0.000^*$
	Total	2.5% (6)	97.5% (294)	270.8, $p=0.000$
2008	Urban	7.5% (24)	92.5% (295)	230.2, $p=0.000^*$
	Rural	5.0% (57)	95.0% (1089)	929.3, $p=0.000^*$
	Total	5.5% (81)	94.5% (1384)	965.4, $p=0.000^*$
2013	Urban	4.5% (9)	95.5% (190)	264.7, $p=0.000^*$
	Rural	9.9% (65)	90.1% (589)	856.3, $p=0.000^*$
	Total	8.7% (74)	91.3% (779)	582.7, $p=0.000^*$
All years	Urban	6% (35)	94% (549)	1503.541, $p=0.000^*$
	Rural	6.4% (126)	93.9% (1849)	452.154, $p=0.000^*$
	Total	6.3% (161)	93.7% (2398)	1955.517, $p=0.000^*$

* $P < 0.01$

Data Source: NDHS 2003, 2008, 2013

¹¹Table 4.1B: Unprotected sex at age < 15 -year old in Plateau State

Unprotected sex at age < 15 years	2008	2013	All years
Total	72.8% (59)	91.7% (55)	70.8% (114)
Urban	62.5% (15/24)	66.7% (6/9)	60.0% (21/35)
Rural	77.2% (44/57)	75.4% (49/65)	73.8% (93/126)
z-test	$z = -1.358$, $p = 0.087$	$z = -0.561$, $p = 0.287$	$z = -1.590$, $p = 0.053^{**}$

** $P > 0.05$

Data Source: NDHS 2008 and 2013

Although there is not enough statistical evidence to conclude that a disparity exists in the unprotected sexual debut before the age of 15 between urban and rural populations in the 2008 and 2013 surveys, Table 4.1B generally shows that unprotected first sex before age 15 years

¹¹ Z-test in Table 4.1B shows the cases of those who had unprotected sex first at age < 15 years while Table 4.1A shows the total sample of those who had their sexual debut before they were 15 years of age.

increased between 2008 and 2013, and was more likely among rural than urban dwellers in the pooled data (60.7% vs 73.8%, $p < 0.05$).

In addition to the survey results, responses from in-depth discussions reveal that young people initiated sex at an early age. Participants' views about the age young people started to have sex are presented thus:

“In my time, girls do have sex with their husband at marriage. The men also had sex when they have reached puberty. When they start secondary school and are free from the watch of parents, it becomes worse. In school, they meet different children from different places, who teach them all this bad behaviour”

(Rural, married male, 58 years old_PL203)

“Boys and girls in rural settings now have no shame at all. I have seen a girl of thirteen years old pregnant. Once a girl's breast starts growing, you see all these boys around her like flies. If you do not see the boys around the girl, she is either pregnant or has relocated to another place... Yes, the young children are testing the forbidden fruit very early in this generation”

(Urban, married male, 46 years old_PL300).

The quotes above from gatekeepers in the communities highlighted that the lack of parental supervision and the influences exerted by peers in school and the development of girls' external sensitive organs, make young people vulnerable to early sex, and indicate that these factors are responsible for recent incidences of underage sex (Yaya and Bishwajit, 2018; Durowade et al., 2017; Cortez et al., 2016). A participant further highlighted that there are ongoing efforts to reduce the way young adolescents are exposed to the risk of sexual and reproductive health challenges:

“The parents, schools and community groups have been provided with the necessary skills to assist the young people with appropriate information about the danger in starting sex early to make them safe and live for a better future.”

(Urban, married male, 38 years old_PL400)

The above account may have been responsible for low sexual risk among the urban dwellers at the first sexual experience and contributed to the overall decline in prevalence in Plateau State. Chapters Five, Six and Seven discuss in detail on factors that influenced the risk of HIV acquisition or transmission in Plateau State.

4.1.2 Age at First Sexual Intercourse in Nasarawa State

Table 4.2A presents the age of sexual debut across urban and rural areas of Nasarawa. The result reveals that the vast majority started to have sex at the age of 15 and older and appears to stabilised in the three surveys. Whereas, first sexual experience before the age of 15 years

appears slightly decreased in urban (8.3% to 7.8%) areas and increased in rural populations (7.1% to 10.5%) between the 2003 and 2013 surveys. The rural population were expose to risky sexual behaviour more than in the urban settings.

Table 4.2A: Age at First sex in Nasarawa State, Nigeria DHS 2003 – 2013

Variables		Age at First Sex			Goodness of Fit Test (χ^2)
		Total	<15 years old	≥ 15 years old	
2003	Urban	24	8.3% (2)	91.7% (22)	16.667, p=0.000*
	Rural	84	7.1% (6)	92.9% (78)	61.714, p=0.000*
	Total	108	2.6% (8)	97.4% (100)	95.144, p=0.000*
2008	Urban	212	8.5% (18)	91.5% (194)	146.113, p=0.000*
	Rural	1189	8.5% (101)	91.5% (1088)	819.318, p=0.000*
	Total	1401	8.5% (119)	91.5% (1282)	965.431, p=0.000*
2013	Urban	141	7.8% (11)	92.2% (130)	100.433, p=0.000*
	Rural	698	10.5% (73)	89.5% (625)	436.539, p=0.000*
	Total	839	10.0% (84)	90.0% (755)	535.640, p=0.000*
All the surveys	Urban	377	8.2% (31)	91.8% (346)	263.196, p=0.000*
	Rural	1971	9.1% (180)	90.9% (1791)	1316.753, p=0.000*
	Total	2348	9.0% (211)	91.0% (2137)	1579.845, p=0.000*

*p<0.01

Data Source: NDHS 2003, 2008, 2013

Table 4.2B shows no statistical significance for unprotected first sex before age 15 years in Nasarawa State, as most urban dwellers engaged in unprotected sexual activity at an early age (under 15 years). Although there is no robust evidence to support the rise in unprotected first sexual experiences among urban (22.2%) and rural (6.9%) areas in the 2013 survey, the pooled data indicates that slightly more urban dwellers (87.71%) were more at risk of sexual and reproductive health challenges than rural inhabitants (78.7%).

¹²Table 4.2B: Unprotected first sex at age under 15 years in Nasarawa State

Variables	Unprotected sex at age < 15 years		
	2008	2013	All the surveys
Total	75.6% (90)	84.5% (71)	80.1% (169)
Urban	77.8% (14/18)	100% (11/11)	87.1% (27/31)
Rural	75.3% (76/101)	82.2% (60/73)	78.9% (142/180)
z-test	z=0.230, p=0.409	z=1.339, p=0.090	z=1.057, p=0.145

*p<0.01, **p<0.05

Source: NDHS 2008 and 2013

¹² Table 4.2B is the cases of those who had unprotected sex at their first age <15 years old by the total sample of those who ever had sexual debut before they were 15 years old in Tables 4.2A.

As with Plateau State, interview participants reported that young people are increasingly beginning to have sex at an earlier age than expected. The qualitative research participants in both urban and rural areas were of the view that an early sexual debut has a link with early menarche¹³. A key informant expressed her understanding as follows:

“The young people in the city look very innocent, but what they know about sex will surprise you. Most of them have sex at thirteen, twelve, and even at age eleven years old. Once a girls’ breasts start growing, the boys and even the girls would want to experiment how sex feels ... I know girls who became pregnant and married at a very young age”

(Rural, married female, 51 years_NS702).

While the participants revealed a rise in early sexual debut, their opinions corroborated the survey result about significant sexual activity among those aged <15 years old without the use of a condom. Key persons in the community who undertook efforts to mitigate the trend articulated the reasons for sexual risk at an early age:

“...some of the young boys and girls do not know about a condom. Those who know about the condom, considered it embarrassing to be seen at the chemist stores ask for one to buy. It does not bother them whether a condom is use or not during sex”

(Urban, female, 33 years old_NS715)

“A girl I counselled has a much older man who promised to use a condom on her during sex because she complains about becoming pregnant if protection is not use. Unknown to her, the person does not use it and keeps promising to take care of her even if she becomes pregnant. This is how the older men who are already exposed to sex often deceive the young girls with sweet words and end up putting them in danger. If a girl only become pregnant she is very lucky. The problem is she gets the disease that has no cure”

(NS35 Programme officer for 4 years).

A participant pointed out that the traditional system that upholds morality and strictly responsible behaviour among young people has deteriorated in recent times, and this is considered a possible reason for young people’s exposure to bad peer influence.

“Our society has changed for the worse now. In the past, children learned about morality with emphasis about the existing norms on sexual abstinence. Now, people do not take the responsibility seriously anymore and the children are left at the mercy of their friends, who feed them with wrong information about their sexuality, and that is why they grow and know nothing about the values we held. They start sex early in life for fun. I think the trend is worse now”

(Urban, married female, 45 years old_NS722).

¹³ Development of internal and external sexual organs or puberty at age ≥11 years

4.1.3 First Sex under 15 Years Old – a Comparison

Tables 4.1A and 4.2A show that a higher percentage of people in Nasarawa State engaged in an early sexual debut than in Plateau State. In particular, the people under 15 years of age in urban and rural areas in Plateau State were more likely to use a condom during a first sexual experience than in Nasarawa State.

¹⁴Table 4.3: Unprotected sex at age < 15 years old by Study Location

Variables		Unprotected first sex at age <15 years		z-test (z)
		Plateau State	Nasarawa State	
2008	Urban	62.5% (15/24)	77.8% (14/18)	n
	Rural	77.2% (44/57)	75.3% (76/101)	0.257, p=0.3917
	Total	72.8% (59/81)	75.6% (90/119)	0.445, =0.3282
2013	Urban	66.7% (6/9)	100% (11/11)	n
	Rural	75.4% (49/65)	82.2% (60/73)	-0.980, =0.1635
	Total	74.3% (55/74)	84.5% (71/84)	-1.591, p=0.052
All surveys	Urban	60.0% (21/35)	87.1% (27/31)	-2.489 p=0.001*
	Rural	73.8% (93/126)	78.8 (142/180)	-4.629 p=0.001*
	Total	70.6% (114/161)	80.1% (169/211)	-5.611 p=0.001*

*p>0.01. **p<0.05

Data Source: NDHS 2003, 2008, 2013

n = Sample does not satisfy the requirement for analysis

For instance, the 2013 survey reveals in Table 4.3 that unprotected at an early sexual debut was less likely in Plateau State than in Nasarawa State (74.3% v 84.5%, p> 0.05). Shame in purchasing condoms, the erosion of traditional values, early puberty and peer influence were offered as explanations for the early sexual debut among younger people in the study. Chapters Five, Six and Seven, provide a detailed discussion on the factors responsible for the differences in sexual risk at a first encounter before 15 years of age in Plateau State and Nasarawa State.

4.2 NON-MARITAL SEXUAL BEHAVIOUR

Sexual practise among the unmarried can encourage or hinder sexual and reproductive health. For instance, those who abstain from sex have a reduced risk of sexual and reproductive ill health. Sex with inconsistent condom use is often the root of sexual health complications among the unmarried (Yakubu and Salisu, 2018; UNAIDS, 2009). Research has also indicated that those who are unmarried are more likely to engage in sex with many partners, which increases the risk of HIV infection (Teachman, 2003; Miller, 2001). Information on trends of the

¹⁴ Z-test analysis in Table 4.3 is on the unprotected first sex at age < 15 years from Table 4.1B and Table 4.2B.

changing patterns of behaviour among the unmarried is inadequate for designing health interventions in Plateau and Nasarawa States. For this reason, this research explores sexual practices among the unmarried population in order to develop an evidence-based understanding of the risk of HIV transmission in the two states. The subsections that follow discuss the analysis of the results of participants who were not married at the time of the surveys in Plateau State and Nasarawa State.

4.2.1 Non-marital Sexual Behaviour in Plateau State

The results displayed in Table 4.4A show that, as the proportion of unmarried respondents who abstained from sex decreases, sexual activity increased. A close analysis of the result shows a significant increase in non-marital sex among urban (60.7%) and rural (36.2%) residents in 2013 from 2003. Generally, as sexual abstinence decreased (74.2% to 65.5% and 55.51%) in the surveys, non-marital sex rose (22.6% to 34.5% and 44.9%). The pooled data indicate that over half of the urban unmarried respondents had more sexual intercourse than those in the rural areas (52.7% vs 31.9%). Table 4.4B indicates that, despite the growing incidence of unmarried sexual activity in urban areas, the behaviour was less likely to be unprotected compared to the rural areas in the two surveys and the pooled data. Remarkably, unprotected, urban, nonmarital sex decreased by twofold in Plateau State.

Table 4.4A: Non-marital sex activity in Plateau State, Nigeria DHS 2003 - 2013

Variables		Non-marital Sexual Activity			Goodness of Fit Test (χ^2)
		Total	Ever had sex	Never had sex	
2003	Urban	33	36.4% (12)	63.6% (21)	2.500, p=0.117
	Rural	60	15.0% (9)	85.0% (51)	27.601, p=0.745
	Total	93	22.6% (21)	74.2% (72)	28.033, p=0.000*
2008	Urban	116	45.7% (53)	54.3% (63)	0.862, p=0.353
	Rural	359	30.9% (111)	69.1% (248)	52.281, p=0.000*
	Total	475	34.5% (164)	65.5% (311)	45.493, p=0.000*
2013	Urban	168	60.7% (102)	39.3% (66)	7.339, p=0.007*
	Rural	309	36.2% (112)	63.8% (197)	2.090, p=0.148
	Total	477	44.9% (214)	55.1% (263)	5.034, p=0.025**
All the surveys	Urban	317	52.7% (167)	47.3% (150)	95.736, p=0.000*
	Rural	728	31.9% (232)	68.1% (496)	0.912, p=0.340
	Total	1043	38.1% (397)	61.9% (646)	305.036, p=0.000*

*p<0.01, **p<0.05

Data Source: NDHS 2003, 2008, 2013

¹⁵Table 4.4B: Unprotected non-marital sex in Plateau State

Variables	Unprotected Non-marital Sex		
	2008	2013	All the surveys
Total	39.0% (64)	18.7% (40)	16.1% (104)
Urban	28.3% (15/53)	12.8% (13/102)	18.1% (28/155)
Rural	44.1% (49/111)	24.1% (27/112)	32.6% (76/233)
z-test	z= - 1.945, p=0.025**	z= -2.162, p=0.0153**	z= -5.774, p=0.001*

*p<0.01, **p<0.05

Data Source: NDHS 2008 and 2013

The current trend towards non-marital sex was also highlighted by the interviewees (Box 1) who contended that unmarried respondents are becoming sexually active even in rural areas. Female respondents associated the behaviour with pressure from male partners; a community leader who argued that girls are more at risk in the event that sexual activity results in an unwanted pregnancy corroborated this view.

Box 1: Perspectives on non-marital sexual behaviour in Plateau State

“Yes, I have been having sex. I am not sure if we have virgins today. Initially, I resolved to be a virgin, but the temptation from peers was so much that I did not keep to my resolution... among all my friends then, I was the only one who did not have sex”

(Urban, unmarried male, 23 years old_PL477)

“Just very few of the young people you see today have not had sex. Their generation sees sex as fun and not a commitment. Once they are away from parents in school or travel out, they have the freedom to do what they like..., which was why I earlier said the girls, are more at danger... and the boys who leav them (girls) with a problem like pregnancy, run away from the community”

(Rural Community Leader, 61 years old_PL255).

“I have a girlfriend who I often ask for sex, even when both of us initially promised each other not to have sex. The closer we become in our friendship, the more emotional we were attracted to each other and feel safe to try how sex feels. Since we tried it, we could not stop”

(Rural, unmarried female, 21 years old_PL388)

The National HIV policy states:

“...to reach young people with HIV-related communication intervention using existing youth-related structures and networks..., Correct and consistent use of both male and female condoms as methods of preventing HIV, STIs and unwanted pregnancy shall be promoted through multi-media communication approach”

(NACA, 2009, pp.13-14)

¹⁵ Z-test in Table 4.4B shows the cases of those who had unprotected non-marital sex whilst Table 4.4A shows the total sample of those who had non-marital sexual activity.

Its implementation across the country may have facilitated access to prevention services that influence the risk of HIV in urban areas. As such, some respondents shared their opinions and attributed free access to condoms. Furthermore, the perceived risk of the negative effects of pregnancy on the lives of their friends explains the nature of risk in Plateau State:

“I was not using a condom before, but now I use it very well. I can now get condoms free at the Healthcare Centre. Even some people came here to talk to us about HIV and testing people free. They also gave out condoms, which I collected plenty from them. The sensitisation on HIV is good and is what makes guys use bulletproof (condoms) now”

(Urban, unmarried male, 26 years old_PL433)

“Our youths are wise now. They are mindful that, if a girl becomes pregnant, both will be forced to be married, which may stop their schooling. Those who had such experience are regretting their past actions. So, they now resort to using condoms to prevent unwanted pregnancy. This act can also reduce diseases that come from sex”

(Rural, married male, 41 years old_PL205).

Evidence from both the quantitative and qualitative analysis suggests that, although sex among those who were unmarried may have persisted, the risk of STIs, protective measures during sex, and the willingness to use such measures may have reduced risky sexual behaviour with reproductive and other health-related benefits. Thus, the behaviour change resulting in the use of a condom might have contributed to the decline in the rate of HIV infections (Adelekan et al., Adelekan et al., 2017a, 2017b, 2017c, and 2017d)

4.2.2 Non-marital Sexual Behaviour in Nasarawa State

Tables 4.5A and 4.5B present the result of the analysis on sexual activity among the unmarried population in Nasarawa State. It is apparent from these tables that, as total sexual abstinence decreased between the surveys, there was a clear increase of non-marital sexual activity, and most was reported among rural residents. For instance, in 2003, the proportion of non-marital sexual activity in urban (14.3%) and rural (33.3%) areas rose to 54.1% (urban) and 56.9% (rural) in 2013. Overall, non-marital sexual behaviour rose steadily from 29.0% to 49.2% and 56.2% in the three survey years, with over half of the unmarried population engaged in sexual activity.

Table 4.5A: Non-marital sexual activity in Nasarawa State, Nigeria DHS 2003 – 2013

Variables		Non-marital Sexual Activity			Goodness of Fit Test (X2)
		Total	Ever had sex	Never had sex	
2003	Urban	7	14.3% (1)	85.7% (6)	3.871, p=0.054
	Rural	24	33.3% (8)	66.7% (16)	2.667, p=0.102
	Total	31	29.0% (9)	71.0% (22)	3.930, p=0.047**
2008	Urban	71	43.7% (31)	56.3% (40)	1.141, p=0.285
	Rural	392	50.3% (197)	49.7% (195)	0.010, p=0.920
	Total	463	49.2% (228)	50.8% (235)	0.106, p=0.745
2013	Urban	133	54.1% (72)	45.9% (61)	0.910, p=0.340
	Rural	346	56.9% (197)	43.1% (149)	6.659, p=0.010*
	Total	479	56.2% (269)	43.8% (210)	7.267, p=0.007*
All years	Urban	211	49.3% (104)	50.7% (107)	0.430, p=0.836
	Rural	762	52.8% (402)	47.5% (360)	2.315, p=0.128
	Total	973	52.0% (506)	48.0% (467)	1.563, p=0.211

*p<0.01, **p<0.05

Data Source: NDHS 2003, 2008, 2013

¹⁶Table 4.5B: Unprotected non-marital sex in urban and rural Nasarawa State

Variables	Unprotected Non-marital sex		
	2008	2013	All surveys
Total	55.3% (126)	33.8% (91)	47.1% (220)
Urban	51.6% (1631)	22.2% (16/72)	32.0% (33/103)
Rural	55.8% (110/197)	38.1% (75/197)	47.5% (187/394)
z-test	z= -0.440, p=0.330	z= -2.432, p=0.008**	z= -3.840, p=0.000*

*p<0.01, **p<0.05

Data Source: NDHS 2008 and 2013

Table 4.5B illustrates that unprotected sex involved sexual behaviour among the unmarried. Although sexual activity did not differ in 2003, unprotected behaviour changed between 2008 and 2013. However, there was a significant difference in non-marital sex between the urban and rural population in 2013 ($z = -2.432, p < 0.01$) and in the pooled data ($z = -2.806, p < 0.01$). While this pattern of behaviour signals a growing concern of potential sexual risk, it is consistent with the fielded in-depth discussions, as follows:

“My friend connected with the second man I had. The guy told her he likes to marry me. Since then, he has been nice to me. I do not see anything wrong making love with him, because he takes care of my needs”

(Rural, unmarried female, 23 years old_NS724).

A well-known urban community leader expressed his worry over the rising sexual activity among young people, attributing the blame to the environment in which they grew up, which

¹⁶ Z-test in Table 4.5B is the cases of those who had unprotected non-marital sex by the total sample of those who ever had non-marital sexual activity from 4.5A.

forces them to leave their homes for better opportunities elsewhere, and thus become exposed to risky sexual opportunities, including selling or buying sex:

“The youths have to survive... even after doing well in school; the current economic situation does not provide them with the necessary support to contribute their skills to our progress. These young people must travel from city to city for jobs. Many had to settle as restaurant or bar attendants, while other youths become commercial motorcyclists. Leaving home for livelihoods away from home most times are augmented by selling sex for extra income by the ladies”

(Rural, married male, 48 years old_NS907)

The above views suggest that economic conditions associated with a lack are often responsible for the engagement in sexual activity by unmarried people. The behaviour is increasing among unmarried young people who are at risk of unwanted pregnancy and contracting STIs, including HIV, as they migrate to make ends meet (Tran et al., 2018; Adanikin et al., 2017 ; Xu et al., 2013; Tang et al., 2011 ; Oyapock et al., 2008 ; Smith, 2004). This situation is more likely to affect women who, in this context, may have entirely depended on men for support and were unlikely to insist on the use of a condom during sex for fear of rejection. The lack of agency to resist risk has implications for HIV acquisition or transmission in the State.

4.2.3 Non-Marital Sexual Behaviour: A Comparison

Tables 4.4A and 4.5A show that more of the unmarried urban population in Plateau State had sexual activity than in Nasarawa State, while rural dwellers in Nasarawa State engaged in sexual activity more than in Plateau State. Generally, the proportions of nonmarital sex in Nasarawa State (29.0%, 49.2% and 56.2%) were more than in Plateau State (22.6%, 34.6% and 44.9%). Moreover, a larger proportion of people in Plateau State abstained from sexual activity than in Nasarawa State. Safe sexual behaviour was more likely in rural than in urban Plateau State, whereas sexual abstinence was more likely in urban than in rural Nasarawa State.

Table 4.6 reveals that in the survey years and pooled analysis, the proportion of unmarried respondents who lived in the urban and rural areas of Plateau State were more likely to use a condom during sex than those in Nasarawa State. There was a significant difference between unprotected sex in Plateau State and Nasarawa State in 2008 (39.0% vs 55.3%, $z = -3.173$, $p = 0.001$), in 2013 (18.7% vs 33.8%, $z = -3.717$, $p = 0.000$), and in the pooled data (16.1% vs 47.1%, $z = -11.239$, $p = 0.000$). As highlighted in section 2.7.3, the outcome of higher unmarried sex and the non-use of condoms are indicators that the unmarried population is sexually active and at risk of HIV transmission (Wu et al., 2018). The likely explanation for sexual risk among unmarried respondents in Nasarawa State may relate to a quest for sexual sensation during sex,

which a condom is ostensibly reported as reducing (Higgins and Wang, 2015; Davis et al., 2014; Randolph et al., 2007). Moreover, many out-of-school youths surviving on the streets in the State, particularly girls who hawk on the street to make a living (Oyediran et al., 2011) are more vulnerable to sexual risk. This risky behaviour may have contributed to the HIV infection rates in Nasarawa State.

¹⁷Table 4.6: Unprotected Non-marital Sex by Study Locations

Variables		Non-marital Sexual Activity		z-test (z)
		Plateau State	Nasarawa State	
2008	Urban	28.3% (15/53)	51.6% (16/31)	-2.136, p=0.016*
	Rural	44.1% (49/111)	55.8% (110/197)	-1.972, p=0.024*
	Total	39.0% (64/164)	55.3% (126/228)	-3.173, p=0.001*
2013	Urban	12.8% (13/102)	22.2% (16/72)	-1.652, p=0.049**
	Rural	24.1% (27/112)	38.6% (75/197)	-2.424, p=0.001*
	Total	18.7% (40/214)	33.8% (91/269)	-3.717, p=0.000*
All survey	Urban	18.1% (28/155)	32.0% (33/103)	-2.915, p=0.002*
	Rural	32.6% (76/233)	47.5% (187/394)	-3.640, p=0.000*
	Total	26.8% (104/388)	44.3% (220/497)	-5.350, p=0.000*

*p<0.01, **p<0.05

Data Source: NDHS 2003, 2008, 2013

In comparison, low rates of nonmarital sex and the use of condoms in Plateau State may have links with religious values that promote abstinence and discourage sex (see section 5.3, 6.4.1 and 6.4.2) among unmarried people and prevent HIV transmission in the state (Adelekan et al., 2017a, 2017b; Olivier and Wodon, 2015; Smith, 2004). Moreover, unmarried youths from monogamous family settings (Slap et al., 2003) and those who live with parents (Envulade et al., 2013; Ankomah et al., 2011) might have benefited from family social capital and abstained from sex to secure a happy marriage and future family life (Mokwena and Morabe, 2016), and to prevent STIs and unwanted pregnancy (Rector, 2002). The abstinence from sex and the use of condoms during premarital sex may have contributed to the decline of HIV infection in Plateau State. While in Nasarawa State, higher rates of unprotected nonmarital sex may have led to a high prevalence of HIV.

The evidence in this section has suggested that the unmarried population is at risk of HIV transmission. However, an explanation is needed as to what causes risky sexual behaviour. As such, chapters five and six discuss the factors associated with the likelihood of engaging with the risk of acquiring or transmitting HIV between the two study settings.

¹⁷Z-test analysis in Table 4.6 is on the unprotected non-marital sex from Tables 4.4B and 4.5B

4.3 SEXUAL ACTIVITY AMONG MARRIED PEOPLE

Traditionally, in Nigeria, sex is restricted only between a husband and wife. This sex between primary partners can potentially reduce the possibility of HIV transmission (Halperin et al., 2011). However, marriage in recent times is a pathway through which sexually transmitted infections, including HIV, are spreading in sub-Saharan Africa as condom use is significantly low (Coma, 2013; Mah and Halperin, 2010; Sheltion, 2007). As such, the sexual relationship among married people becomes an essential attribute for understanding sexual behaviour and health (Nowak et al., 2014). There is no information on this pattern of sexual relationships (with a partner within or outside marriage) in Plateau and Nasarawa States to understand the risk of HIV transmission in marital relationships. This section explores sexual relationships among the married to understand the risk factors fostering the HIV situation in the study setting.

4.3 .1 Sexual activity among the married people in Plateau State

In Plateau State, only a few respondents declared that they had been involved in extramarital sex. Table 4.7A shows that the rate of extramarital sexual activity was low; however, there is a rising tendency towards sexual behaviour. In a 2003 survey, for instance, there were no sexual relationships reported with a person outside marriage. In 2013, however, the behaviour occurred both in urban and rural areas.

Table 4.7A: Sexual activity among married people in Plateau State, Nigeria
DHS 2003 –2013

Variables		Sexual activity among the married			Goodness of Fit Test (X ²)
		Total	Extramarital	Sexual Fidelity	
2003	Urban	33	0.0% (0)	100% (33)	n
	Rural	114	0.0% (0)	100% (114)	n
	Total	147	0.0% (0)	100% (147)	n
2008	Urban	183	1.0% (1)	99.0% (182)	179.022, p= 0.000*
	Rural	754	1.0% (5)	99.1% (749)	734.133, p= 0.000*
	Total	937	1.0% (6)	99.0% (931)	913.154, p= 0.000*
2013	Urban	182	2.2% (4)	97.8% (178)	286.642 ,p= 0.000*
	Rural	609	1.8% (11)	98.2% (598)	1152.020, p= 0.000*
	Total	791	1.9% (15)	98.1% (776)	732.138 ,p= 0.000*
All surveys	Urban	398	1.3% (5)	98.7% (393)	378.251, ,p= 0.000*
	Rural	1477	1.1% (16)	98.9% (1461)	1413.69 ,p= 0.000*
	Total	1875	1.1% (21)	98.9% (1854)	1791.941, p= 0.000*

*p<0.001, ,

Data Source: NDHS 2003, 2008, 2013

Although not statistically significant, extramarital sexual activities without the use of a condom were found in urban rather than rural Plateau State. The sexual risk in urban areas decreased, while the risk increased in rural areas between 2008 and 2013 (see Table 4.7B). The research intended to gather interview data about sexual activity among married people.

However participants declined to give their views about extramarital sex during the interviews as most married females regarded their sex lives to be private.

¹⁸Table 4.7B: Unprotected extramarital sex in Plateau State

Variables	Unprotected Extramarital sex		
	2008	2013	All surveys
Total	50.0% (3)	73.3% (11)	66.7% (14)
Urban	100% (1/1)	75.0% (3/4)	80.0% (4/5)
Rural	40.0% (2/5)	72.7% (8/11)	62.5% (10/16)
z-test	n	n	n

Data Source: NDHS 2003, 2008, 2013

n = Sample does not satisfy the requirement for analysis

In the qualitative research phase, a woman married for eight years resident in an urban area explained why information about extramarital sex should be private. She stated that it tends to trigger problems between the husband and wife:

“No, I do not want wahala (trouble) in my marriage. This talk is a no-go area here. Please, talk about another thing, not this one (infidelity). I believe my husband does not have any woman outside. Even if he does, I have no power to confront him, as he may think I am suspecting him... we should discuss something different”

(Urban, married female, 36 years old_PL455)

Culturally, extramarital sex is prohibited in most communities, as religious teachings have indicated that it attracts divine wrath. A member of the clergy presented his perspectives thus:

“We teach both the married and singles Muslimah (Muslims) halal sex (permissible sex). On ‘zina’ (adultery) and ‘faskahi’ (fornication), ‘Allah’ (God) strongly prohibits them in Islam.” The punishment for those who commit these acts is everlasting suffering in ‘Jahannam’ (hell)”

(Rural married male, 43 years old_PL207)

As such, respondents, particularly women, might have felt threatened by social norms in disclosing their extramarital activity in the surveys and interviews. Despite the norms that forbade clandestine sex with another person outside marriage, some married people share their spouse as hospitality to friends or guests. Although the trend is said to have stopped as those involved have relocated due to past community violent conflict that targeted them, a rural gatekeeper said:

¹⁸ Z-test in Table 4.7B shows the cases of those who had unprotected extramarital sex, whilst Table 4.7A shows the total sample of those who had extramarital sex.

“I know people in this community who shared their wives with close friends or relatives... yes, people practise this culture of giving their legal wives to another person for sex”

(Rural married male, 52 years old_PL209).

“Men generally like to be admired and be sexually satisfied. Women like attention and their emotion to be pleased. Whichever of that lacks this need from his or her spouse, and gets elsewhere, is easy to give in to infidelity. Sacrifice is required is to keep a balance”

(Rural married male, 52 years old_PL209)

While some traditions see extramarital sex as hospitality to friends or kin, many societies forbid the behaviour and often treat it as a criminal offence, as it is even punishable with a legal penalty. Lack of satisfaction in a marital relationship makes a spouse vulnerable, particularly to a colleague at work or a friend who shows admiration. This is why the behaviour is mostly carried out in secrecy, and the associated stigma makes it difficult for some participants to disclose (Seeall et al., 2013). Moreover, many religions see a person involved in an extramarital sexual relationship as a sinner, a moral abnormality (Mpundu, 1999; Goffman; 2003, 2009).

Generally, extramarital sex is viewed as a social humiliation; specifically, it is seen as a deviation from the lifestyle specified by locals as a standard rule on how people should present themselves in society. The stigma around behaviour reduces the respect afforded a person by others and makes them appear bad, weak or dangerous (Tyler, 2018). Fear of isolation and the possible dissolution of a marriage could lead to feelings of rejection and exclusion. Possibly women in the study could not risk sharing information about their sexual behaviour, particularly as it relates to extramarital sex (Stephenson, 2010). These attitudes have implications for introducing bias amongst research respondents who were unlikely to share sexual and reproductive health histories. The failure to disclose infidelity is the reason why many married women only learn they are HIV positive when they become pregnant. This risk may underscore why marriage is not entirely safe from the risk of HIV transmission. However, as highlighted in the interviews, religious teaching significantly encourages sexual fidelity (Al Halal, 2013; Atkins and Kessel, 2008).

4.3.2 Sexual Activity among Married People in Nasarawa State

Similar to the 2003 survey in Plateau State, Table 4.8A shows an absence of sexual infidelity in Nasarawa State. Although cases of extramarital sexual activity were generally low, it slightly decreased between 2008 and 2013 as sexual fidelity stabilised.

Table 4.8A: Sexual activity among married respondents in Nasarawa State, Nigeria DHS 2003 – 2013

Variables		Sexual Activity among Married People			Goodness of Fit Test (X ²)
		Total	Extramarital	Sexual Fidelity	
2003	Urban	18	0% (0)	100% (18)	n
	Rural	60	0% (0)	100% (60)	n
	Total	78	0% (0)	100% (78)	88.167, p= 0.000*
2008	Urban	137	4.4% (6)	95.6% (131)	114.051, p= 0.000*
	Rural	795	3.9% (31)	96.1% (764)	675.835, p= 0.000*
	Total	932	4% (37)	96.0% (895)	789.876, p= 0.000*
2013	Urban	132	2.3% (129)	97.7% (129)	120.273, p= 0.000*
	Rural	664	3% (644)	97.0 % (644)	586.410, p= 0.000*
	Total	796	2.9% (773)	97.1 % (773)	706.601, p= 0.000*
All surveys	Urban	287	3.1% (278)	96.9% (278)	252.129, p= 0.000*
	Rural	1519	3.4% (1468)	96.0% (1468)	132.184, p= 0.000*
	Total	1806	3.3% (1746)	96.7% (1746)	1573.973, p= 0.000*

*p<0.01, **p<0.05

Data Source: NDHS 2003, 2008, 2013

n = Sample does not satisfy the requirement for analysis

Table 4.8B indicates that unprotected extramarital sex was likely to occur by chance in Nasarawa State. However, more urban than rural dwellers engaged in unprotected extramarital sex. In general, the pooled data reveals that more married people in urban areas than in rural areas were involved in extramarital sex.

¹⁹Table 4.8B: Unprotected extramarital in Nasarawa State

Variables	Unprotected Extramarital sex		
	2008	2013	All surveys
Total	83.8% (31)	39.1% (9)	66.7% (40)
Urban	100% (6/6)	66.7% (2/3)	88.9% (8/9)
Rural	80.7% (25/31)	35.0% (7/20)	62.8% (32/51)
z-test	z= 1.177, p= 0.120	z= 1.048, p=0.1473	z= 1.534, p= 0.063

*P<0.01, **P<0.05

Data Source: NDHS 2008 and 2013

Findings from the field discussions showed that severe economic conditions compelled married respondents to engage in extramarital affairs. In times of financial family distress, people travelled to the city in search of livelihoods. Finding themselves in a new setting, separated from family ties and support, may have reduced their adherence to traditional sexual norms, meaning they engaged in risky sexual activity. This applies to both men and women:

¹⁹ Z-test in Table 4.8B shows those who had unprotected extramarital sex, whilst Tble 4.6A shows the total sample of those who had extramarital sex.

“Most construction companies have jobs during the dry season. So, once the farming season is over, I moved to Abuja to work and raise funds to support my parents and siblings. Of course, while I am away, you know – man-body needs fun. I have two girlfriends with whom I make love”

(Urban, unmarried male, 31 years old_700)

Another respondent pointed out a worrying phenomenon like the one in Plateau State (in section 4.3.1) as a result of multi-ethnic mixing. Couples share their spouses with close friends and inherit wives of deceased relations. This sexual practice was a way of sustaining long-term relationships. A rural participant who had lived over thirty years in the community provided a brief account on the nature of sex with a secondary partner in marriage:

“I tell you, in this place, we have people from different tribes. Some of these people still give their wives to their important guests or relations for sex. In many cases, if a husband or wife wants a child of a look, he/she has sex with the motive of giving birth...”

(Rural, married male, 48 years old_NS907)

The study revealed that a neighbouring state to Nasarawa has some tribes who share their spouse as sexual hospitality with others (Osagbemi et al., 2001a, 2001b, 2007a, and 2007b). The practice is likely to increase the risk of HIV infection. While this study does not intend to demean any ethnic group and its culture, the recurrent narrative about offering one’s wife to a visitor raises concerns about the risk of HIV transmission in Nasarawa State

4.3.3 Sexual Activity among Married Respondents: A Comparison

An examination of Tables 4.7A and 4.8A reveal a lower proportion of those reporting extramarital sexual encounters in Plateau State than in Nasarawa State. The lack of statistical evidence on extramarital sexual experiences may be due to a low response rate that characterised culturally sensitive issues relating to private lives and associated stigma (Herek, 1999, 2002; Scrambler, 1998). However, more people in the urban and rural areas of Nasarawa State had unprotected sex with a person other than their spouse in 2008 than in Plateau State. In the following survey in 2013, more respondents in urban and rural Plateau State than in Nasarawa State engaged in unprotected extramarital sex. Sex with a secondary partner outside marriage did not substantially differ between the two states in the pooled analysis. More notably, was that the risk of HIV is less likely when mutual sexual fidelity occurs between spouses in a marital sexual relationship.

²⁰Table 4.9: Unprotected extramarital sex between Plateau State and Nasarawa State

Variables		Unprotected Extramarital Sex		z-test (z)
		Plateau State	Nasarawa State	
2008	Urban	100% (1/1)	100% (6/6)	n
	Rural	40.0% (2/5)	80.6% (25/31)	n
	Total	50.0% (3/6)	83.8% (31/37)	n
2013	Urban	75.0% (3/4)	66.7% (2/3)	n
	Rural	72.7% (8/11)	35.0% (7/20)	n
	Total	73.3% (11/15)	39.1% (9/23)	n
All surveys	Urban	80.0% (4/5)	88.9% (8/9)	n
	Rural	62.5% (10/16)	60.8% (31/51)	0.123, p= 0.451
	Total	66.7% (14/21)	66.7% (40/60)	0.000, p= 0.500

*P<0.01, **P<0.05

Source: NDHS 2008 and 2013

n = Sample does not satisfy the requirement for analysis

Religious teachings may have influenced sexual risk (Conley et al., 2015; Hernandez et al., 2014) in Plateau State. In Nasarawa State, severe economic conditions that encouraged migration and the practice of spouse sharing may have encouraged sexual behaviour that increased the risk of HIV infection. Moreover, proximity of the State to the Federal Capital City (FCT), Abuja that has a cluster of sexual hotspots including brothels, nightclubs and drinking joints (NASACA, 2015), facilitated prostitution and commercial sex. Studies have highlighted that the hotspots include transportation routes and stop points for long-distance travellers (Daniel et al., 2017; Djukpen, 2012) where sex for money activities are clustered (Ajayi and Somefun, 2019; FMoH, 2015). These and similar social phenomena may have increased risky sexual behaviour among married people and would thus be responsible for the rising and higher HIV infection rate in Nasarawa State than in Plateau State.

4.4 TYPES OF SEXUAL PARTNER

This section examines the categories of partner in a sexual relationship with the view to shedding light on the risk of HIV infection. Two types of sexual partner emerged during the study: (i) sex with a regular or stable partner, and (ii) sex with a non-regular or casual partner. A sexual relationship is stable or regular in a formal or informal arrangement once the partners live together for a period up to twelve months and more (Rosengard et al., 2005; Ellen et al., 1996). In this partnership, respondents may be aware of their past sexual history and health

²⁰ Z-test analysis in Table 4.9 show the rates for unprotected extramarital sex, from Tables 4.7B and 4.8B.

status, and have established a mutual trust that may reduce the risk of HIV infection (Rosengard et al., 2005). Studies suggest that regular partners do not typically use protection for sex (Wang et al., 2019; Mullinax et al., 2017; Thato, and Daengsaard, 2016; Chamrathirong and Kaiser, 2012). On the other hand, an irregular partner is one whose sexual relationship is casual with a person that they may not have met or known before and is unlikely to see again. Nevertheless, the use of a condom significantly determines sexual and reproductive health outcomes in both types of sexual partnerships (Chamrathirong and Kaiser, 2012; Rosengard et al., 2005). The following sub-section examines the types of partner that respondents engaged in sexual activities with and the risk associated of HIV transmission in Plateau State and Nasarawa State.

4.4.1 Types of Sexual Partners in Plateau State

In this section, the focus is on sexual risk, compared with those in a stable sexual partnership and those in a transitory or unstable sex relationship. It is important to note that a romantic sexual relationship that is characterised by intimacy and trust is stable and promotes positive sexual and reproductive health (Jamieson, 1999). In the survey years, Table 4.10A shows that most sexual activities took place with a regular partner in Plateau State. However, the proportion of respondents who had sex with casual partners can constitute a serious sexual health problem, including HIV infection. However, in general, sexual activity with a casual partner was higher among the urban than the rural population, which slightly decreased between 2003 and 2013.

Table 4.10A: Types of sex partner in Plateau State, Nigeria DHS 2003 – 2013

Variables		Types of a Sex Partner			Goodness of Fit Test (χ^2)
		Total	Causal partner	Regular partner	
2003	Urban	42	28.6% (12)	71.4% (30)	7.714, p=0.005**
	Rural	104	8.7% (9)	91.3% (95)	71.115, p=0.000*
	Total	146	14.4% (21)	85.6% (125)	83.558, p=0.000*
2008	Urban	198	10.6% (21)	89.4% (177)	122.090, p=0.000*
	Rural	748	8.2% (61)	91.8% (687)	523.898, p=0.000*
	Total	946	8.7% (82)	91.3% (867)	720.931, p=0.000*
2013	Urban	235	26.8% (63)	73.2% (172)	85.634, p=0.000*
	Rural	599	8.8% (53)	91.2% (546)	697.307, p=0.000*
	Total	834	13.9% (116)	86.1% (718)	436.383, p=0.000*
All surveys	Urban	475	20.2% (96)	79.8% (475)	168.608, p=0.000*
	Rural	1451	8.5% (123)	91.5% (1328)	1000.706, p=0.000*
	Total	1926	11.4% (219)	88.6% (1707)	1149.607, p=0.000*

*p<0.01, **p<0.05

Data Source: NDHS 2003, 2008, 2013

Table 4.10B reveals that the rural population were more likely to engage in unprotected casual sex than the population in urban areas. While the difference in risky behaviour between urban and rural population was not statistically significant in the 2008 survey, urban dwellers were twofold less likely to engage in unprotected casual sex compared with those at rural areas in 2013 (17.5% vs 45.3%, $p < 0.01$) and in the pooled analysis (24.0% vs 51.2%, $p < 0.01$).

²¹Table 4.10B: Unprotected sex with casual partners in Plateau State

Variables	Unprotected sex with Casual partner		
	2008	2013	All surveys
Total	62.2% (51/82)	30.2% (35/116)	39.3% (86/219)
Urban	57.1% (12/21)	17.5% (11/63)	24.0% (23/96)
Rural	63.9% (39/61)	45.3% (24/53)	51.2% (63/123)
z - test	$z = -0.554$ $p = 0.289$	$z = -3.252$, $p = 0.001^*$	$z = -4.099$, $p = 0.001^*$

* $p < 0.01$,

Data Source: NDHS 2008 and 2013

Importantly, Table 4.10A shows that in urban areas, sex with a regular partner slightly increased from 71.4% in 2003 to 73.1% in 2013, while the risk in unprotected sex with a casual partner decreased from 28.6% in 2003 to 26.8%. In rural areas, sexual activity with both types of partner did not differ much. There was a twofold decrease in unprotected casual sex in Plateau State from 62.2% in 2003 to 30.2% in 2013.

Participants shared their opinions during the in-depth discussion and pointed out that, in a steady relationship, people become familiar with each other and develop trust. With such sexual intimacy, caution is more focused on unwanted pregnancy than STIs. As HIV awareness increased, the perceived risk of HIV might have encouraged a decrease in sexual activity with a casual partner:

“I have sex only with my girlfriend and we have been friends for over two years now. We know about ourselves well that is why we keep the fun only between. I don’t play around with any other girl. Our worry is for a baby not to come between us now”

(Urban, unmarried male, 27 years old_PL366).

“In the past, I did not bother who I have sex with, in fact, even paying for sex to have fun. I stopped having sex with any women I do not know, because of the counselling I received that those kinds of women have sex with other men and can have HIV”

(Urban, unmarried male, 32 years old_PL499)

²¹ Z-test in Table 4.10B shows the cases of those who had unprotected casual sex as opposed to the total sample of those who had casual sex (in Table 4.10A)

4.4.2 Types of Sex Partner in Nasarawa State

The analysis results in Table 4.11A show that, in both urban and rural areas, sex with a casual partner was on the increase and decreased among those with regular partners. For example, in Nasarawa State, 88.3% had sexual activity with a regular partner in 2003, and this decreased to 80.2% in 2013. In comparison, sex with a casual partner increased from 11.7% in 2003 to 19.8% in 2013.

Table 4.11A: Types of sex partner in Nasarawa State, Nigeria DHS 2003 – 2013

Variables		Types of Sexual a Partner			Goodness of Fit Test (χ^2)
		Total	Casual partner	Regular partner	
2003	Urban	20	5% (1)	95.0% (19)	16.20, p=0.000*
	Rural	57	14% (8)	86% (49)	29.491, p=0.000*
	Total	77	11.7% (9)	88.3% (68)	49.911, p=0.000*
2008	Urban	150	18.7% (28)	81.3% (122)	58.907, p=0.000*
	Rural	881	19.3% (170)	80.7 % (711)	332.215, p=0.000*
	Total	1031	19.2% (198)	80.8% (833)	720.931, p=0.000*
2013	Urban	169	27.2% (46)	72.8 % (123)	35.083, p=0.000*
	Rural	742	18.1% (134)	81.9% (608)	302.798, p=0.000*
	Total	911	19.8% (180)	80.2% (731)	601.434, p=0.000*
All surveys	Urban	339	22.1% (75)	77.9% (264)	105.372, p=0.000*
	Rural	1680	18.6% (312)	81.4% (1368)	663.771, p=0.000*
	Total	2019	19.2% (387)	80.8% (1632)	767.719, p=0.000*

*p<0.01, *p<0.05

Data Source: NDHS 2003, 2008, 2013

Although unprotected sex appeared to have decreased in 2013 from 2008 among both the urban and rural population, Table 4.11B shows that, in 2013, rural dwellers were significantly more likely to engage in an unprotected sexual activity than those in urban areas. Generally, casual sex with no use of a condom was more likely to occur in urban Nasarawa State with casual partners compared with rural areas (51.4% vs 63.8%, p<0.05).

²²Table 4.11B: Unprotected sex with casual partners in Nasarawa State

Variables	Unprotected sex with Casual Partners		
	2008	2013	All surveys
Total	72.2% (143)	49.4% (89)	60.0% (232)
Urban	75.0% (21/28)	37.0% (17/46)	51.4% (38/74)
Rural	71.8% (122/170)	53.7% (72/134)	63.8% (194/304)
z-test	z= 0.354, p=0.362	z= -1.963, p=0.025**	z= - 1.975, p=0.024**

**p<0.05

Data Source: NDHS 2008, 2013

²²Z-test in Table 4.11B shows the cases of those who had unprotected casual sex against the total sample of those who ever had casual sex shown in Table 4.11A

Mutual trust in a relationship over time relaxes insistence on the use of protection during sex (Fortenberry, 2019; Macaluso et al., 2000), and as intimacy continues, most partners become familiar and that often breeds ‘sexual contempt’ where one partner may no longer be passionately romantic but instead becomes attracted and engaged with someone else (Shukusky, 2013; Bisson, and Levine, 2007). Sex with a casual partner is often undertaken without the knowledge of the other partner (Okafor et al., 2017; Corley and Schneider, 2002; Schneider et al., 1999) and heightens the possibility of HIV transmission to a faithful regular partner in either non-marital or marital relationships. The behaviour was described by some unmarried participants, who had a stable relationship but were often involved in sex with others they had met briefly:

“Woman’s body is not wood. As men need sex, women also do much more. Sometimes at parties or friends’ weddings, I become obsessed with the guys I meet, with whom I had sex”

(Urban, unmarried female, 25 years old_NS705).

“Depending on one woman does not give me the sex at the time I want it. When I keep asking she think I am turning her to a sex-machine. So I go for²³ new-catch to get it at the time I want since my woman does not give all the time. So, I just hit and run away”

(Urban, unmarried male, 31 years old_700)

The narratives captured above show the realities that characterise some people in regular sexual relationships, which may limit the decision to use protection, and thereby expose partners in stable relationships, including marital partners, boyfriends or girlfriends, to risk (Rodrigue et al., 2018; Hayes, 2002).

4.4.3 Types of Sexual Partner: A Comparison

Tables 4.10A and 4.11A indicate that, in Plateau State, people were less likely to engage in unprotected sex with a casual partner compared with Nasarawa State. This implies that more people use protection during casual sexual encounters in Plateau, which reduces the risk of infection. Seeking to know a partner’s sexual history and using prevention reduces exposure to risk (Bavinton et al., 2016; Chamrathirong and Kaiser, 2012).

There is a risk of sexual and reproductive problems, including HIV, in a sexual relationship between casual partners with people whose sexual history is unknown to each other. Table 4.12

²³ This refers to a woman a man meets for the first time, and denotes that she is willing and available to be a friend

indicates that unprotected sex with a casual partner was significantly less likely in Plateau State compared with Nasarawa State in the two surveys and pooled analysis.

²⁴Table 4.12: Unprotected sex with a casual partner by Study Location

Variables		Unprotected sex with a Casual Partner		z-test (z)
		Plateau State	Nasarawa State	
2008	Urban	57.1% (12/21)	75.0% (21/28)	-1.319, p= 0.094
	Rural	63.9% (39/61)	71.8% (122/170)	-1.142, p= 0.127
	Total	62.2% (51/82)	72.2% (143/198)	-1.655, p= 0.049**
2013	Urban	17.5% (11/63)	37.0% (17/46)	-2.301, p= 0.011*
	Rural	45.3% (24/53)	53.7% (72/134)	-1.042, p= 0.1487
	Total	30.2% (35/116)	49.4% (89/180)	-3.692, p= 0.001*
All surveys	Urban	24.0% (23/96)	51.4% (38/74)	-3.2.81, p= 0.002*
	Rural	51.2% (63/123)	63.8% (194/304)	-2.408 p= 0.008*
	Total	39.3% (86/219)	60.0% (232/387)	-4.897 p= 0.001*

*p<0.01, p<0.05

Data Source: NDHS, 2008, 2013

There was a significant and greater decrease in unprotected casual sex in Plateau State from 62.2% in 2008 to 39.3% in 2013 than in Nasarawa State (75.0% to 60.0% respectively). Generally, people in Plateau State were less likely to engage in unprotected sex compared to people in Nasarawa State (39.3% vs 60.0%, z= -3.897, p<0.01). The conflict violence in most communities that reduced tourism activities, and HIV prevention activities in Plateau State, may be linked with the decrease in risky behaviour. Whereas difficult economic situations (highlighted in section 4.2.2) and giving a spouse for hospitality (described in section 4.3.2) may have facilitated the increase in casual sex and its associated risky behaviour in Nasarawa State. This possibly increased the rate of HIV acquisition or transmission in Nasarawa State more than in Plateau State.

4.5 SEXUAL ACTIVITY DURING THE LAST FOUR WEEKS

In this subsection, NDHS data were analysed to understand frequent sexual activity. All other forms of sexual behaviour were obtained on whether a respondent had had sex in the last 12 months before the surveys were conducted. Frequent involvement in sexual intercourse is an indicator of an active sexual relationship (Aisha et al., 2017; Johnson et al., 2001). As such, regular sexual intercourse heightens the risk of HIV, especially when a condom is not used or a partner is infected (Boily et al., 2009). While sex has a positive impact on human life (Allen, 2018), it becomes risky if it increases the chance of a person transmitting or acquiring HIV. The risk increases with inconsistent condom use as much as its neglect (Ahmed, 2001). Tables

²⁴ Z-test in Table 4.12 shows the unprotected casual sex from Table 4.10B and Table 11B.

4.12A, 4.12B, 4.13A and 4.13B present the outcome of active sexual behaviour among the respondents in Plateau State and Nasarawa State, while Table 4.14 contrasts the risk of unprotected sex among sexually active respondents at the time of the surveys. In-depth interviews provided insights into recent urban and rural sexual behaviour in Plateau State and Nasarawa State.

4.5.1 Sexual Activity during the Last Four Weeks in Plateau State

Tables 4.13A and 4.13B provide the results from the analysis to understand the intervals in which people frequent sexual activity. The results indicate that, in Plateau State, the proportion of respondents sexually active during the last four weeks slightly increased from 38.9% in 2003 to 42.8% in 2013. The pooled data generally showed that over half of the urban (54.8%) and rural (56.6%) dwellers in Plateau State were sexually active during the last four weeks (see Table 4.13A).

Table 4.13A: Sexual activity during the last four weeks in Plateau State

Variables		Total	Sexually active during the last four weeks		Goodness of fit Test (χ^2)
			Yes	No	
2003	Urban	65	38.5% (25)	61.5% (40)	3.562, P=0.063
	Rural	174	39.1% (68)	60.9% (106)	8.299 P=0.004*
	Total	239	38.9% (93)	61.1% (146)	11.753, P=0.001*
2008	Urban	289	50.9% (147)	49.1% (142)	0.087, P=0.769
	Rural	969	44.3% (429)	55.7% (540)	12.715, P=0.000*
	Total	1258	45.8% (570)	54.2% (682)	2.015, P=0.156
2013	Urban	349	41.8% (146)	58.2% (203)	12.612, P=0.769
	Rural	916	43.2% (396)	56.8% (520)	2.846, P=0.092
	Total	1265	42.8% (542)	57.2% (723)	25.898, P=0.000*
All surveys	Urban	703	54.8% (385)	45.2% (318)	6.385, p=0.012*
	Rural	2059	56.6% (1166)	43.4% (893)	36.197, p=0.000*
	Total	2762	56.2% (1551)	43.8% (1211)	41.854, p=0.000*

*p<0.01, **p<0.05

Data Source: NDHS 2003, 2008, 2013

²⁵Table 4.13B: Unprotected sex during the last four weeks in Plateau State

Variables	Unprotected sex during the last four weeks		
	2008	2013	All surveys
Total	95.1% (548/576)	90.8% (492/542)	93.2% (1040/1118)
Urban	93.9% (138/147)	86.3% (126/146)	90.1% (264/293)
Rural	95.6% (410/429)	92.4% (366/396)	94.1% (776/825)
z-test	z= -0.824, p=0.205	z= -2.185, p=0.014*	z= -2.285, p=0.011*

*p<0.01, **p<0.05

Data Source: NDHS 2008 and 2013

²⁵ Z-test in Table 4.13B shows the cases of those who had unprotected sexual activity during the last four weeks compared with the total sample of those who had sex during the last four weeks before the surveys (shown in Table 4.13A).

In Table 4.13B, a large proportion of the urban and rural population was sexually active in the last four weeks and did not use a condom. Although risky behaviour decreased between 2008 and 2013, statistical evidence from 2013 showed that urban dwellers were less likely to engage in unprotected sex during the last four weeks compared with those in the rural areas (86.3% vs 92.4%, $p < 0.01$) and in the pooled data (90.1% vs 94.1%, $p < 0.01$).

The qualitative outcomes reveal that participants who attributed violent conflict contributed to the decrease in frequent sexual activity. The rate of influx to the State by visitors for business or tourism reduced and affected the prospects for sexual activity and networking. A rural dweller expressed that:

“Yes, the crisis in the communities led to the closure of many beer parlours or drinking joints and commercial sex workers’ residences. Only a few of the sex workers have returned since the situation calmed down. People who visited sex workers in the past no longer go to them since they returned because of severe financial conditions. Most people are struggling to survive now and [did] not have money opportunities like in the past”

(Rural, unmarried female, 28 years old_PL333)

While living in the city may expose migrants to risky sexual behaviour due to their separation from wives, boyfriends/girlfriends, exposure to hard times and the fear of incurring expense through pregnancy, childbirth and nurturing a baby, may have reduced frequent sexual activity. The decrease in sexual encounters and the increase in use of condoms by sexually active respondents may have slowed the rate of HIV transmission, which contributed to the observed HIV decline in Plateau State.

4.5.2 Sexual Activity during the Last Four Weeks in Nasarawa State

The survey analysis presented in Table 4.14A did not show a significant difference in sexual activity during the last four weeks in 2008, 2013 and the pooled data. In 2003, 76.3% were sexually active during the last four weeks. However, overall, over half of the respondents had sex during the last four weeks.

Table 4.14A: Sexual activity during in the last four weeks in Nasarawa State

Variables		Total	Sexually active last four weeks		Goodness of Fit Test (χ^2)
			Yes	No	
2003	Urban	24	67.5% (16)	33.3% (8)	2.667, p=0.102
	Rural	84	32.1% (27)	67.9% (57)	10.714, p=0.001*
	Total	105	76.3% (43)	23.7% (65)	4.481, p=0.034**
2008	Urban	194	50.0% (97)	50.0% (97)	0.000, p=1.000
	Rural	1097	52.3% (574)	47.7% (523)	2.371, p=0.124
	Total	1291	52.0% (671)	48.0% (620)	2.150, p=0.156
2013	Urban	265	44.2% (117)	55.8% (148)	3.626, P=0.057
	Rural	1008	52.5% (529)	47.5% (479)	2.480, P=0.115
	Total	1273	50.7% (646)	49.3% (627)	0.284, P=0.156
All surveys	Urban	483	47.6% (230)	52.4% (253)	1.095, p=0.295
	Rural	2189	51.6% (1130)	48.4% (1059)	2.303, p=0.129
	Total	2672	50.9% (1360)	49.1% (1312)	0.862, p=0.353

*p<0.01, **p<0.005

Data Source: NDHS 2003, 2008, 2013

From the results in Table 4.14B, it is apparent that, in the two surveys and the pooled data, most of the respondents did not use a condom for sexual encounters in the four weeks before the surveys. Although unprotected sex during these last four weeks decreased from 2008 in 2013, there was a significant difference in unprotected sexual activity in the last four weeks between the urban and rural populations in the 2013 survey ($z = -1.953$, $p=0.025$) and the pooled analysis ($z = -2.85$, $p<0.011$).

²⁶Table 4.14B: Unprotected sex during the last four weeks in Nasarawa State

Variables	Unprotected Sex during the Last four Weeks		
	2008	2013	All surveys
Total	95.1% (640/671)	87.5% (565/646)	91.6% (1010/1103)
Urban	93.8% (91/97)	82.1% (96/117)	87.4% (187/214)
Rural	94.3% (541/574)	88.7% (469/529)	91.6% (1010/1103)
z-test	$z = -0.170$, $p=0.433$	$z = -1.953$, $p=0.025^{**}$	$z = -2.285$, $p=0.011^*$

*p<0.01, p<0.000

Data Source: NDHS, 2008, 2013

The in-depth discussions revealed that people regularly have access to sexual information on the Internet and satellite television. Sexualised material from the mass media is becoming more common thus promoting more permissive attitudes towards frequent sex.

²⁶ Z-test in Table 4.14B is the cases of those who had unprotected sexual activity during the last four weeks by the total sample of those who had sex during the last four weeks before the surveys (Table 4.14A).

“The viewing centres you see all over in every community now do not only show football matches and films that the young people claimed to be watching. Pornographic contents are also displayed on the TV screen for those who are interested and arrive earlier, and for the viewers who wish to stay after the normal watching time. Watching the porn is what makes the guys here sexually crazy these days. You see them looking for where to satisfy their sexual cravings, even going to the extent of paying for sex”

(Urban, unmarried male, 34 years old_NS706).

One of the participants shared the view that his phone gives him free access to information, including sexual content that he uses to sexually stimulate himself, and it sometimes becomes difficult to control his desire have sex instantly. In his words, he said:

“I have an Android phone, which I sometimes use to watch porn and get myself charged... sometimes we watched it together with my girlfriend, and before we know it, we start touching ourselves to making love”

(Rural, unmarried male, 26 years old_NS707)

The motivation for frequent sex differed between married and unmarried participants. The dominant views among married participants related to a desire for childbearing and conjugal intimacy in their union. One of the participants, who had been married for fifteen years, said:

“Making love with my wife every week keeps us lively and builds our relationship with each other” (Urban, married male, 43 years old_NS909)

For the unmarried, the behaviour was for fun, although the former quote regarding a married couple does not indicate that the couple are not having fun. Some of the quotes that express this view are:

“Our two children are girls, and my husband wants boys. He (husband) believes having sex as many times as possible a day will give him a male child”

(Rural, married female, 39 years old_NS70).

“Sex is just for fun. So, by doing it, we explore what will work for us by the time we are married to each other”

(Urban, Unmarried male, 24 years old_NS711).

Recent literature agrees that people are becoming increasingly sexually active in some parts of Nigeria (Adeoye and Muraina 2019; Eze et al., 2018; Michael and Scent, 2017; Akinsoji et al., 2015). While people have the drive to be sexually active, the non-use of a condom during such sexual activity could increase the chances of acquiring HIV, particularly when one partner is HIV positive. The in-depth interview findings are consistent with previous studies, which reported that young people and adults use explicit sexual material, which often motivates them

to become sexually active (Alexandraki et al., 2018; Hald et al., 2011; Peter and Valkenburg, 2011) and that encourages unsafe sexual activity (Wright et al., 2019, 2018; Harkness et al., 2015).

4.5.3 Sexual Activity during the Last Four Weeks: A Comparison

Contrasting Table 4.13A with Table 4.14A reveals that sexual activity during the last four weeks generally did not differ much between Plateau State and Nasarawa State. However, while non-use of a condom during sex is a personal choice, its lack of use exposes sexually active persons and their partners to the risk of HIV transmission.

²⁷Table 4.15: Unprotected sex during the last four weeks by Study Location

Variables		Unprotected sex during the last four weeks		z-test (z)
		Plateau State	Nasarawa State	
2008	Urban	93.9% (138/147)	93.8% (91/97)	-0.020, p= 0.492
	Rural	95.6% (410/429)	94.3% (541/574)	0.933, p= 0.175
	Total	95.1% (548/576)	95.1% (640/671)	-0,200, p= 0.421
2013	Urban	86.3% (126/146)	82.1% (96/117)	0.944, p=0.173
	Rural	92.4% (366/396)	88.7% (469/529)	1.913, p= 0.028**
	Total	90.8% (492/542)	87.5% (565/646)	1.816, p= 0.035**
All surveys	Urban	90.1% (264/293)	90.9% (1197/1317)	-0.420, p= 0.337
	Rural	94.1% (776/825)	87.4% (187/214)	3.343 p= 0.000*
	Total	93.2% (1040/1118)	91.6% (1010/1103)	1.286 p= 0.099

*p<0.01, **p<0.05

Data Source: NDHS, 2008, 2013

Table 4.15 shows that more people engaged in unprotected sex during the last four weeks in Plateau State than in Nasarawa State. Although there was no statistical evidence for differences in the 2008 survey, in 2013 rural dwellers significantly differed from Nasarawa State in risky sexual encounters during the last four weeks (92.2% vs 88.7%, p<0.05) and the pooled analysis (94.1% vs 87.4%, p<0.01). Generally, the people in Plateau State were more at risk from unprotected sex during the four weeks prior to the surveys than those in Nasarawa State. This form of sexual risk in Plateau State may be attributed to the effects of conflict violence that caused the severe economic conditions that leave people vulnerable. Smith (2010) argued that depressed socio-economic conditions expose people to the risk of HIV.

A higher possibility of HIV infection has links with unprotected frequent sex (Anyanwu and Fulton; 2017; Boily et al., 2009). Thus, free access to erotic material and sex for pleasure highlighted from the in-depth discussions (cited in section 4.5.2) may have motivated this risky

²⁷ Z-test in Table 4.15 focuses on unprotected sex during the last four weeks from Table 4.13b and Table 4.14B.

sex, with a greater potential for HIV transmission than in Plateau State. Recent studies have established that the media is very often the trigger for engaging in risky sexual activity in sub-Saharan Africa including Nigeria (Abdullahi and Abdulquadri, 2018; Oladeji and Ayangunna, 2017; Bryant et al., 2014). This is because programmes and publications in the media emphasise sexual freedom and the pursuit of sexual pleasure, which puts sexual health in danger (Wusu, 2013, 2011).

4.6 CONDOM USE AND HIV TESTING

Unprotected sex undoubtedly results in sexual and reproductive health dangers. The risk is heightened when a test for HIV is never taken and HIV status is unknown. The infected person at the early stage of infection is often unaware of and is unlikely to show any sign of the disease yet can transmit the virus during sex. Condom use and HIV testing doubly safeguard against HIV. If a person is tested for HIV and knows his/her status, a condom is likely to be used to further reduce the risk of transmitting HIV and unwanted pregnancy (Boily et al., 2009; Weller et al., 2002). Therefore, unprotected sex, and at no time being tested for HIV, doubled the possibility of HIV transmission (Gong, 2014; Allen et al., 2003). The use of a condom and HIV testing are important indicators of responses in HIV prevention policy in sub-Saharan Africa (UNAIDS 2017, 2014; Denison et al., 2008). In this section, the use of a condom, and testing for HIV in Plateau State and Nasarawa State are examined in the 2003, 2008 and 2013 surveys to understand the behavioural response to HIV prevention efforts. The results are presented in Table 4.16A on condom use, Table 4.16B on HIV testing, and Table 4.16C on the risk associated with unprotected sex, at the same time as never once having been tested for HIV.

4.6.1 Condom use and HIV Testing in Plateau State

Table 4.16A shows that most respondents did not use a condom during their last sexual encounter. Data in Table 4.16A indicate that the use of a condom generally decreased by one-quarter, from 20.4% in 2003 to 15.4% 2013, as more of the rural than the urban population used a condom during their last sexual intercourse.

Similarly, Table 4.16B shows that generally a low proportion of people reported testing for HIV in the surveys. Interestingly, among those who had had been tested for HIV, there was a significant upsurge in HIV testing between the 2003 and 2013 surveys, increasing from 16.7% to 71.6% in urban areas and from 4.8% to 28.2% in rural areas. More people tested for HIV in

urban areas than in the rural areas, as the pooled data further indicates HIV testing behaviour among rural residents compared with urban (52.3% vs 17.5%).

Table 4.16A: Condom use during the last sexual encounter in Plateau State, Nigeria DHS 2003 – 2013

Variables		Condom used at last sex			Goodness of Fit Test (X^2)
		Total	Yes	No	
2003	Urban	50	30.0% (15)	70.0% (35)	21.429, p=0000*
	Rural	112	16.1% (18)	83.9% (94)	71.115, p=0000*
	Total	162	20.4% (33)	79.6% (129)	11.189, p=0000*
2008	Urban	198	10.1% (20)	89.9% (178)	126.08, p=0000*
	Rural	748	5.3% (40)	94.7 (708)	596.556, p=0000*
	Total	946	6.3% (60)	93.7% (886)	733.430, p=0000*
2013	Urban	236	28% (66)	72% (170)	95.354, p=0000*
	Rural	600	10.5% (63)	89.5% (537)	815.288, p=0000*
	Total	836	15.4% (129)	84.6% (707)	399.622, p=0000*
All surveys	Urban	484	20.9% (101)	79.1% (383)	164.306, p=0000*
	Rural	1460	8.3% (121)	91.7% (1339)	1016.112, p=0000*
	Total	1944	11.4 % (222)	88.8% (2165)	1582.585, p=0000*

*p<0.01, ** p<0.05

Data Source: NDHS, 2003, 2008, 2013

Table 4.16B: Reported HIV Test in Plateau State, Nigeria DHS 2003 – 2013

Variable		Ever Tested for HIV			Goodness of Fit Test (X^2)
		Total	Yes	No	
2003	Urban	66	16.7% (11)	83.3% (55)	29.333, p=0000*
	Rural	167	4.8% (8)	95.2% (159)	136.533, p=0000*
	Total	233	8.2% (19)	91.2% (214)	263.197, p=0000*
2008	Urban	314	38.2% (120)	61.8 (194)	65.332, p=0000*
	Rural	1129	10.7% (121)	89.3% (1008)	172.403, p=0000*
	Total	1443	16.7% (241)	83.3% (1202)	47.477, p=0000*
2013	Urban	349	71.6% (250)	28.4% (99)	17.439, p=0000*
	Rural	905	28.2% (255)	71.8% (650)	696.872, p=0000*
	Total	1254	40.3% (505)	59.9% (749)	640.001, p=0000*
All surveys	Urban	729	52.3% (381)	47.7% (348)	1.494, p=0.3.21
	Rural	2201	17.5% (384)	82.6% (1817)	932.980, p=0000*
	Total	2930	26.1% (765)	73.9% (2165)	668.942, p=0000*

*p<0.01, ** p<0.05

Data Source: NDHS, 2003, 2008, 2013

The trend in risky behaviour in terms of unprotected sex at the last encounter and the low proportion of people testing for HIV remained high. However, what is notable in the condom use and HIV testing behaviour between the surveys is that condom use decreased about twofold and those who tested for HIV increased five-times between 2003 and 2013 (see Tables 4.16A and 4.16B).

²⁸Table 4.16C: Unprotected sex, and at no time tested for HIV in Plateau State, Nigeria DHS 2003 – 2013

Variables		Had unprotected recent sex, and at no time tested for HIV	Z -Test (z)
2003	Total	80.0% (116)	-2.563 p= 0.005*
	Urban	66.7% (28/42)	
	Rural	85.4% (88/103)	
2008	Total	94.8% (713)	-3.295. p= 0.001*
	Urban	87.9% (94/107)	
	Rural	96.0% (617/645)	
2013	Total	92.0% (393)	-5.907, p= 0.000*
	Urban	68.3% (28/41)	
	Rural	94.6% (365/427)	
All surveys	Total	99.8% (1222)	-5.393, p= 0.000*
	Urban	79.0% (150/190)	
	Rural	91.2% (1077/1175)	

*p<0.01, ** p<0.05

Data Source: NDHS, 2003, 2008, 2013

Table 4.16C presents the results of the analysis for the dimensions of risky behaviour among people who had unprotected sex, and concomitantly never tested for HIV. The result suggests that risky behaviour rose from 80.0% to 92.0% between 2003 and 2013. While the increase was small among urban dwellers, it grew from 85.4% to 94.6% in rural areas between the same surveys. Moreover, there is a significant difference in HIV risk between urban and rural populations at P<0.01 in the 2003 survey (z= -2.563), 2008 survey (z= -3.295), 2013 survey (z= -5.907) and the pooled analysis (z= -14.124).

Qualitative research results on the behavioural phenomenon indicated that most of those who tested for HIV and received results about their status used a condom during sex. In comparison, those who did not initially use a condom now use it due to their increased awareness of the need for its use. Risk perception about likely HIV acquisition and access to prevention services are perceived as influential to the changes in behaviour in Plateau State. The quotes from participants expressing their experiences are presented in Box 2:

²⁸ Z-test in Table 4.16C illustrates the cases of those who had unprotected sex, at no time tested for HIV according to the combined total sample of condom use and HIV test in the surveys.

Box 2: Opinions on Condom Use and HIV Testing

“Previously, if I had used up all the condoms, I did not bother to go for more. After losing a close friend to AIDS, I went to the hospital and tested for HIV, and I am negative. I was surprised at first and later became very happy. Let me tell you; I am fortunate for escaping HIV. I will go for a check again, but since then, if I do not have a condom, no sex”

(Urban, unmarried female, 31 years old_PL409).

“I had my last HIV test three months ago. The test is free at the clinic here and they gave me condoms. The hospital people also bring to us condoms in the house here. I also buy the condoms in the pharmacy and keep them for my customers who may come with no condom”

(Rural, unmarried female, 37 years old_PL355).

“We carry out an HIV test on any person who comes to the hospital for any treatment. This new approach now allows for early treatment. Those whose sexual history indicate a risk of STIs or pregnancy, we give them condoms and recommend a confirmatory HIV test at the general hospital. Once they are negative, many of them use a condom”

(Rural, unmarried female, 37 years old_PL322).

The findings suggest that recent access to HIV prevention services might have helped to improve sexual behaviour due to the risk of HIV transmission and acquisition (UNAIDS, 2016; Hale et al., 2010). As risky behaviour changes, HIV infection possibly declines, which likely explains why in there is a decline in the prevalence of HIV in Plateau State.

4.6.2 Condom use and HIV Testing in Nasarawa State

As in Plateau State, most respondents in Nasarawa State did not use a condom during their last sexual intercourse. However, Table 4.17A further shows that the use of a condom during the last sexual encounter increased twofold from 7.5% to 13.6% between the 2003 and 2013 surveys, which suggests that more of the urban than the rural population used a condom. Similarly, Table 4.17B indicates that a few people had been tested for HIV, although there was a spike in 2013 when over half (53.2%) the urban population tested for HIV. In all, twice as many people from the urban population tested for HIV as those from the rural areas (36.2% vs 18.4%).

Table 4.17A Condom use at last sex in Nasarawa State, Nigeria DHS 2003 – 2013

Variables		Total	Condom used at last sex		Goodness of Fit Test (X ²)
			Yes	No	
2003	Urban	20	0	100 % (20)	n
	Rural	60	10% (6)	90.0% (54)	38.400, p=0.000*
	Total	80	7.5% (6)	92.5% (74)	57.800, p=0.000*
2008	Urban	150	8.7% (13)	91.3% (137)	102.507, p=0.000*
	Rural	882	7.7% (68)	92.3 (814)	630.971, p=0.000*
	Total	1032	7.8% (81)	92.2% (951)	733.430, p=0.000*
2013	Urban	171	22.8% (39)	77.2% (132)	50.579, p=0.000*
	Rural	742	11.5% (85)	88.5% (657)	440.949, p=0.000*
	Total	913	13.6% (124)	86.4% (789)	484.365, p=0.000*
All surveys	Urban	341	15.2% (52)	84.8% (289)	164.718, p=0.000*
	Rural	1684	9.4% (159)	90.6% (1525)	1108.050, p=0.000*
	Total	2025	10.4% (211)	89.5% (1814)	1268.943, p=0.000*

*p<0.01, ** p<0.05

Data Source: NDHS, 2003, 2008, 2013

Table 4.17B HIV Testing services in Nasarawa State, Nigeria DHS 2003 – 2013

Variables		Total	Have Ever Tested for HIV		Goodness of Fit Test (X ²)
			Yes	No	
2003	Urban	24	4.2% (1)	95.8% (23)	20.167, p=0.000*
	Rural	75	6.7% (5)	93.3% (70)	112.667, p=0.000*
	Total	99	6.1% (6)	93.1% (93)	76.455, p=0.000*
2008	Urban	208	18.3% (38)	81.7% (170)	83.769, p=0.000*
	Rural	1160	11.0% (89)	89.0% (1032)	704.497, p=0.000*
	Total	1368	12.1% (166)	87.9% (1202)	784.573, p=0.000*
2013	Urban	265	53.2% (141)	46.8% (124)	1.091, p=0.296
	Rural	1006	27.7% (729)	72.7% (727)	199.507, p=0.000*
	Total	1271	33.0% (420)	67.0% (851)	146.153, p=0.000*
All surveys	Urban	497	36.2% (180)	63.8% (317)	37.765, p=0.000*
	Rural	2241	18.4% (412)	81.6% (1829)	895.979, p=0.000*
	Total	2738	21.6% (592)	78.4% (2146)	88.000, p=0.000*

*p<0.01, ** p<0.05

Data Source: NDHS, 2003, 2008, 2013

In Table 4.17C, the only difference in 2013 was statistically significant; however, according to the surveys, a large proportion of people in Nasarawa State were at risk of HIV infection due to unprotected sexual activity and never having been tested for HIV. While risky behaviour decreased in urban areas between 2003 and 2013, the trend stabilised and was significantly higher in rural (89.1%) than urban (78.4%) areas in the pooled data.

²⁹Table 4.17C: Unprotected sex, and at no time tested for HIV in Nasarawa State, Nigeria DHS 2003 -2013

Variables		Unprotected sex, and at no time tested for HIV	Z- test (z)
2003	Total	92.8% (64)	n
	Urban	100% (19/19)	
	Rural	90.0% (45/50)	
2008	Total	93.5 (818)	0.677, p= 0.249
	Urban	94.9 % (112/118)	
	Rural	93.3% (706/757)	
2013	Total	88.1 (483/548)	-2.252, p= 0.012*
	Urban	78.4% (40/51)	
	Rural	89.1% (443/497)	
All surveys	Total	91.4% (1365)	-0.279, p=0.390
	Urban	91.0% (171/188)	
	Rural	91.6% (1194/1/1304)	

*p<0.01, ** p<0.05

Data Source: NDHS, 2003, 2008, 2013

n = Sample does not satisfy the requirement for analysis

A participant in the qualitative research believed that going for a HIV test would always present an unfavourable outcome; as such, being ignorant is better than knowing and facing rejection, which ‘kills faster’:

“I do not like using ³⁰CD protection during sex, and I do not want to know my HIV status. My reason is ‘a bin da ba kasani ba, bazai kashe kaba’ (What you do not know, will not kill you). The problem with the test is once you do it, you will be told that you have a positive result. As soon as the test result comes out, close friends will know about it and everyone will start avoiding you - OYO (On Your Own) for you; you will be deserted. You see. So, what you know kills faster than what you do not know”

(Urban, unmarried male, 31 years old_NS700).

The quote represents the view that, once a person goes for an HIV test, the outcomes are always positive. Perceptions of HIV test outcomes may have created doubts about the credibility of the testing services, and were likely to be responsible for the low rates of people testing for HIV. Moreover, an argument about whether HIV exists represents an attitude that may mean many decide not to access prevention services against HIV:

²⁹ Z-test in Table 4.17C shows the cases of those who had unprotected sex, at no time tested for HIV by the combined total sample of condom use and HIV test in the surveys.

³⁰ A polite way of naming condoms to avoid being seen as a promiscuous person.

“There is no such thing as HIV. The HIV thing is just an idea to discourage youths like me from having sex. If you have high fever and go for a test, you will be told your result is HIV positive. Go to another health centre for the same test, the result will be high fever”

(Rural, unmarried male, 26 years old_NS707).

The literature indicates that people who doubt HIV services and the actual existence of HIV are unlikely to present themselves for testing (Ford et al., 2013); moreover, they may often have negative attitudes about condom use (Bagart et al., 2011; Bogart and Bird, 2003) as it also reduced readiness to use HIV treatment (Bohnert and Latkin 2009). Attitudes towards prevention services may have increased the risk of HIV and possibly contributed to the high transmission rates in Nasarawa State.

4.6.3 Condom Use, and HIV Testing – a comparison

Tables 4.16A and 4.17A compare the results obtained from the analysis of trends and patterns of attitude to condom use and HIV tests between Plateau State and Nasarawa State. While condom use at the last sexual encounter and those who reported that they had ever tested for HIV were generally low, a higher proportion of people across the surveys in Plateau State had used HIV prevention measures during their last sexual intercourse than in Nasarawa State. For instance, while the use of STI (including HIV) prevention measures was higher in urban areas in both study locations in 2013, in Plateau State the use of condom peaked at 28.0% and HIV tests at 71.6%. In Nasarawa State, the rates were 22.8% for condom use and 53.2% for HIV tests.

Table 4.18 presents differences in the risk of HIV due to unprotected sex, and at the same time being ignorant of one’s HIV status. A close study of the table suggests that Nasarawa State initially had more people at risk of HIV from unprotected sex without ever having tested for HIV than Plateau State. In 2008, 2013 and the pooled analysis, Nasarawa State had a greater proportion of the urban population at risk of HIV than in Plateau State, while Plateau State had more rural people at risk than in Nasarawa State

³¹Table 4.18 Unprotected sex, and at no time tested for HIV by Study Locations

Variables		Unprotected sex without being ever tested for HIV		z-test (z)
		Plateau State	Nasarawa State	
2003	Urban	66.7% (28/42)	100% (19/19)	n
	Rural	85.4% (88/103)	90.% (45/50)	-0.785, p=0.216
	Total	80.0% (116/145)	92.8% (64/69)	-2.385, p=0,009*
2008	Urban	87.9% (94/107)	94.9 % (112/118)	-1.903, p= 0.029**
	Rural	96.0% (619/646)	93.3% (706/757)	2.,084, p= 0.019**
	Total	94.8% (713/753)	93.5% (818/875)	1.133, p=0.129
2013	Urban	68.3% (28/41)	78.4% (40/51)	-1.101, p=0.135
	Rural	94.6% (365/386)	89.1% (443/497)	2.868, p= 0.002*
	Total	92.0% (393/427)	88.1% (483/548)	2.000, p= 0.023**
All Surveys	Urban	79.0% % (150/190)	91.0% (171/188)	-3.263, p= 0.001*
	Rural	94.5% % (1072/1135)	91.6% (1194/1304)	2.768, p=0.003*
	Total	92.3% (1222/1324)	91.4% (1365/1493)	0.841, p= 0.200

*p<0.01, **p<0.05

Data Source: NDHS 2003, 2008, 2013

n = Sample does not satisfy the requirement for analysis

Although the results show a mixed disparity in risky behaviours between the two study locations, the risk in rural Plateau State is likely due to the concentration of HIV prevention campaigns concentrated in urban areas (UNAIDS, 2015). Moreover, the implementation of HIV activities in the urban areas are based on the minimum prevention package interventions (MPP), which may have helped to improve HIV knowledge and prevention skills, which motivated people to minimize risky sexual practices. In Nasarawa State, the shame associated with being seen with a condom may have affected the reluctance to access such prevention packages (Earnshaw and Chaudoir, 2009; NASACA, 2008; Babalola, 2007). Moreover, a craving for sensation during penetrative sex (John et al., 2015), marital sexual relationships (Scheeren et al., 2018; Holland et al., 2003), and gender inequality (Pulerwitz, 2002; Wingood and DiClemente, 2000) are reasons why people are unwilling to verify their HIV status and continue to engage in unprotected sex, which remains a significant threat to sexual and reproductive health in Nasarawa State.

³¹ Z-test Table 4.18 is on unprotected sex, and at no time ever tested from Table 4.16C and Table 4.17C.

4.7 SEX HAVING/WITH A PERSON WHO HAS STD (s)

HIV is a public health problem, which is transmissible through sexual intercourse as with other sexually transmitted diseases. While some of the STDs are curable, some, if left untreated, are very harmful and could have serious health consequences. Sexually active persons are at risk of STDs, mainly if an infected person is within the asymptomatic period of the disease (Decker, 2016). In women, STDs may be unnoticed, which may result in sexual and reproductive complications, including infertility (Tsevat et al., 2017). Regardless of the type, an STD increases the risk of HIV acquisition and is a risk factor of cervical cancer (Frazier et al., 2016; Brown et al., 1999). The chance of contracting STDs becomes critical during unprotected sex with an already infected partner. Therefore, the aim of this section is to understand the risk of engaging in sex with a person who has a sexually infected disease. The results are presented in Tables 4.17A, 4.17B, 4.18A, 4.18B and 4.19 on Plateau State and Nasarawa State.

4.7.1 Reported STDs in Plateau State

The outcome of analysis on the incidence of STDs in the last twelve months prior to the surveys shows that few people had reported STDs in Plateau State (Table 4.19A). However, between 2003 and 2013, the reported cases rose. Urban areas had more cases of STDs than rural areas. Table 4.19B shows that, in urban areas, those who reported STDs were less likely to engage in unprotected sex compared with rural areas (66.7% vs 90.5%, $p < 0.05$). The risky behaviour stabilised between 2008 and 2013 in urban areas and increased from 73.3% to 90.5% between 2008 and 2013. Generally, the risky behaviour decreased between 2008 and 2013 from 76.5% to 64.8%.

Table 4.19A: Reported STDs incidence in Plateau State, Nigeria DHS 2003 – 2013

Variables		Reported incidence of STDs			Goodness of Fit Test (X^2)
		Total	Yes	No	
2003	Urban	66	1.5% (1)	98.5% (65)	62.061, $p=0.000^*$
	Rural	173	1.2% (2)	98.8% (171)	165.092, $p=0.000^*$
	Total	239	1.3% (3)	98.7% (236)	284.213, $p=0.000^*$
2008	Urban	317	1.0% (3)	99% (314)	305.114, $p=0.000^*$
	Rural	1145	1.3% (15)	98.7% (1130)	1085.786, $p=0.000^*$
	Total	1462	1.2% (18)	98.8% (1444)	113.610, $p=0.000^*$
2013	Urban	350	6.0% (21)	94% (329)	271.040, $p=0.000^*$
	Rural	918	2.9% (27)	97.1% (891)	813.176, $p=0.000^*$
	Total	1268	3.8% (48)	96.2% (1220)	1083.268, $p=0.000^*$
All Surveys	Urban	733	3.4% (25)	96.6% (708)	636.411, $p=0.000^*$
	Rural	2236	2% (44)	98% (2192)	2063.463, $p=0.000^*$
	Total	2969	2.3% (69)	97.7% (2900)	2966.414, $p=0.000^*$

* $p < 0.01$, ** $p < 0.05$

Data Source: NDHS 2003, 2008, 2013

³²Table 4.19B: Unprotected sex with STDs in Plateau State

Variables	Unprotected sex with STDs		
	2008	2013	All surveys
Total	76.5% (13/18)	64.6% (31/48)	63.8% (44/69)
Urban	66.7% (2/3)	66.7% (12/18)	66.7% (14/21)
Rural	73.3% (11/15)	90.5% (19/21)	83.3% (30/36)
z-test	z= -0.235, p=0.407	z= -1.836, p=0.033*	z= 1.447, p=0.074

**p<0.05

Data Source: NDHS, 2008 and 2013

For some men, STDs were a sign of being brave and an indication of their involvement in many sexual encounters:

“We discuss among ourselves the number of times one is infected with gonorrhoea, syphilis or other sexually transmitted diseases. The person with multiple cases of the disease is called a ‘bulldozer’”

(Urban, married male, 38 years old_PL377)

Among those who said they once had an STD, they suspected they had contracted it during sex with an acquaintance. Herbs were mainly used for treatment instead of the hospital:

I noticed the symptom of gonorrhoea after I made love with a lady when I went on a trip. Neither of us bothered to request the use of a condom ... I first went to the clinic before a friend advised me to use herbs”

(Rural, unmarried male, aged 27 years old_PL366).

The attitude displayed by male participants potentially creates an unsafe environment for STD transmission and creates the conditions for HIV to thrive, especially when acquiring a sexual disease becomes a joke and a mark of masculinity (Skovdal et al., 2011). The tendency to surpass peers in proving manhood allows for an overpowering sexual desire that can prevent the use of a condom with a partner who may be risky (Bowleg et al., 2011).

4.7.2 Reported STDs in Nasarawa State

Like in Plateau State, in Nasarawa State, only a few respondents reported having an STD. Table 4.20A shows that the reported incidence of STDs has risen in both rural and urban areas. For example, in 2003, the incidence of STDs was 1.4% and increased to 5.5% in 2013.

Table 4.20B reveals that people with reported STDs in urban Nasarawa State had a lower probability of engaging in unprotected sex compared with rural areas (66.7% vs 89.6%, p<0.05). Although no statistical evidence exists, the proportion of those who reported STDs and engaged

³² Z-test in Table 4.19B shows the cases of those who had unprotected sex with the presence of STDs by the total sample of who reported having STDs (Table 4.19A).

in unprotected sex was lower among the urban than the rural population both in 2013 and the pooled data.

Table 4.20A: Reported STDs in Nasarawa State, Nigeria DHS 2003 – 2013

Variables		Reported Incidence of STDs			Goodness of Fit Test (X ²)
		Total	Yes	No	
2003	Urban	24	0	100% (24)	n
	Rural	84	2.4% (2)	97.6% (82)	76.190, p=0.000*
	Total	139	1.4% (2)	98.6% (137)	131.115, p=0.000*
2008	Urban	265	4.5% (12)	95.5% (253)	219.174, p=0.000*
	Rural	1010	4.2% (42)	95.8% (968)	848.986, p=0.000*
	Total	1275	4.2% (54)	95.8% (1221)	068.148, p=0.000*
2013	Urban	210	4.3% (9)	95.7% (201)	175.543, p=0.000*
	Rural	1181	5.7% (1114)	94.3% (1114)	928.204, p=0.000*
	Total	1391	5.5% (1315)	94.5% (1315)	113.610, p=0.000*
All surveys	Urban	499	4.4% (21)	95.8% (478)	418.535, p=0.000*
	Rural	2275	4.9% (111)	95.1% (2164)	739.120, p=0.000*
	Total	2774	4.8% (132)	95.2% (2642)	2271.125, p=0.000*

*p<0.01, **p<0.05

Data Source: NDHS 2003, 2008, 2013

³³Table 4.20B: Reported STDs in Nasarawa State, Nigeria DHS 2003 – 2013

Variable	Reported incidence of STDs		
	2008	2013	All years
Total	79.0% (66/76)	77.8% (42/54)	82.6% (109/132)
Urban	66.7% (6/9)	75.0% (9/12)	71.4% (15/21)
Rural	89.6% (60/67)	78.6% (33/42)	84.7% (94/111)
z-test	-1.907, p=0.028**	-0.262, p=0.397	-1.469, p=0.071

*P<0.01, **p<0.05

Data Source: NDHS 2008 and 2013

Recent information obtained from a qualitative method indicates that men and women had gonorrhoea and syphilis, which are sexually transmitted infections that are markers of HIV risk. A rural woman, married for 22 years said:

“I noticed some unusual vaginal discharge and wondered what it was. It was at the clinic that I found out that the discharge was a symptom of a sexual disease. I may have had it from my husband, who also got it from another of his wives”

(Rural, married female, 39 years old_NS701)

This narrative highlights a route to acquiring or transmitting HIV in a concurrent sexual relationship, which in this case is a polygamous marriage. In the transmission dynamics of HIV, the virus spreads quicker in a sexual partnership, where a partner is sexually connected to

³³ Z-test in Table 4.20B shows the cases of those who had unprotected sex with the presence of STDs by the total sample of who reported having STDs (Table 4.20A).

another person who may also have a different partner. The more people in a sexual network, the more likely it is that a sexual infection diffuses (Ademora and Schoenbach, 2013). The spread of the infection is fast if one or more persons in the network are HIV positive (De Oliveira et al., 2017). A 28-year-old student in one of the State’s tertiary institutions said, “*I had my first experience of STDs after a one-night-stand with a lady after a night party. I may have been drunk and therefore did not use protection*” (NS₂₅rural, unmarried male). Environments, such as those mentioned by the student, point to some significant events that encourage risky sexual activities with partners who may have been involved with carriers of the disease. Extramarital sex (4.3), multiple sexual partnerships (4.4) and sex with a non-regular/casual partner (4.5) show types of sexual networking that are risky.

4.7.3 Reported STDs Incidence: A Comparison

Tables 4.19A and 4.20A account for the differences in sexual activity with reported STIs in the two study settings. In Plateau State, the risky behaviour increased among urban dwellers and was low in rural areas, whereas, in Nasarawa State, both urban and rural areas had higher cases of reported STDs in the survey years and in the pooled data. For those with STDs involved in unprotected sex, there is only a significant difference in the pooled data ($z = -2.969$, $p = 0.002$) between Plateau State and Nasarawa State. The result implies that unprotected sex with a person with an STD is less likely to occur in Plateau State compared with Nasarawa State.

³⁴Table 4.21: Unprotected sex with STIs between By Location

Variables		Unprotected sex with reported STIs		Z-test (z)
		Plateau State	Nasarawa State	
2008	Total	76.5% (13/18)	79.0% (66/76)	
	Urban	66.7% (2/3)	66.7% (6/9)	n
	Rural	73.3% (11/15)	89.6% (60/67)	n
2013	Total	64.6% (31/48)	77.8% (42/54)	n
	Urban	66.7% (12/18)	75.0% (9/12)	n
	Rural	90.5% (19/21)	78.6% (33/42)	n
All years	Total	63.8% (44/69)	82.6% (109/132)	2.969, $p = 0.002^*$
	Urban	66.7% (14/21)	71.4% (15/21)	0.334, $p = 0.369$
	Rural	83.3% (30/36)	84.7% (94/111)	0.194, $p = 0.423$

* $p < 0.01$

Data Source: NDHS 2008 and 2013

n = Sample does not satisfy the requirement for analysis

³⁴ Z-test in Table 4.21 shows unprotected sex with the presence of STDs in Tables 4.19B and 4.20B.

4.8 CONCLUSION

This chapter presented the results from three NDHSs with the analysis of the pooled data for the surveys. In-depth discussions were carried out to understand their experiences as the outcomes were corroborated with the surveys and thereby address the first objective of the study. The chapter examines patterns of sexual behaviour and the risk of HIV transmission in Plateau State and Nasarawa State. The discussions described the indicators of sexual behaviour and the disparity within and between the study settings. Three main points emerged from this chapter. First, respondents in the study settings engaged in safe sexual behaviour that included: (i) older age at sexual debut, (first sex age ≤ 15 years old); (ii) total sexual abstinence; (ii) sex only with a spouse in a union; (iv) had sex with a regular partner [in a stable relationship], and (v) the absence of a sexually transmitted disease. These behaviours that facilitate the low risk of HIV transmission or acquisition were generally more likely in Plateau State than in Nasarawa State. Secondly, in a setting where the HIV epidemic is generalised in the population, unprotected sexual behaviour exposes more risk. Hence, the following risky sexual behaviours were lower in Plateau State compared with Nasarawa State: (i) unprotected first sex at age < 15 years old; (ii) unprotected nonmarital sexual activity; (iii) Non-use of condom during sex with a casual partner; (v) unprotected sex, and at no time tested for HIV, and (vi) unprotected sex with STDs.

Thirdly, risky sexual behaviour expressed by the non-use of a condom is key to the spread of HIV. The urban and rural areas of Plateau State had a larger proportion of people who engaged in unprotected sex in during the last four weeks than Nasarawa State. More people in the rural areas of Nasarawa State than in Plateau State engaged in unprotected extramarital sex, did not use a condom, and had never tested for HIV. However, the results indicated that respondents in Plateau State were at a lower risk of acquiring or transmitting HIV compared to Nasarawa State. The low sexual risk behaviour in Plateau State may have contributed to the decline of HIV prevalence, while in Nasarawa State the high-risk sexual behaviour may have been responsible for the greater prevalence of HIV than in Plateau State, and above the national average. However, the factors that facilitated or constrained the forms of sexual behaviour and the risk of HIV transmission remain unclear. Consequently, the next chapter determines the distribution, and the factors associated with the chance of engaging in risky sexual behaviour in the study settings.

CHAPTER FIVE

FACTORS INFLUENCING THE RISK OF HIV TRANSMISSION

5.1 INTRODUCTION

In Chapter Four, the study examined the trends in sexual behaviour indicators and compared the non-use of condoms during the last sexual encounter amongst people in Plateau State and Nasarawa State. The results indicated that more people in Nasarawa State than in Plateau State engaged in sexual activity, and in most cases without the use of a condom. Consequently, this chapter pooled the datasets for the three surveys to evaluate HIV risky behaviours in order to gain an insight into how they were influenced by personal factors. Qualitative research results explain why people had the chance to engage in high-risk behaviours. In understanding this phenomenon, data on those who reported they never had sex were excluded from the analysis. The risky behaviour associated with HIV transmission is categorised into “low” and high” with detail explained in section (Table 3.7, page 113)

Univariate statistics present the percentage distribution of those who engaged in risky HIV behaviour in the study locations during the three survey years (2003, 2008 and 2013). Risky sexual behaviour was measured as a binary, with “1” assigned to high-risk behaviour and “0” for the low-risk of acquiring or transmitting HIV (see detail in Table 3.7, page 113). Bivariate statistical techniques were used on the pooled data that combined the three survey years. The Chi-square Test or Fisher’s Exact Test was used to examine the association between the respondents’ background characteristics and risky sexual behaviour (for each of the indicators of sexual behaviour). The test of association helped to identify the statistically significant variables suitable for modelling the predictors of HIV high-risk behaviour in a multivariate binomial logistic regression.

The high-risk behaviours established the likelihood of acquiring or transmitting HIV and the low-risk indicated the possibility of a reduced risk. The background characteristics of the respondents’ constituted the independent variables, while the categories of risky behaviours were the dependent variables (see Table 3.7, page 113 and 3.8, page 114 for details) deployed in the multivariate logistic regression models to determine the likelihood that a person is at high-risk of HIV infection. Variables that were found to show evidence of a significant association in the bivariate analyses were selected for the estimation of the Crude Odds Ratio (COR), a univariate logistic regression modelling that examines the effect of respective background variables with high-risk behaviour in Model 1. An Adjusted Odds Ratio (AOR),

Model 2 determines the influence of all the significant variables combined in a single statistical modelling to understand the proportion of chance a person has to transmit/acquire or avoid HIV. Following the multivariate analysis, results from qualitative data analysis provided evidence of personal experiences and views that explain why individual characteristics were linked with HIV high or low risk behaviour in Plateau State and Nasarawa State. This chapter is outlined as follows:

- Section 5.2: Factors of HIV risky behaviours;
- Section 5.3: Motivations for high and low risk behaviours, and
- Section 5.4: Conclusion.

5.2 FACTORS OF HIV RISKY BEHAVIOURS

This section describes the distribution of HIV risky behaviour in the three survey periods. The association between the respondents' characteristics and HIV risky sexual behaviour, and the predictors of likelihood to engage in HIV high-risk behaviours between Plateau State and Nasarawa State have been estimated.

5.2.1 Risk and the Age at First Sexual Intercourse

This section examines the risk of acquiring HIV during sex at the age a person first engages in sex. Table 5.1 shows that, in a decade (2003 and 2013), the proportion of people in Plateau State who engaged in risky sexual behaviour generally decreased, whereas in Nasarawa State, the proportion increased. For example, the proportion decreased among females (80.1% to 69.0%), those with no education (52.75 to 24.1%), and members of poor households (44.0% to 23.0%) in Plateau State. Others included people who did not know where to get HIV test (70.6% to 25.2%), and those who would buy vegetables from a vendor with HIV/AIDS (71.0% to 33.7%). In Nasarawa State, the proportion increased amongst the same categories of respondents, in addition to people who were ignorant that a healthy looking person could have HIV/AIDS (55.2% to 97.7%), older people who were aged ≤ 25 year old (56.8% to 76.6%), and those who were married (69.1% to 94.9%). The majority of those who were married once (<84.0%), spouses living together (90.0%), rural dwellers, (<78.0%), and people who were employed (<71.0%) were more likely to report risky behaviour in Nasarawa than in Plateau State.

Table 5.1: Distribution of HIV Risky Behaviour at First Sexual Intercourse by Study Location

Age at First Sex						
Plateau State			Background Characteristics	Nasarawa State		
2003	2008	2013		2003	2008	2013
			Gender			
60 (19.9)	1016 (69.6)	393 (30.0)	Male	31 (22.3)	448 (32.0)	196 (23.4)
241 (80.1)	449 (30.6)	875 (69.0)	Female	108 (77.7)	953 (68.0)	643 (76.6)
			Age group			
121 (40.1)	723(49.4)	477 (37.6)	15-24	60 (43.2)	399 (28.5)	149 (17.8)
181 (59.9)	742 (50.6)	791 (62.2)	25 +	79 (56.8)	1002 (71.5)	690 (82.2)
			Married status			
120 (39.7)	533 (36.3)	108 (12.7)	Unmarried	43 (30.9)	495 (35.3)	43 (5.1)
182 (60.3)	932 (63.6)	851 (67.1)	Married	96 (69.1)	906 (64.7)	796 (94.9)
			Type of Marriage			
61 (81.3)	469 (54.3)	345 (66.2)	Monogamy	36 (75.0)	358 (46.1)	386 (56.9)
14 (18.7)	394 (45.7)	176 (33.8)	Polygamy	12 (25.0)	419(53.9)	292 (43.1)
			Number of unions			
98 (83.1)	801 (90.7)	663 (85.3)	Once	56 (83.6)	733 (87.6)	681 (86.2)
20 (16.7)	82 (9.3)	114 (14.7)	More than once	11 (16.4)	104 (12.4)	109 (13.8)
			Marital/Spouse Living Arrangements			
120 (81.6)	804 (86.3)	718 (91.7)	Living together	69 (89.6)	824 (91.7)	717 (90.5)
27 (18.4)	127 (13.6)	65 (8.3)	Living elsewhere	8 (10.4)	75 (8.3)	75 (9.5)
			Religion			
55 (18.3)	227 (15.7)	142 (11.8)	Islam	8 (6.0)	592 (42.8)	327 (39.8)
246 (81.7)	1220 (84.3)	1065 (88.2)	Christianity	126 (94.0)	790 (57.2)	495 (60.2)
			Place of residence			
66 (27.4)	1146 (78.2)	918 (72.4)	Urban	24 (22.2)	212 (15.1)	141 (16.8)
175 (72.6)	319 (21.8)	350 (27.6)	Rural	84 (77.8)	1189 (84.9)	698 (83.2)
			Educational Levels			
18 (7.3)	686 (46.8)	740 (58.4)	Secondary/Higher	57 (47.1)	257 (18.3)	255 (31.4)
98 (40.0)	258 (17.6)	223 (17.6)	Primary	10 (8.3)	640 (45.7)	321 (39.9)
129 (52.7)	521 (35.6)	305 (24.1)	No education	54 (44.6)	504 (36.0)	235 (29.0)
			Employment			
86 (28.6)	683 (46.9)	443 (35.3)	Unemployed	40 (28.8)	353 (25.3)	240 (28.6)
215 (71.4)	774 (53.1)	812 (64.7)	Employed	99 (71.2)	1041 (74.7)	599 (71.4)
			Nature of Employment			
90 (50.3)	482 (57.0)	456 (54.8)	All through the year	56 (68.3)	381 (36.3)	462 (66.5)
89 (49.7)	364 (43.0)	376 (45.2)	Seasonal/Occasional	26 (31.7)	668 (63.7)	233 (33.5)
			Wealth Status			
113 (37.4)	260 (17.7)	365 (28.8)	Rich	35 (25.2)	402 (28.7)	223 (26.6)
56 (18.5)	880 (60.1)	611 (48.2)	Middle Class	80 (57.6)	561 (40.0)	190 (22.6)
133 (44.0)	325 (22.2)	292 (23.0)	Poor	24 (17.3)	438 (31.3)	426 (50.8)
			Have been away from home over a month			
81 (59.1)	405 (73.0)	357 (64.0)	No	44 (59.5)	462 (67.7)	274 (66.0)
56 (40.9)	150 (27.0)	201 (36.0)	Yes	30 (40.5)	220 (32.3)	141 (34.0)
			Know a place to get HIV test			
86 (29.4)	1076 (84.9)	787 (74.6)	Yes	48 (37.8)	641 (58.1)	157 (22.0)
207 (70.6)	191 (15.1)	268 (25.2)	No	79 (62.2)	462 (41.9)	556 (78.0)
			A healthy-looking person can have HIV			
179 (73.4))	912 (86.3)	806 (83.0)	Yes	43 (44.8)	167 (13.6)	16 (2.3)
65 (26.6)	145 (13.7)	165 (17.0)	No	53 (55.2)	1065 (86.4)	665 (97.7)
			Wife justified asking husband to use condom if he has STD			
216 (82.4)	1155 (87.5)	834 (76.4)	Yes	13 (10.6)	470 (33.7)	97 (13.4)
46 (17.6)	165 (12.5)	258 (23.6)	No	110 (89.4)	924 (66.3)	625 (86.6)
			Would buy vegetables from vendor with HIV/AIDS			
85 (29.0)	670 (53.3)	680 (66.3)	Yes	101 (79.5)	647 (58.8)	233 (33.1)
208 (71.0)	587 (46.7)	346 (33.7)	No	26 (20.5)	454 (41.2)	470 (66.9)

Table 5.1 reveals that people in Plateau State had a larger proportion of: urban residents (27.4% to 72.4%), people with secondary / tertiary education (7.3% to 58.4%) and spouses living together (81.6% to 91.7%) who engaged in HIV risky behaviour. In comparison, in Nasarawa State the proportion of urban dwellers and people who completed secondary/tertiary education was low.

Table 5.2 shows that HIV risk behaviour among respondents who had sex before 15 years of age, was significantly associated with gender, age groups, and marital status. Other characteristics include educational levels, employment status, and wealth status at $p < 0.05$ in Plateau State. In Nasarawa State, risky behaviour was associated with gender, type of marriage, the number of times a person was married, and levels of education. A binary logistic regression model that was adjusted for confounders (in Table 5.3) indicates that none of the variables were significant predictors of HIV high-risk behaviour before a person became 15 years of age in Plateau State. In Nasarawa State, being female and married more than once reduced HIV risk by 76% and 66.0% respectively.

Table 5.2: Factors Associated with Risky Behaviours at First Sexual Intercourse by Study Location

Age at First Sexual Intercourse						
Plateau State		P-value	Characteristics	P-value	Nasarawa State	
Low	High				Low	High
		0.000	Gender	0.000		
1262 (50.6)	34 (26.8)		Male		643 (29.5)	32 (15.8)
1230 (49.4)	93 (73.2)		Female		1533 (70.5)	171 (84.2)
		0.013	Age group	0.785		
875 (35.1)	31 (24.4)		≤15 years		554 (25.5)	54 (26.6)
1618 (64.7)	96 (75.6)		≥25 years		1622 (74.5)	149 (73.4)
		0.005	Marital status	0.599		
738 (29.6)	23 (18.1)		Unmarried		535 (24.6)	46 (22.7)
1755 (70.4)	104 (81.9)		Married		1641 (75.4)	157 (77.3)
		0.071	Types of Marriage	0.031		
831 (60.6)	44 (50.6)		Monogamy		702 (51.0)	78 (61.4)
541 (39.4)	43 (49.4)		Polygamy		674 (49.0)	49 (38.6)
		0.167	Number of times Married	0.001		
1477 (88.2)	85 (81.7)		Once		1357 (87.7)	113 (77.4)
197 (11.8)	19 (18.3)		More than once		191 (12.3)	33 (22.6)
		Marital Living Arrangements				
1543 (88.0)	99 (92.5)	0.206	Living together with Spouse	0.125	1465 (90.7)	145 (94.8)
211 (12.0)	8 (7.5)		Living elsewhere		150 (9.3)	8 (5.2)
		0.255	Religion	1.000		
380 (15.7)	24 (19.5)		Muslims		848 (39.7)	79 (39.5)
2045 (84.3)	99 (80.5)		Christians		1290 (60.3)	121 (60.5)
		0.129	Place of Residence	0.902		
1767 (72.6)	99 (79.2)		Urban		346 (16.1)	31 (15.5)
667 (27.4)	26 (20.8)		Rural		1802 (83.9)	169 (84.5)
		0.000	Educational Levels	0.026		
1068 (43.8)	31 (24.6)		Secondary/Tertiary		506 (23.7)	63 (32.1)
517 (35.0)	46 (38.9)		Primary		901 (42.2)	70 (35.7)
852 (23.0)	49 (41.7)		No education		730 (34.2)	63 (32.1)
		0.021	Employment Status	0.253		
964 (38.8)	36 (28.6)		Unemployed		572 (26.3)	61 (30.3)
1519 (61.2)	90 (71.4)		Employed		1599 (73.7)	140 (69.7)
		0.115	Nature of Employment	0.477		
875 (56.2)	45 (47.4)		All through the year		899 (51.2)	76 (52.4)
682 (43.8)	50 (52.6)		Seasonal/Occasional		858 (48.8)	69 (47.6)
		0.001	Wealth Status	0.151		
566 (27.7)	15 (11.8)		Rich		615 (28.3)	45 (22.2)
1318 (52.9)	87 (68.5)		Middle class		758 (34.8)	73 (36.0)
609 (24.4)	25 (19.7)		Poor		803 (36.9)	85 (41.9)
		Have been away from home over a month				
306 (30.3)	14 (25.5)	0.538	No	0.978	722 (66.7)	58 (65.9)
703 (69.7)	41 (74.5)		Yes		361 (33.3)	30 (34.1)
		0.954	Know a place for HIV test	0.786		
535 (24.7)	26 (25.5)		Yes		772 (43.4)	74 (44.8)
1629 (75.3)	76 (75.5)		No		1006 (56.6)	91 (55.2)
		A healthy-looking person can have AIDS				
1558 (83.7)	74 (84.1)	1.000	Yes	0.873	207 (11.2)	19 (11.9)
303 (16.3)	14 (15.9)		No		1643 (88.8)	140 (88.1)
		Wife justified asking husband to use condom if he has STD				
1843 (83.2)	89 (80.9)	0.619	Yes	0.336	525 (25.6)	55 (29.1)
372 (16.8)	21 (19.1)		No		1525 (74.4)	134 (70.9)
		Would buy vegetables from vendor with HIV/AIDS				
1164 (54.6)	58 (57.4)	0.610	Yes	0.969	900 (50.8)	81 (51.3)
969 (45.4)	43 (42.6)		No		873 (49.2)	77 (48.7)

Table 5.3: Predictors of HIV High-risk Behaviour at First Sexual Intercourse by Study Location

Plateau State		
Background characteristics	Model 1	Model 2
	COR (95% CI)	AOR (95% CI)
Gender		
Male (ref)	1.00	1.00
Female	0.356 (0.239 - 0.531)	1.264 (0.476 - 3.356)
Age group		
≤15 years (ref)	1.00	1.00
≥25 years	0.597 (0.395 - 0.903)	0.182 (0.023 - 1.459)
Marital status		
Unmarried (ref)	1.00	1.00
Married	0.526 (0.332 - 0.833)	2.587 (0.650 - 10.289)
Secondary/Tertiary	1.00	1.00
Primary	0.505 (0.319 - 0.798)	0.301 (0.034 - 2.624)
No education	1.547 (1.020 - 2.347)	2.188 (0.746 - 6.418)
Employment Status		
Employed (ref)	1.00	1.00
Unemployed	0.630 (0.425 - 0.935)	0.840 (0.288 - 2.452)
Rich	1.00	1.00
Middle class	0.646 (0.337 - 1.237)	0.679 (0.208 - 2.215)
Poor	1.608 (1.020 - 2.534)	0.582 (0.198 - 1.713)

Nasarawa State		
Background Characteristics	Model 1	Model 2
	COR (95% CI)	AOR (95% CI)
Gender		
Male (ref)	1.000	1.000
Female	0.446 (0.303 - 0.658)	0.240 (0.116 - 0.493) *
Types of Marriage		
Monogamy (ref)	1.000	1.000
Polygamy	1.528 (1.053 - 2.218)	1.201 (0.805 - 1.792)
Number of times Married		
Once (ref)	1.000	1.000
More than once	0.482 (0.318 - 0.731)	0.444 (0.271 - 0.729) *
Educational Levels		
Secondary/Tertiary	1.000	1.000
Primary	0.900 (0.632 - 1.283)	0.760 (0.474 - 1.218)
No education	1.443 (0.999 - 2.083)	1.173 (0.744 - 1.848)

*P<0.05

ref. = Reference group

COR =Crude Odd Ratio

AOR=Adjusted Odd Ratio

CI=Confidence interval

5.2.2 Risk and Nonmarital Sexual Activity

Table 5.4 shows that the proportion of non-marital HIV risk behaviour decreased from 71.9% in 2003 to 59.3% in 2013 among female respondents in Plateau State. The proportion of females who engaged in nonmarital HIV risk behaviour was lower; it also decreased from 62.5% to 52.4% over the same survey periods in Nasarawa State. A further look at Table 5.4 on the distribution of behaviour by respondents' characteristics reveals increases in Plateau State amongst Christians (75.0% to 96.7%), those with secondary or higher education (8.0% to 83.2%), and people whose jobs were year round (82.4% to 73.5%). In Nasarawa State, the proportion decreased among the same characteristics: Christians (100% to 66.0%), secondary or higher education (57.1% to 11.0%), people with year round jobs (85.7 to 69.4%). In Plateau State, risky behaviour increased between 2003 and 2013 among people who: knew a place to test for HIV (21.9% to 84.0%); those who knew a healthy-looking person could have HIV/AIDS (<83.0%); those who accepted a married woman could ask her husband to use a condom during sex in the event he has an STD (26.7% to 84.2%), and those who would buy vegetables from a vendor with HIV/AIDS (37.5% and 76.0%). In Nasarawa State, the proportion among the same population was lower and decreased over the same survey periods.

Table 5.5 shows that, in Plateau State, gender, age group, and place of residence were significantly associated with the HIV risk behaviour among unmarried people. Other factors associated with the risk include: wealth status, knowledge of a place to get an HIV test, and willingness to buy vegetables from a vendor with HIV/AIDS. Similarly, in Nasarawa State, gender, age group, and wealth status had a significant relationship with non-marital HIV risk behaviour. Other variables that show associations between: being away from home for over a month; knowledge of a place to get an HIV test; awareness that a healthy-looking person could have HIV/AIDS; holding a belief that a wife would be justified to ask her husband to use a condom during sex if he has STD, and willingness to buy vegetables from a vendor who had HIV/AIDS. The binomial logistic regression result in Table 5.6 shows that the odds ratio in Plateau State of: being female (AOR: 1.68, 1.02 – 2.7 CI); ignorance of a place to get an HIV test (AOR: 2.38, 1.35 – 4.21 CI), and being away from home for over a month (AOR: 0.51, 0.28-0.97 CI) reduced the chances of acquiring or transmitting HIV during non-marital high-risk behaviour.

Table 5.4: Distribution of Non-marital HIV Risk Behaviour by Study Location

Nonmarital Risky Sexual Behaviour						
Plateau State			Background Characteristics	Nasarawa State		
2003	2008	2013		2003	2008	2013
			Gender			
9 (28.1)	64 (39.0)	987 (40.7)	Male	6 (37.5)	121 (53.1)	129 (47.6)
23 (71.9)	100 (61.0)	127 (59.3)	Female	10 (62.5)	107 (46.9)	142 (52.4)
			Age group			
19 (59.4)	66 (40.2)	214 (100.0)	15-24	11 (68.8)	70 (30.7)	151 (55.7)
13 (40.6)	98 (59.8)	0 (0.0)	25 +	5 (31.3)	158 (68.3)	120 (44.3)
			Religion			
8 (25.0)	8 (4.9)	7 (3.3)	Islam	0 (0.)	79 (34.6)	91 (34.0)
24 (75.0)	155 (95.1)	203 (96.7)	Christianity	14 (100.0)	149 (65.4)	177 (66.0)
			Place of residence			
13 (56.5)	111 (67.7)	112 (52.3)	Urban	2 (20.0)	31 (13.6)	74 (27.3)
10 (43.5)	53 (32.3)	102 (47.7)	Rural	8 (80.0)	197 (86.4)	197 (72.7)
			Education			
2 (8.0)	134 (81.7)	178 (83.2)	Secondary/Higher	8 (57.1)	43 (18.9)	29 (11.0)
13 (52.0)	3 (1.8)	12 (5.6)	Primary	2 (9.3)	110 (45.3)	197 (38.8)
10 (40.0)	27 (16.5)	24 (11.2)	No education	4 (28.6)	75 (32.9)	37 (14.1)
			Employment			
10 (31.2)	57 (34.8)	70 (33.0)	Unemployed	8 (50.0)	72 (31.9)	99 (36.5)
22 (68.8)	107 (65.2)	142 (67.0)	Employed	8 (50.0)	154 (68.1)	172 (63.5)
			Nature of Employment			
14 (82.4)	86 (73.5)	98 (67.1)	All through the year	6 (85.7)	62 (39.2)	127 (69.4)
3 (17.6)	31 (26.5)	48 (32.9)	Seasonal/Occasional	1 (14.3)	96 (60.8)	56 (30.6)
			Wealth Index			
20 (62.5)	53 (32.3)	107 (50.0)	Rich	3 (18.8)	86 (37.7)	108 (39.9)
7 (21.9)	80 (48.8)	60 (28.0)	Middle Class	6 (37.5)	83 (36.4)	45 (16.6)
5 (15.6)	31 (18.9)	47 (22.0)	Poor	7 (43.8)	59 (25.9)	118 (43.5)
			Have been away from Home over a Month			
9 (69.2)	57 (67.9)	69 (52.7)	No	4 (57.1)	76 (56.7)	74 (49.3)
4 (30.8)	27 (32.1)	62 (47.3)	Yes	3 (42.9)	58 (43.3)	76 (50.7)
			Know a Place to get an HIV Test			
7 (21.9)	133 (83.1)	168 (84.0)	Yes	3 (18.8)	95 (48.7)	53 (21.1)
25 (78.1)	27 (16.9)	32 (16.0)	No	13 (81.3)	100 (51.3)	198 (78.9)
			A healthy-looking person can have HIV/AIDS			
25 (83.3)	109 (88.6)	167 (87.0)	Yes	4 (33.3)	22 (11.1)	5 (2.0)
5 (16.7)	14 (11.4)	25 (13.0)	No	8 (66.7)	176 (88.9)	240 (98.0)
			Wife justified asking husband to use condom if he has STD			
30 (26.7)	136 (89.5)	154 (84.2)	Yes	1 (66.7)	65 (28.6)	30 (12.8)
2 (6.3)	16 (10.5)	29 (15.8)	No	15 (93.8)	162 (71.4)	204 (87.2)
			Would buy vegetables from a vendor with HIV/AIDS			
12 (37.5)	81 (55.5)	152 (76.0)	Yes	10 (62.5)	117 (61.3)	70 (28.1)
20 (62.5)	65 (44.5)	48 (24.0)	No	6 (37.5)	74 (38.7)	179 (71.9)

In Nasarawa State, people who came from poor households (AOR: 2.54, 1.28-5.36 CI) and those who would not buy vegetables from a vendor with HIV/AIDS (AOR: 2.38, 1.35-4.21 CI) were likely to engage in HIV high-risk non-marital behaviour. Interestingly, in Nasarawa State, being female (AOR: 0.39, 0.21 -0.71 CI) and a member of a middle-class family (AOR: 0.36, 0.20-0.74 CI) reduced the possibility of HIV transmission during non-marital, high-risk behaviour.

Table 5.5: Factors Associated with Non-marital HIV Risk Behaviours by Study Location

Pooled Nonmarital Sexual activity						
Plateau State		P-value	Characteristics	P-value	Nasarawa State	
Low	High				Low	High
44 (30.4)	116 (43.6)	0.013	Male	0.000	209 (56.2)	47 (32.9)
100 (69.4)	150 (56.4)		Female		163 (43.8)	96 (67.1)
Age group						
94 (65.3)	205 (77.1)	0.014	≤15 years	0.078	177 (47.6)	55 (38.5)
50 (34.7)	61 (22.9)		≥25 years		195 (52.4)	88 (61.5)
Religion						
12 (8.5)	11 (4.2)	0.122	Muslims	0.422	127 (34.5)	43 (30.3)
130 (91.5)	252 (95.8)		Christians		241 (65.5)	99 (69.7)
Place of Residence						
93 (66.0)	143 (55.0)	0.043	Urban	0.416	81 (22.1)	26 (18.3)
48 (34.0)	117 (45.0)		Rural		286 (77.9)	116 (81.9)
Educational Levels						
103 (74.6)	211 (79.6)	0.185	Secondary/Tertiary	0.180	56 (15.3)	24 (17.1)
14 (10.1)	14 (5.3)		Primary		232 (63.6)	77 (55.0)
21 (15.2)	40 (15.10)		No education		77 (21.1)	39 (27.9)
Employment Status						
45 (31.7)	92 (34.6)	0.631	Unemployed	0.173	122 (33.0)	57 (39.9)
97 (68.3)	174 (65.4)		Employed		248 (67.0)	86 (60.1)
Nature of Employment						
72 (70.6)	126 (70.8)	1.000	All through the year	0.087	152 (58.9)	43 (47.8)
30 (29.4)	52 (29.2)		Seasonal/Occasional		106 (41.1)	47 (52.2)
Wealth Status						
50 (34.7)	130 (48.9)	0.012	Rich	0.000	155 (41.7)	42 (29.4)
64 (44.4)	83 (31.2)		Middle class		79 (21.2)	55 (38.5)
30 (20.8)	53 (19.9)		Poor		138 (37.1)	46 (32.2)
Have been away from home over a month						
44 (57.9)	91 (59.9)	0.886	No	0.038	126 (56.5)	28 (41.2)
32 (42.1)	61 (40.1)		Yes		97 (43.5)	40 (58.8)
Know a place to get HIV test						
92 (68.7)	216 (83.7)	0.001	Yes	0.007	98 (29.0)	53 (42.7)
42 (31.3)	42 (16.3)		No		240 (71.0)	71 (57.3)
A healthy-looking person can have AIDS						
88 (82.2)	213 (89.5)	0.090	Yes	0.029	17 (5.1)	14 (11.5)
19 (17.8)	25 (10.5)		No		316 (94.9)	108 (88.8)
Wife justified asking husband to use condom if he has STD						
109 (85.8)	211 (87.9)	0.685	Yes	0.000	53 (15.7)	43 (30.7)
18 (85.8)	29 (12.1)		No		284 (84.4)	97 (69.3)
Would buy vegetables from vendor with HIV/AIDS						
63 (50.8)	182 (71.7)	0.000	Yes	0.007	132 (39.3)	65 (54.2)
61 (49.2)	72 (28.3)		No		204 (60.7)	55 (45.8)

Table 5.6: Predictors of Non-marital Sexual High-risk Behaviour by Study Location

Plateau State			Nasarawa State		
Background Characteristics	Model 1	Model 2	Background Characteristics	Model 1	Model 2
	COR (95% CI)	AOR (95% CI)		COR (95% CI)	AOR (95% CI)
Gender (ref.)			Gender		
Male	1.000	1.000	Male (ref.)	1.000	1.000
Female	1.758 (1.144 - 2.700)	1.680 (1.018 - 2.772) *	Female	0.386 (0.257 - 0.578)	0.382 (0.206 - 0.712)*
Age group			Age group		
≤15 years (ref.)	1.000	1.000	≤15 years (ref.)	1.000	1.000
≥25 years	1.788 (1.144 - 1.7940)	1.461 (0.865 - 2.467)	≥25 years	0.696 (0.470 - 1.033)	0.727 (0.393 - 1.346)
Place of Residence			Wealth Status		
Urban (ref.)	1.000	1.000	Rich (ref.)	1.000	1.000
Rural	0.631 (0.412 - 0.965)	1.094 (0.600 - 1.992)	Middle class	0.824 (0.511 - 1.327)	0.355 (0.170 - 0.739)*
Wealth Status			Poor	2.089 (1.293 - 3.373)	2.539 (1.204 - 5.358)**
Rich (ref.)	1.000	1.000	Have been away from Home for over a Month		
Middle class	0.734 (0.422 - 1.277)	0.990 (0.517 - 0.977)	No (ref.)	1.000	1.000
Poor	1.472 (0.846 - 2.561)	1.845 (0.910 - 3.744)	Yes	0.539 (0.311 - 0.935)	0.525 (0.283 - 0.973)**
Know a place to get HIV test			Wife justified asking husband to use condom if he has STD Would buy		
Yes (ref.)	1.000	1.000	Yes (ref.)	1.000	1.000
No	2.348 (1.345 - 1.4350)	2.380 (1.346 - 4.206) *	No	1.618 (1.057 - 1.475)	1.594 (0.949 - 2.677)
Would buy vegetables from vendor with HIV/AIDS			Would buy vegetables from vendor with HIV/AIDS		
Yes (ref.)	1.000	1.000	Yes (ref.)	1.000	1.000
No	1.318 (1.061 - 2.438)	1.294 (0.949 - 1.673)	No	2.359 (1.483 - 3.750)	2.380 (1.346 - 4.206) *

*P<0.05

ref. = Reference group

COR =Crude Odd Ratio

AOR=Adjusted Odd Ratio

CI=Confidence interval

5.2.3 Risky Sexual Behaviour in Marriage

In most cultures, sexual relationships are only allowed in a union; a sexual relationship becomes safe when both spouses only have sex with their primary partner. As highlighted in section 4.3, in recent times, risky sex in marital relationships has become a pathway through which STIs are transmitted in Sub Saharan Africa (Coma, 2013; Halperin et al., 2011). Little is known about the current situation in Nigeria, particularly in the context of this study. The outcome of the investigation on sexual activity in marriage (shown in Table 5.7) indicates that, in Nasarawa State, female respondents (>73.0%), people in the older age group (> 72.0%), those who married once (> 83.0%), married people living together (> 89.0%), rural dwellers (> 77.0%), and people with a job (\geq 70.0%) predominated amongst those engaging in HIV risk behaviour across the survey periods. In Plateau State, Christians (> 80.0%) engaged more in HIV risky behaviour than in Nasarawa State. The proportion of poor household members and married respondents who engaged in HIV risk behaviour decreased from 53.4% in 2003 to 20.4% in 2013 among the people living in Plateau State, while in Nasarawa State, it rose from 15.6% to 50.9% over the same survey periods. HIV risk behaviour among people who knew a place to test for HIV rose from 29.9% in 2003 to 76.6% in 2013. A large proportion of those who knew a healthy-looking person could have HIV/AIDS (\geq 73.0), and those who held the belief that a married woman at risk of STD from her husband should ask for a condom (>7.4.0%) engaged in HIV risky behaviour in Plateau State. In Nasarawa State, the proportion of respondents who did not know a place to get HIV test who engaged in HIV risk behaviour increased from 58.6% to 78.2%. A similar increase was found between 2003 and 2013 among those who were ignorant that a healthy-looking person could have HIV/AIDS (55.7% to 97.5%), and those unwilling to buy vegetables from a vendor with HIV/AIDS (18.2% to 66.7%).

Factors associated with risky sexual behaviour presented in Table 5.8 shows that types of marriage and educational levels associated with levels of marital HIV risk behaviour in Plateau State. In Nasarawa State, gender, types of marriage, employment status and wealth status were associated with risk behaviours. Being a polygamist and completing primary education were significantly associated with decreased marital HIV high-risk behaviour in Plateau State. In comparison, in Nasarawa, females were 5.8 times more likely to engage in HIV high-risk behaviour than males while members of poor households had a 50.0% chance of HIV high-risk behaviour in Nasarawa State. Being a polygamist had a 82.0% likelihood of decreased high-risk in Nasarawa State.

Table 5.7: Distribution of HIV Risk Behaviour in Marriage by Study Location

HIV Risky Sexual Behaviour in Marriage						
Plateau State			Background Characteristics	Nasarawa State		
2003	2008	2013		2003	2008	2013
			Gender			
32 (18.2)	681 (73.5)	213 (26.7)	Male	19 (19.8)	237 (26.2)	191 (24.0)
144 (81.8)	246 (26.5)	578 (73.1)	Female	77 (80.2)	668 (73.8)	605 (76.0)
			Age group			
28 (15.9)	469 (50.6)	0 (0.0)	15-24	24 (25.0)	248 (27.4)	142 (17.8)
148 (84.1)	458 (49.4)	791 (100.0)	25 +	72 (75.0)	657 (72.6)	654 (82.2)
			Type of Marriage			
59 (80.8)	467 (54.4)	345 (66.2)	Monogamy	36 (75.0)	358 (46.1)	386 (56.9)
14 (19.2)	391 (45.6)	176 (33.8)	Polygamy	12 (25.0)	418 (53.9)	292 (43.1)
			Number of Unions			
96 (84.2)	798 (90.9)	663 (85.3)	Once	56 (83.6)	732 (87.6)	681 (86.2)
18 (15.8)	80 (9.1)	114 (14.7)	More than once	11 (16.4)	104 (12.4)	109 (13.8)
			Marital/Spouse living Arrangement			
119 (82.6)	799 (86.3)	718 (91.7)	Living together	69 (89.6)	823 (91.6)	717 (90.5)
25 (17.4)	127 (13.7)	65 (8.3)	Living elsewhere	8 (10.4)	75 (8.4)	75 (9.5)
			Religion			
32 (18.3)	177 (19.4)	119 (16.1)	Islam	5 (5.4)	399 (44.9)	314 (40.3)
143 (81.7)	736 (80.6)	621 (83.9)	Christianity	88 (94.6)	489 (55.1)	466 (59.7)
			Place of Residence			
33 (22.9)	746 (80.5)	609 (77.0)	Urban	17 (22.1)	134 (14.8)	132 (16.6)
111 (77.1)	181 (19.5)	182 (23.0)	Rural	60 (77.9)	771 (85.2)	664 (83.4)
			Education Levels			
9 (6.0)	319 (34.4)	355 (44.9)	Secondary/Higher	37 (43.0)	160 (17.7)	243 (31.5)
66 (44.0)	230 (24.8)	198 (25.0)	Primary	8 (9.3)	410 (45.3)	299 (38.8)
75 (50.0)	378 (40.8)	238 (30.1)	No education	41 (47.7)	335 (37.0)	229 (29.7)
			Employment status			
28 (16.0)	376 (40.9)	215 (27.2)	Unemployed	15 (15.6)	173 (19.2)	233 (29.3)
147 (84.0)	544 (59.1)	575 (72.8)	Employed	81 (84.4)	729 (80.8)	563 (70.0)
			Nature of employment			
56 (46.7)	303 (52.4)	321 (55.2)	All through the year	48 (72.7)	279 (38.1)	433 (66.0)
64 (53.3)	275 (47.6)	261 (44.8)	Seasonal/Occasional	18 (27.3)	453 (61.9)	223 (34.0)
			Wealth status			
52 (29.5)	127 (13.7)	187 (23.6)	Rich	24 (25.0)	217 (24.0)	211 (26.5)
30 (17.0)	585 (63.1)	443 (56.0)	Middle Class	57 (59.4)	377 (41.7)	180 (22.6)
94 (53.4)	215 (23.2)	161 (20.4)	Poor	15 (15.6)	311 (34.4)	405 (50.9)
			Have been away from Home Over a Month			
45 (59.2)	275 (76.8)	240 (70.0)	No	32 (62.7)	327 (73.0)	261 (66.6)
31 (40.8)	83 (23.2)	103 (30.0)	Yes	19 (37.3)	121 (27.0)	131 (33.4)
			Know a place to get HIV test			
52 (29.9)	687 (86.0)	498 (76.5)	Yes	36 (41.4)	423 (61.1)	147 (21.8)
122 (70.1)	112 (14.0)	153 (23.5)	No	51 (58.6)	269 (38.9)	527 (78.2)
			A healthy-looking person can have HIV/AIDS			
103 (73.0)	596 (87.4)	493 (82.7)	Yes	31 (44.3)	108 (13.6)	16 (2.5)
38 (27.0)	86 (12.6)	103 (17.3)	No	39 (55.7)	687 (86.4)	626 (97.5)
			Wife justified asking husband to use condom if he has STD			
123 (78.3)	705 (86.4)	514 (74.7)	Yes	11 (12.9)	318 (35.4)	91 (13.3)
34 (21.7)	111 (13.6)	174 (25.3)	No	74 (87.1)	581 (64.6)	591 (86.7)
			Would buy vegetables from vendor with HIV/AIDS			
51 (29.3)	412 (52.7)	425 (67.6)	Yes	72 (81.8)	410 (57.7)	221 (33.3)
123 (70.7)	370 (47.3)	204 (32.4)	No	16 (18.2)	300 (42.3)	443 (66.7)

Table 5.8: Factors Associated with HIV Risk Behaviours in Marriage by Study Location

Sexual Activity in Marriage						
Plateau State			Characteristics	Nasarawa state		
2003-2013 Pooled data				2003-2013 Pooled data		
Low	High				Low	High
			Gender			
918 (49.0)	8 (42.1)	0.716	Male	0.000	415 (23.6)	32 (82.1)
957 (51.0)	11 (57.9)		Female		1343 (76.4)	7 (17.9)
			Age group			
496 (26.5)	1 (5.3)	0.068	≤15 years	0.085	410 (23.0)	4 (10.3)
1379 (73.5)	18 (94.7)		>25 years		1348 (76.7)	35 (89.7)
			Types of Marriage			
867 (60.3)	4 (28.8)	0.033	Monogamy	0.000	778 (52.7)	2 (7.7)
571 (39.7)	10 (71.4)		Polygamy		698 (47.3)	24 (92.3)
			Number of times Married			
1539 (87.9)	18 (100.0)	0.227	Once	Fisher=0.025	1440 (86.5)	29 (100.0)
212 (12.1)	0 (0.0)		More than once		224 (13.5)	0 (0.0)
			Marital/Souse Living Arrangements			
1620 (88.2)	16 (94.1)	0.710	Living together	0.450	1578 (91.2)	31 (86.1)
216 (11.8)	1 (5.9)		Living elsewhere		153 (8.8)	5 (13.6)
			Religion			
325 (18.0)	3 (16.7)	1.000	Muslims	0.895	703 (40.8)	15 (38.5)
1485 (82.0)	15 (83.3)		Christians		1019 (59.2)	24 (61.5)
			Place of Residence			
1378 (74.7)	10 (58.8)	0.224	Urban	0.916	278 (16.0)	5 (13.9)
467 (25.3)	7 (41.2)		Rural		1464 (84.0)	31(86.1)
			Educational Levels			
670 (36.2)	13 (68.4)	0.010	Secondary/Tertiary	0.689	432 (25.1)	8 (21.1)
493 (26.7)	1 (5.3)		Primary		699 (40.5)	18 (47.4)
686 (37.1)	5(26.3)		No education		593 (34.4)	12 (31.6)
			Employment Status			
614 (32.9)	5 (26.3)	0.717	Unemployed	0.001	421 (24.0)	0 (0.0)
1252 (67.1)	14 (73.7)		Employed		1334 (76.0)	39 (100.0)
			Nature of Employment			
670 (52.9)	10 (76.9)	0.147	All through the year	0.818	740 (52.2)	20 (55.6)
597 (47.1)	3 (23.1)		Seasonal/Occasional		678 (47.8)	16 (44.4)
			Wealth Status			
361 (19.3)	5 (26.3)	0.241	Rich	0.032	445 (25.3)	7 (17.9)
1051 (56.1)	7 (36.8)		Middle class		593 (33.7)	21 (53.8)
463 (24.7)	7 (36.8)		Poor		720 (41.0)	11 (28.2)
			Have been away from home over a month			
553 (71.9)	7 (87.5)	0.561	No	0.903	602 (33.2)	18 (66.7)
216 (28.1)	1 (12.5)		Yes		262 (30.3)	9 (33.3)
			Know a place to get HIV test			
1226 (76.2)	11 (68.8)	0.685	Yes	0.860	592 (41.8)	14 (38.9)
382 (23.8)	5 (31.3)		No		825 (58.2)	22 (58.2)
			A healthy-looking person can have AIDS			
1179 (84.0)	13 (86.7)	1.000	Yes	0.681	153 (10.4)	2 (6.5)
225 (16.0)	2 (13.3)		No		1323 (89.6)	29 (93.5)
			Wife justified asking husband to use condom if he has STD			
1326 (80.6)	16 (100.0)	0.101	Yes	0.16z	415 (25.5)	5 (13.9)
319 (19.4)	0 (0.0)		No		1215 (74.5)	31 (86.1)
			Would buy vegetables from vendor with HIV/AIDS			
876 (55.8)	12 (75.0)	0.199	Yes	0.569	683 (47.9)	20 (54.1)
693 (44.2)	4 (25.0)		No		742 (52.1)	17 (45.9)

*p<0.05

Table 5.9: Predictors of High-risk Non-marital Sexual Behaviour by Study Location

Background Characteristics	Plateau State	
	Model 1 COR (95% CI)	Model 2 AOR (95% CI)
Types of Marriage		
Monogamy	1.000	1.000
Polygamy	0.263 (0.082 - 0.844)	0.245 (0.079 - 0.816)*
Educational levels		
Secondary/Tertiary	1.000	1.000
Primary	0.278 (0.032 - 2.389)	0.454 (0.047 - 4.395)*
No education	2.662 (0.944 - 7.508)	3.396 (0.927 - 12.442)

*p<0.05

ref. = Reference group

COR =Crude Odd Ratio

AOR=Adjusted Odd Ratio

CI=Confidence interval

Background Characteristics	Nasarawa state	
	Model 1 COR (95% CI)	Model 2 AOR (95% CI)
Gender		
Male (ref.)	1.000	1.000
Female	14.794 (6.482 - 33.764)	5.756 (2.059 - 16.090) *
Type of marriage		
Monogamy (ref.)	1.000	1.000
Polygamy	0.075 (0.018 - 0.317)	0.175 (0.039 - 0.789)*
Employment Status		
Employed (ref.)	1.000	1.000
Unemployed	0.000 (0.000)	0.000 (0.000)
Wealth Status		
Rich (ref.)	1.000	1.000
Middle class	2.318 (1.109 - 4.846)	2.178 (0.846 - 5.611)
Poor	1.030 (0.396 - 2.676)	1.474 (1.482 - 4.508)

5.2.4 Risky Sexual Activity during the Four Weeks Prior to the Surveys (Frequent Sex)

The more regular a person engages in risky sexual activity, the more likely he/she is exposed to the risk of acquiring or transmitting HIV (Boily et al., 2009; Ahmed, 2001). Sexual activity in the NDHS data was estimated to have occurred within the last twelve months before a survey. Tables 5.10 and 5.11 present the univariate analysis results concerning the percentage distribution of frequent HIV risk sexual behaviour and the bivariate analysis of the levels of frequent HIV high-risk sexual behaviour. Table 5.12 presents logistic regression modelling of the chance of exposure to frequent high-risk sexual behaviour. In Nasarawa State, a large proportion of people who engage in frequent HIV risk sex were spouses living together (> 89.0%), rural dwellers (\geq 78.0%), and females (> 65.0%). Others are people with jobs (> 64.0%), married people (> 62.0%), and respondents in the older age-groups (> 56.0%). In contrast, in Plateau State, more Christians (> 80.0%) and people who completed secondary/higher education (> 50.0%) engaged in frequent HIV risk behaviour across the survey periods than in Nasarawa.

Moreover, regarding the knowledge and attitudes towards HIV/AIDS in Plateau State, respondents who knew a place to test for HIV (>73.0%), an increasing proportion of those who did not know that a healthy-looking person could have HIV/AIDS (55.2% to 86.5% and 96.6%), and those who acknowledged that a wife could ask her husband for a condom during sex if he had an STD (> 76.0) engaged in risky behaviour in the periods between the 2003 and 2013 surveys. On the contrary, an increasing number of respondents were exposed to frequent high risk sex behaviour in Nasarawa State and ignorant of the place for an HIV test (>62.2% in 2008, 77.4% 2013), that a healthy-looking person could have HIV/AIDS (55.2% to 86.5% and 96.4%), and rejected the view that a wife could ask her husband for a condom during sex if he had an STD (> 67.0%).

Table 5.10: Distribution of Frequent HIV Risk Behaviour by Study Location

Risky Frequent Sexual Behaviour						
Plateau State			Background Characteristics	Nasarawa State		
2003	2008	2013		2003	2008	2013
			Gender			
53 (20.0)	755 (64.6)	355 (31.5)	Male	31 (22.3)	447 (34.6)	401 (31.5)
212 (80.0)	413 (35.4)	773 (68.5)	Female	108 (77.7)	844 (65.4)	872 (68.5)
			Age group			
112 (42.1)	562 (48.1)	468 (41.5)	15-24	60 (43.2)	374 (29.0)	484 (38.0)
154 (57.9)	606 (51.9)	660 (58.5)	25 +	79 (56.8)	917 (71.0)	789 (62.0)
			Married status			
117 (44.0)	492 (42.1)	392 (34.8)	Unmarried	43 (30.9)	487 (37.7)	478 (37.5)
149 (56.0)	676 (57.9)	736 (65.2)	Married	96 (69.1)	804 (62.3)	795 (62.5)
			Type of Marriage			
51 (81.0)	318 (51.1)	288 (66.5)	Monogamy	36 (75.0)	295 (43.1)	386 (57.0)
12 (19.0)	304 (48.9)	145 (33.5)	Polygamy	12 (25.0)	390 (56.9)	291 (43.0)
			Number of unions			
77 (80.2)	570 (89.9)	552 (85.2)	Once	56 (83.6)	633 (86.1)	680 (86.2)
19 (19.8)	64 (10.1)	96 (14.8)	More than once	11 (16.4)	102 (13.9)	109 (13.8)
			Marital/Spouse Living Arrangements			
98 (81.0)	583 (86.4)	598 (91.6)	Living together	69 (89.6)	738 (92.4)	716 (90.5)
23 (19.0)	92 (13.6)	55 (8.4)	Living elsewhere	8 (10.4)	61 (7.6)	75 (9.5)
			Religions			
51 (19.2)	164 (14.2)	125 (11.6)	Islam	8 (6.0)	550 (43.2)	491 (39.2)
214 (80.8)	992 (85.8)	948 (88.4)	Christianity	126 (94.0)	724 (56.8)	762 (60.8)
			Place of Residence			
58 (27.4)	893 (76.5)	815 (72.3)	Urban	24 (22.2)	194 (15.0)	265 (20.8)
154 (72.6)	275 (23.5)	313 (27.7)	Rural	84 (77.8)	1097 (85.0)	1008 (79.2)
			Educational Levels			
17 (7.9)	593 (50.8)	666 (59.0)	Secondary/Higher	57 (47.1)	232 (18.0)	286 (23.1)
85 (39.4)	179 (15.3)	193 (17.1)	Primary	10 (8.3)	597 (46.2)	645 (52.3)
114 (52.8)	396 (33.9)	269 (23.8)	No education	54 (44.6)	462 (35.8)	303 (24.6)
			Employment Status			
80 (30.2)	518 (44.7)	404 (36.2)	Unemployed	40 (28.8)	322 (25.1)	455 (35.7)
185 (69.8)	642 (55.3)	712 (63.8)	Employed	99 (71.2)	962 (74.9)	818 (64.3)
			Nature of Employment			
77 (49.7)	414 (59.1)	392 (53.6)	All through the year	56 (68.3)	358 (36.9)	604 (64.9)
78 (50.3)	287 (40.9)	339 (46.4)	Seasonal/Occasional	26 (31.7)	613 (63.1)	326 (35.1)
			Wealth Status			
102 (38.3)	223 (19.1)	326 (28.9)	Rich	35 (25.2)	379 (29.4)	383 (30.1)
48 (18.0)	678 (58.0)	543 (48.1)	Middle Class	80 (57.6)	516 (40.0)	267 (21.0)
116 (43.6)	267 (22.9)	259 (23.0)	Poor	24 (17.3)	396 (30.7)	623 (48.9)
			Have been away from home over a month			
73 (58.9)	335 (71.1)	313 (63.0)	No	44 (59.5)	441 (67.8)	376 (60.8)
51 (41.1)	136 (28.9)	184 (37.0)	Yes	30 (40.5)	209 (32.2)	242 (39.2)
			Know a place to get HIV test			
71 (27.4)	859 (85.0)	685 (73.7)	Yes	48 (37.8)	583 (57.2)	248 (22.6)
188 (72.6)	152 (15.0)	244 (26.3)	No	79 (62.2)	436 (42.8)	847 (77.4)
			A healthy-looking person can have HIV/AIDS			
162 (74.3)	705 (85.6)	716 (83.6)	Yes	43 (44.8)	153 (13.5)	35 (3.4)
56 (25.7)	119 (14.4)	140 (16.4)	No	53 (55.2)	979 (86.5)	1008 (96.6)
			Wife justified asking Husband to use condom if he has STD			
188 (81.7)	940 (88.3)	735 (76.0)	Yes	13 (10.6)	421 (32.8)	138 (12.6)
42 (81.7)	125 (11.7)	232 (24.0)	No	110 (89.4)	863 (67.2)	956 (87.4)
			Would buy vegetables from vendor with HIV/AIDS			
76 (29.3)	545 (54.3)	591 (65.4)	Yes	101 (79.5)	599 (58.8)	367 (34.0)
183 (70.7)	458 (45.7)	313 (34.6)	No	26 (20.5)	420 (41.2)	712 (66.0)

Table 5.11 reveals that the following characteristics are associated with frequent HIV risk sexual activity in Plateau State: age groups; knowledge of a place to get an HIV test; an awareness that a healthy-looking person could have HIV/AIDS; wife is justified asking the husband to use a condom if he has an STD, and willingness to buy vegetables from a vendor with HIV/AIDS. In Nasarawa State, the following have a significant association with frequent risk sexual behaviour: gender, age groups, marital status, types of marriage, marital/spouse living arrangements, educational levels employment status, and wealth status. The statistically significant respondent characteristics were deployed in a logistic regression to determine the likelihood of engaging in frequent HIV high-risk sexual behaviour. Table 5.12 indicates that, in Plateau State, being in an older age group (≥ 25 years) contributed to a 40.0% chance of HIV high-risk frequent behaviour, whereas, being aware of a place to get HIV test (30.0%), having knowledge that a healthy-looking person could have HIV/AIDS (27.0%), and acknowledging that a wife is justified in asking her husband to use a condom if he has an STD (25.0%) reduced the chance of engaging in frequent HIV high-risk behaviour. In Nasarawa State, whether a person is married or has a spouse living away (AOR: 2.59, 1.49-4.49 CI) significantly increased the likelihood of contracting HIV from frequent high-risk sexual behaviour.

Table 5.11: Factors Associated with Frequent HIV Risk Sexual Behaviour by Study Location

Risky Sexual Frequency Pooled Analysis						
Plateau State			Characteristics	Nasarawa State		
Low	High	P-value		P-value	Low	High
		0.713	Gender	0.000		
713 (45.7)	450 (44.9)		Male		546 (39.2)	333 (25.4)
846 (54.3)	552 (55.1)		Female		847 (60.8)	977 (74.6)
		0.023	Age group	0.000		
667 (42.8)	475 (47.4)		≤15 years		596 (42.8)	322 (24.6)
893 (57.2)	527 (52.6)		≥25 years		797 (57.2)	988 (75.4)
		0.986	Marital status	0.000		
590 (37.8)	411 (41.0)		Unmarried		372 (19.4)	10 (8.4)
970 (62.2)	591 (59.0)		Married		1550 (80.6)	109 (91.6)
		0.115	Types of Marriage	0.001		
412 (58.9)	245 (58.6)		Monogamy		173 (43.7)	544 (53.6)
288 (41.1)	173 (41.4)		Polygamy		223 (56.3)	470 (46.4)
		Number of times Married				
744 (87.1)	455 (86.8)	0.943	Once	0.450	395 (87.2)	974 (85.6)
110 (12.9)	69 (13.3)		More than once		58 (12.8)	164 (14.4)
		Marital/Souse Living Arrangements				
794 (87.7)	485 (89.2)	0.466	Living together	0.000	411 (83.3)	1112 (94.6)
111 (12.3)	59 (10.8)		Living elsewhere		81 (16.5)	63 (5.4)
		0.461	Religion	0.803		
200 (13.2)	140 (14.3)		Muslims		538 (39.2)	511 (39.7)
1316 (86.8)	838 (85.7)	Christians	836 (60.8)	776 (60.3)		
		0.943	Place of Residence	0.109		
1069 (70.3)	697 (70.5)		Urban		265 (19.3)	218 (16.8)
451 (29.7)	291 (29.5)	Rural	1110 (80.7)	1079 (83.2)		
		0.519	Educational Levels	0.000		
794 (51.7)	482 (49.4)		Secondary/Tertiary		275 (20.3)	300 (23.3)
276 (18.0)	181 (18.5)		Primary		708 (52.1)	544 (42.2)
466 (30.3)	313 (32.1)	No education	375 (27.6)	444 (34.5)		
		0.419	Employment Status	0.000		
601 (38.8)	401 (40.5)		Unemployed		486 (35.0)	331 (25.3)
949 (61.2)	590 (59.5)	Employed	902 (65.0)	977 (74.7)		
		0.790	Nature of Employment	0.000		
545 (56.0)	338 (55.1)		All through the year		489 (51.6)	529 (51.1)
429 (44.0)	275 (44.9)	Seasonal/Occasional	458 (48.4)	507 (48.9)		
		0.898	Wealth Status	0.011		
399 (25.6)	252 (25.1)		Rich		440 (31.6)	357 (27.3)
775 (49.7)	494 (49.3)		Middle class		450 (32.3)	413 (31.5)
386 (24.7)	256 (25.5)	Poor	503 (36.1)	540 (41.2)		
		Have been away from home over a month				
443 (66.2)	278 (65.7)	0.918	No	0.016	416 (61.0)	445 (67.4)
226 (33.8)	145 (34.3)		Yes		266 (39.0)	215 (32.6)
		Know a place to get HIV test				
1028 (76.1)	587 (69.2)	0.000	Yes	0.858	454 (39.0)	425 (39.5)
323 (23.9)	261 (30.8)		No		710 (61.0)	652 (60.0)
		A healthy-looking person can have AIDS				
975 (84.9)	608 (81.1)	0.032	Yes	0.375	120 (10.5)	111 (9.9)
173 (15.1)	142 (18.9)		No		1026 (89.5)	1014 (90.1)
		Wife justified asking husband to use condom if he has STD				
1157 (84.3)	706 (79.4)	0.029	Yes	0.028	271 (21.0)	301 (24.8)
216 (15.7)	183 (20.6)		No		1017 (79.0)	912 (75.2)
		Would buy vegetables from vendor with HIV/AIDS				
756 (57.8)	456 (53.2)	0.041	Yes	0.687	540 (47.5)	527 (48.4)
553 (42.2)	401 (46.8)		No		597 (52.5)	561 (51.6)

Table 5.12: Predictors of Frequent High-risk Sexual Behaviour by Study Location

Background Characteristics	Plateau State	
	Model 1	Model 2
	COR (95% CI)	AOR (95% CI)
Age groups		
≤15 years	1.000	1.000
≥25 years	1.207 (1.029 - 1.415)	1.387 (1.130 - 1.703) *
Know a place to get HIV test		
Yes	1.000	1.000
No	0.707 (0.583 - 0.856)	0.705 (0.560 - 0.888)*
A healthy-looking person can have HIV/AIDS		
Yes	1.000	1.000
No	0.760 (0.595 - 0.970)	0.732 (0.555 - 0.964)*
Wife justified asking husband to use a condom if he has STD		
Yes		
No	0.720 (0.579 - 0.896)	0.748 (0.577 - 0.970) *
Would buy vegetables from vendor with HIV/AIDS		
Yes	1.000	1.000
No	0.832 (0.699 - 0.989)	0.920 (0.747 - 1.133)

*p<0.05

ref. = Reference group

COR =Crude Odd Ratio

AOR=Adjusted Odd Ratio

CI=Confidence interval

Background Characteristics	Nasarawa State	
	Model 1	Model 2
	COR (95% CI)	AOR (95% CI)
Gender		
Male	1.000	1.000
Female (ref.)	0.529 (0.440 - 0.623)	0.474 (0.308 - 0.730)
Age group		
≤15 years (ref.)	1.000	1.000
≥25 years	0.436 (0.370 - 0.514)	0.909 (0.576 (1.435)
Marital status		
Unmarried (ref.)	1.000	1.000
Married	0.053 (0.043 - 0.066)	2.588 (1.492 - 4.488) *
Types of Marriage		
Monogamy (ref.)	1.000	1.000
Polygamy	1.492 (1.181 -1.885)	1.272 (0.860 - 1.881)
Marital/spouse Living Arrangements		
Living together (ref.)	1.000	1.000
Living elsewhere	3.479 (2.456 - 4.927)	2.588 (1.492 - 4.488) *
Educational Levels		
Secondary/Tertiary (ref.)	1.000	1.000
Primary	0.649 (0.744 - 0.775)	1.138 (0.757 - 1.711)
No education	0.921 (0.744 - 1.141)	0.677 (0.400 - 1.144)
Employment Status		
Employed (ref.)	1.000	
Unemployed	0.703 (0.613 - 0.807)	0.838 (0.514 - 1.366)
Wealth Status		
Rich (ref.)	1.000	
Middle class	0.855 (0.714 - 1.024)	0.821 (0.537 - 1.257)
Poor	0.756 (0.628 - 0.909)	1.196 (0.774 - 1.849)
Have been away from home over a month		
Yes (ref.)	1.000	1.000
No	1.323 (1.058 - 1.656)	1.024 (0.693 - 1.515)
Would buy vegetables from vendor with HIV/AIDS		
Yes (ref.)	1.000	1.000
No	1.239 (1.058 - 1.493)	1.674 (1.929 - 5.340)*

5.2.5 Unsafe Types of Sexual Partner

A sexual relationship with a person who lives under the same roof is described in the literature as associated with less risk of transmitting HIV, whereas, a relationship has a risk of HIV infection when it occurs with a casual or new partner (Chamrathirong and Kaiser, 2012; Parks et al., 2009; Wang et al., 2009; Rosengard et al., 2005). Drawing from the literature in section 2.7.6, HIV risky sexual behaviour is measured to characterise any respondent who had sex with a casual or regular partner, used a condom or was unprotected at the last sexual encounter, had ever or never had an HIV test, which is described in the bivariate analysis and presented in Table 5.13. Levels of HIV risk types concerning sexual partners have been estimated in a pooled dataset. These levels of sexual behaviour have been used as a dependent variable for a Chi-Square test and logistic regression to examine the accounts of respondents' characteristics, as associated with the levels of risky (partner) sexual behaviour and the chance of engaging in HIV high-risk behaviour in Plateau State and Nasarawa State (Tables 5.14 and 5.15).

Table 5.13 shows that, in Plateau State and Nasarawa State, the distribution of risky sexual behaviour with different types of partner generally fluctuates across the three survey periods. However, on average, in Nasarawa State, a higher proportion of female respondents (71.6% vs 57.7%), a steady increase amongst the older age groups (68.3% to 71.9% and 74.0%), rural residents (average of 80.3% vs 40.0%), a rising proportion of primary school leavers (8.3% to 45.7% and 57.1%) and poor household members (20.8% to 33.9% and 49.9%) have had sex with a HIV risk partner. In Plateau State, over half the proportion of monogamists (>55.0%), the majority of Christians (80.4% to 81.8% and 86.3%) and urban dwellers (79.1% in 2008 and 71.8% in 2013), and an increasing number of people with secondary/higher education (7.0% to 39.3% and 53.0%) engaged in HIV risky behaviour with a casual partner, which are significantly more than in Nasarawa State. Most people who knew a place to test for HIV (86.0% in 2008, 76.4% in 2013), were aware that a healthy-looking person could have HIV/AIDS ($\geq 77.0\%$), agreed that a wife at risk of an STD from her husband could ask for a condom during sex (>76.0%) and would buy vegetables from a vendor with HIV/AIDS (29.8% to 53.0% and 70.3%) had sexual contact with a risky casual partner in Plateau State. Moreover, a larger proportion of respondents with the opposite knowledge or attitudes concerning HIV/AIDS in Nasarawa State had sex with risky sexual partners.

Table 5.13: Distribution of HIV Risk Casual Partner by Study Location

HIV Risky Types of Sexual Partners						
Plateau State			Background characteristics	Nasarawa State		
2003	2008	2013		2003	2008	2013
			Gender			
44 (23.2)	686 (72.5)	260 (31.2)	Male	24 (23.8)	313 (30.4)	283 (31.1)
146 (76.8)	260 (27.5)	574 (68.8)	Female	77 (76.2)	718 (69.6)	628 (68.9)
			Age group			
46 (24.2)	474 (50.1)	119 (14.3)	15-24	32 (31.7)	290 (28.1)	237 (26.0)
144 (75.8)	472 (49.9)	715 (85.7)	25 +	69 (68.3)	741 (71.9)	674 (74.0)
			Married status			
32 (16.8)	113 (11.9)	148 (17.7)	Unmarried	18 (17.8)	184 (17.8)	181 (19.9)
158 (83.2)	833 (88.1)	686 (82.3)	Married	83 (82.2)	847 (82.2)	730 (80.1)
			Type of Marriage			
49 (79.0)	429 (55.6)	314 (66.8)	Monogamy	30 (76.9)	344 (47.2)	351 (56.4)
13 (21.0)	342 (44.4)	156 (33.2)	Polygamy	9 (23.1)	385 (52.8)	271 (43.6)
			Number of unions			
87 (84.5)	721 (91.2)	600 (84.9)	Once	52 (85.2)	683 (87.5)	621 (85.8)
16 (15.5)	70 (8.8)	107 (15.1)	More than once	9 (14.8)	98 (12.5)	103 (14.2)
			Marital/Spouse Living Arrangements			
102 (82.3)	722 (86.8)	652 (92.0)	Living together	59 (90.8)	773 (92.0)	660 (90.9)
22 (17.7)	110 (13.2)	57 (8.0)	Living elsewhere	6 (9.2)	67 (8.0)	66 (9.1)
			Religions			
37 (19.6)	170 (18.2)	108 (13.7)	Islam	5 (5.2)	445 (43.8)	341 (38.1)
152 (80.4)	765 (81.8)	680 (86.3)	Christianity	92(94.8)	572 (56.2)	553 (61.9)
			Place of residence			
42 (28.8)	748 (79.1)	599 (71.8)	Urban	20 (26.0)	150 (14.5)	169 (18.6)
104 (71.2)	198 (20.9)	235 (28.2)	Rural	57(74.0)	881 (85.5)	742 (81.4)
			Educational Levels			
11 (7.0)	372 (39.3)	442 (53.0)	Secondary/Higher	40 (45.5)	183 (17.7)	236 (26.7)
69 (43.9)	203 (21.5)	164 (19.7)	Primary	7 (8.3)	471 (45.7)	415 (57.1)
77 (49.0)	371 (39.2)	228 (27.3)	No Education	41 (46.6)	377 (36.6)	232 (26.3)
			Employment Status			
35 (18.4)	392 (41.7)	224 (26.9)	Unemployed	23 (22.8)	227 (22.1)	273 (30.0)
155 (81.6)	548 (58.3)	608 (73.1)	Employed	78 (77.2)	801 (77.9)	638 (70.0)
			Nature of Employment			
64 (54.2)	315 (53.9)	359 (58.4)	All through the year	44 (69.8)	308 (38.1)	485 (67.0)
54 (45.8)	269 (46.1)	256 (41.6)	Seasonal/Occasional	19 (30.2)	500 (61.9)	239 (33.0)
			Wealth Status			
67 (35.3)	154 (16.3)	245 (29.4)	Rich	26 (25.7)	264 (25.6)	269 (29.5)
37 (19.5)	575 (60.8)	415 (49.8)	Middle Class	54 (53.5)	418 (40.5)	187 (20.5)
86 (45.3)	217 (22.9)	174 (20.9)	Poor	21 (20.8)	349 (33.9)	455 (49.9)
			Have been away from Home over a Month			
46 (61.3)	281 (75.7)	274 (68.2)	No	32 (60.4)	368 (69.8)	279 (61.3)
29 (38.7)	90 (24.3)	128 (31.8)	Yes	21 (39.6)	159 (30.2)	176 (38.7)
			Know a place to get HIV test			
52 (27.7)	714 (86.0)	564 (79.4)	Yes	33 (35.5)	477 (59.6)	168 (21.1)
136 (72.3)	116 (14.0)	146 (20.6)	No	60 (64.5)	324 (40.4)	628 (78.9)
			A healthy-looking person can have HIV/AIDS			
120 (76.9)	635 (88.4)	556 (84.2)	Yes	30 (40.0)	124 (13.8)	17 (2.2)
36 (23.1)	83 (11.6)	104 (15.8)	No	45 (60.0)	777 (86.2)	746 (97.8)
			Wife justified asking husband to use condom if he has STD			
145 (83.3)	725 (86.1)	552 (76.1)	Yes	9 (10.0)	346 (33.8)	104 (13.3)
29 (16.7)	117 (13.9)	173 (23.9)	No	81 (90.0)	679 (66.2)	677 (86.7)
			Would buy vegetables from vendor with HIV/AIDS			
56 (29.8)	427 (53.0)	488 (70.3)	Yes	76 (80.0)	470 (57.6)	259 (33.0)
132 (70.2)	378 (47.0)	206 (29.7)	No	19 (20.0)	346 (42.4)	526 (67.0)

Table 5.14 indicates that age groups, marital status, religion, place of residence, and educational levels had a significant association with levels of sexual behaviour with risky partners in Plateau State. Other statistically significant variables include wealth status, being away from home for over a month, knowing that a healthy-looking person could have HIV/AIDS, accepting that a wife was justified to ask her husband to use a condom if he had an STD, and would buy vegetables from a vendor with HIV/AIDS. Similarly, in Nasarawa State, gender, age groups, marital status, and religion have an association with HIV risky sexual partners. Additional respondent characteristics include educational levels, employment status wealth status, and being away from home for over a month. These significant variables were used in a logistic regression model to predict the odds ratio of engaging in sexual behaviour with HIV high-risk partners.

Table 5.15 shows that, in Plateau State, being married has 65 times more high-risk in transmitting or acquiring HIV than those who were unmarried. Respondents who were older had ≥ 25 years had a greater chance (AOR: 34.4, 12.70-93.30 CI) of being a HIV high-risk sexual partner than those in a younger age group (15-24 years). Similarly, the risk of transmitting HIV was three times more likely among people who came from poor households (AOR: 3.41; 1.05 – 11.12 CI) than those from rich homes. In respect of protective sexual health, those who were Christians (AOR: 0.32, 0.15-1.18 CI) and those who completed primary education (AOR: 0.45, 0.51-1.41 CI) were 68.0% and about 60.0% less likely to become HIV high-risk sexual partners. In Nasarawa State, the risk sexual transmission of HIV was 154 times higher among married (AOR: 154.06, 78.23-303.40 CI) than unmarried people. People with no education were three times more likely of being a high-risk partner, from whom HIV could be more likely transmitted or acquired than those with secondary/tertiary education. HIV transmission or acquisition was 60.0% more likely among female than male sexual partners (AOR: 1.62, 0.81-2.85CI).

Table 5.14: Factors Associated with HIV Risky Sexual Partner by Study Location

Types of Sexual Partners						
Plateau State			Characteristics	Nasarawa state		
Low-risk	High-risk	P-value		P-value	Low-risk	High-risk
		0.238	Gender	0.000		
910 (50.7)	80 (45.7)		Male		460 (26.6)	160 (50.0)
885 (49.3)	95 (54.3)		Female		1267 (73.4)	156 (49.4)
		0.000	Age group	0.000		
512 (28.5)	127 (72.6)		≤15 years		427 (24.7)	132 (41.8)
1283 (71.5)	48 (27.4)		≥25 years		1300 (75.3)	184 (58.2)
		0.000	Marital status	0.000		
173 (9.6)	120 (68.6)		Unmarried		894 (64.2)	114 (8.7)
1622 (90.4)	55 (31.4)		Married		499 (35.8)	1196 (91.3)
		0.849	Types of Marriage	0.001		
787 (60.7)	5 (71.4)		Monogamy		723 (52.7)	2 (11.1)
509 (39.3)	2 (28.6)		Polygamy		649 (47.3)	16 (88.9)
		0.779	Number of times Married	0.717		
1402 (87.9)	6 (100.0)		Once		1340 (86.5)	16 (94.1)
193 (12.1)	0 (0.0)		More than once		209 (13.5)	1 (5.9)
		Marital/Spouse Living Arrangements				
		0.400	Living together	1.000	1471 (91.5)	21 (91.3)
1471 (88.7)	5 (71.4)		Living elsewhere		137 (8.5)	2 (8.7)
		0.000	Religion	0.006		
307 (17.6)	8 (4.7)		Muslims		690 (40.7)	101 (32.3)
1433 (82.4)	164(95.3)	Christians	1005 (59.3)	212 (67.7)		
		0.000	Place of Residence	0.149		
1292 (73.5)	97 (58.1)		Urban		277 (16.2)	62 (19.7)
467 (26.5)	70 (41.9)	Rural	1428 (83.8)	252 (80.3)		
		0.000	Educational Levels	0.000		
695 (39.4)	130 (74.7)		Secondary/Tertiary		412 (24.4)	47 (15.1)
421 (23.9)	15 (8.6)		Primary		713 (42.2)	180 (57.7)
647 (36.7)	29 (16.7)	No education	565 (33.4)	85 (27.2)		
		0.108	Employment Status	0.000		
603 (33.7)	48 (27.4)		Unemployed		416 (24.1)	107 (33.9)
1184 (66.3)	127 (72.6)	Employed	1308 (75.9)	209 (66.1)		
		0.001	Nature of Employment	1.000		
650 (54.5)	88 (70.8)		All through the year		724 (52.5)	113 (52.6)
542 (45.5)	37 (29.6)		Seasonal/Occasional		656 (47.5)	102 (47.4)
		0.000	Wealth Status	0.039		
384 (21.4)	82 (46.9)		Rich		454 (26.3)	105 (33.2)
969 (54.0)	58 (33.1)		Middle class		564 (32.7)	95 (30.1)
442 (24.6)	35 (20.0)	Poor	709 (41.1)	116 (36.7)		
		Have been away from home over a month				
		0.000	No	0.000	587 (68.0)	92 (53.5)
541 (73.0)	60 (56.1)		Yes		276 (32.0)	80 (46.5)
200 (27.0)	47 (43.9)	Know a place to get HIV test				
		0.641	Yes	0.260	575 (40.8)	103 (36.8)
1197 (76.8)	133 (78.7)		No		836 (59.2)	176 (63.1)
362 (23.2)	36 (21.3)	A healthy-looking person can have AIDS				
		0.028	Yes	1.000	144 (9.8)	27 (10.0)
1168 (84.8)	143 (91.7)		No		1324 (90.2)	244 (90.0)
210 915.2)	13 (8.3)	Wife justified asking husband to use condom if he has STD				
		0.005	Yes	0.641	391 (24.4)	68 (23.0)
1277 (80.8)	145 (90.1)		No		1209 (75.6)	228 (77.0)
303 (19.2)	16 (9.9)	Would buy vegetables from vendor with HIV/AIDS				
		0.000	Yes	0.650	677 (47.7)	128 (46.0)
851 (56.0)	120 (72.3)		No		741 (52.3)	150 (54.0)
670 (44.0)	46 (27.7)					

Table 5.15: Predictors of HIV High-risk Types of Sexual Partner by Study Location

Plateau State		
Background Characteristics	Model 1	Model 2
	COR (95% CI)	AOR (95% CI)
Age group		
≤15 years (ref.)	1.000	1.000
≥25 years	6.630 (4.684 - 9.385)	34.417 (12.696- 93.304) *
Marital status		
Unmarried (ref.)	1.000	1.000
Married	20.456 (14.335 - 29.191)	64.605 (21.443 - 194.648)*
Religion		
Muslims (ref.)	1.000	1.000
Christians	4.392 (2.137 - 9.025)	0.321 (0.145 - 1.182)*
Place of Residence		
Urban (ref.)	1.000	1.000
Rural	0.501 (0.362 - 0.693)	0.462 (0.186 - 1.147)
Educational Levels		
Secondary/Tertiary (ref.)	1.000	1.000
Primary	0.795 (0.421 - 1.500)	0.453 (0.159 - 1.411)*
No education	1.758 (0.519 - 1.107)	1.509 (0.210 - 1.235)
Nature of Employment		
All through the year (ref.)	1.000	1.000
Seasonal/Occasional	1.983 (1.329 (2.960)	1.034 (0.448 - 2.386)
Wealth Status		
Rich (ref.)	1.000	1.000
Middle-class	0.756 (0.490 - 1.167)	2.986 (0.941 - 9.478)
Poor	2.697 (1.774 - 4.099)	3.409 (1.045 - 11.120)*
Have been away from home over a month		
Yes (ref.)	1.000	1.000
No	0.472 (0.312 - 0.715)	0.731 (0.329 - 1.625)
A healthy-looking person can have AIDS		
Yes (ref.)	1.000	1.000
No	1.978 (1.100 - 3.555)	1.217 (0.336 - 4.4067)
Wife justified asking husband to use condom if he has STD		
Yes (ref.)	1.000	1.000
No	2.150 (1.264 - 3.658)	1.015 (0.301 - 3.418)
Would buy vegetables from vendor with HIV/AIDS		
Yes (ref.)	1.000	1.000
No	2.054 (1.441 - 2.928)	2.030 (0.551 - 3.473)

*P<0.05; ref.=Reference group, COR=Crud Odd Ratio; AOR=Adjusted Odd Ratio; CI= Confid.

Nasarawa State		
Background Characteristics	Model 1	Model 2
	COR (95% CI)	AOR (95% CI)
Gender		
Male (ref.)	1.000	1.000
Female	2.825 (2.211 - 3.609)	1.622 (0.813 - 2.848)*
Age group		
≤15 years (ref.)		
≥25 years	0.458 (0.357 - 0.587)*	0.852 (0.475 - 1.527)
Marital status		
Unmarried (ref.)	1.000	1.000
Married	231.711 (144.168 - 372.412)	154.063 (78.232 - 303.401)*
Religion		
Muslims (ref.)	1.000	1.000
Christians	0.694 (0.537 - 0.896)	0.964 (0.550 - 1.689)
Educational Levels		
Secondary/Tertiary (ref.)	1.000	1.000
Primary	1.678 (1.268 - 2.222)	0.507 (0.261 - 0.982)*
No education	4.173 (2.752 - 6.329)	3.073 (1.022 - 9.242)*
Employment Status		
Employed (ref.)	1.000	1.000
Unemployed	1.610 (1.244 - 2.083)	1.494 (0.753 - 2.962)
Wealth Status		
Rich (ref.)	1.000	1.000
Middle class	1.414 (1.059 - 1.887)	0.789 (0.422 - 1.474)
Poor	1.030 (0.768 - 1.380)	1.468 (0.730 - 2.953)
Have been away from home over a month		
Yes (ref.)	1.000	1.000
No	0.541 (0.388 - 0.754)	1.296 (0.742 - 2.254)

5.2.6 Sex with a person with an STD

The literature established that a sexual relationship with someone with an STD increases the risk of HIV transmission (Lowe et al., 2019; Johnson and Lewis, 2008; Galvin and Cohen, 2004; Fleming and Wasserheit, 1999). Table 5.16 accounts for the distribution of respondents' HIV risk behaviour with people who reported the incidence of an STD in the 2003, 2008 and 2013 survey periods. The Table reveals that, in Nasarawa State, the majority of female respondents (>68.0%), a slowly increasing proportion of the older population aged ≥ 25 (65.7% to 72.0% and 73.9%), married people (>80.0%) who were living together (<90.0%), and rural dwellers ($\geq 75.0\%$) engaged in HIV risky sex with a person who has a STD. Others involved in risky behaviour included those who had a job ($\geq 70.0\%$), and a rising number of respondents from poor homes (17.1% to 33.8% and 49.8%). In relation to awareness and attitudes towards HIV/AIDS in Nasarawa State, an increasing share of respondents were involved in risky sexual behaviour with an incidence of STD who were also: unaware that a healthy-looking person could have HIV/AIDS (54.1% to 86.3% and 97.9%), were unwilling to buy vegetables from a vendor with HIV/AIDS (20.0% to 42.6% and 67.1%), and disagreed that a wife was justified to ask her husband to use a condom if he had a STD (>66.0%).

In Plateau State, a larger number of respondents who were into monogamy (> 54.0%), a slowly rising number of Christians (81.6% to 84.3% and 88.2%), and respondents with secondary/higher education (7.4% to 46.7% and 58.4%) were exposed to HIV risky sexual activity with a person with an STDS. Moreover, in Plateau State, many respondents who knew a healthy-looking person could have HIV/AID (>73.0%), those who agreed a wife could request her husband used a condom if he had an STD (>76.0%), and a rising proportion of those who were willing to buy vegetables from a vendor with HIV/AIDS (28.9%, 53.4% and 66.3%) engaged in risky sexual behaviour with a someone with an STD. Respondents characterised with contrary attitudes toward HIV/AIDS (highlighted above in Plateau State) engaged in more risky behaviour in Nasarawa State.

Table 5.16: Distribution of Risky Sex with Persons with an STD, by Study Location

Risky Sex with STDs						
Plateau State			Background Characteristics	Nasarawa State		
2003	2008	2013		2003	2008	2013
			Gender			
60 (20.1)	1015 (69.4)	393 (31.0)	Male	25 (23.8)	314 (30.7)	284 (31.1)
239 (79.9)	447 (30.6)	875 (69.0)	Female	80 (76.2)	709 (69.3)	629 (68.9)
			Age group			
120 (40.0)	721 (49.3)	477 (37.6)	15-24	36 (34.3)	286 (28.0)	238 (26.1)
180 (60.0)	741 (50.7)	791 (62.4)	25 +	69 (65.7)	737 (72.0)	675 (73.9)
			Married status			
119 (39.7)	530 (36.3)	417 (31.9)	Unmarried	18 (17.1)	183 (17.90)	181 (19.8)
181 (60.3)	932 (63.7)	851 (67.1)	Married	87 (82.9)	840 (82.1)	732 (80.2)
			Type of Marriage			
61 (81.3)	469 (54.3)	345 (66.2)	Monogamy	32 (74.4)	341 (47.0)	352 (56.4)
14 (18.7)	394 (45.7)	176 (33.8)	Polygamy	11 (25.6)	385 (53.0)	272 (43.6)
			Number of unions			
97 (82.9)	801 (90.7)	663 (85.3)	Once	55 (85.9)	677 (87.5)	623 (85.8)
20 (17.1)	82 (9.3)	114 (14.7)	More than once	9 (14.1)	97 (12.5)	103 (14.2)
			Marital/Spouse Living Arrangements			
119 (81.5)	804 (86.4)	718 (91.7)	Living together	62 (91.2)	767 (92.1)	662 (90.9)
27 (18.5)	127 (13.6)	65 (8.3)	Living elsewhere	6 (8.8)	66 (7.9)	66 (9.1)
			Religion			
55 (18.4)	227 (15.7)	142 (11.8)	Islam	6 (6.0)	441 (43.7)	341 (38.1)
244 (81.6)	1217 (84.3)	1065 (88.2)	Christianity	94 (94.0)	568 (56.3)	555 (61.9)
			Place of Residence			
66 (27.6)	1145 (78.3)	918 (72.4)	Urban	20 (25.0)	148 (14.5)	171 (18.7)
173 (72.4)	317 (21.7)	350 (27.6)	Rural	60 (75.0)	875 (85.5)	742 (81.3)
			Educational Levels			
18 (7.4)	683 (46.7)	740 (58.4)	Secondary/Higher	41 (43.6)	182 (17.8)	236 (26.7)
97 (39.9)	258 (17.6)	223 (17.6)	Primary	8 (8.5)	467 (45.7)	417 (47.1)
128 (52.7)	521 (35.6)	305 (24.1)	No education	45 (47.9)	374 (36.6)	232 (26.2)
			Employment Status			
85 (28.4)	681 (46.8)	443 (35.3)	Unemployed	24 (22.9)	223 (21.9)	274 (30.0)
214 (71.6)	773 (53.2)	812 (64.7)	Employed	81 (77.1)	797 (78.1)	639 (70.0)
			Nature of employment			
89 (50.0)	480 (56.6)	456 (54.8)	All through the year	48 (73.8)	307 (38.2)	485 (66.9)
89 (50.0)	364 (43.1)	376 (45.2)	Seasonal/Occasional	17 (26.2)	497 (61.8)	240 (33.1)
			Wealth Status			
113 (37.7)	259 (17.7)	365 (28.8)	Rich	28 (26.7)	260 (25.4)	271 (29.7)
55 (18.3)	878 (60.1)	611 (48.2)	Middle Class	59 (56.2)	417 (40.8)	187 (20.5)
132 (44.0)	325 (22.2)	292 (23.0)	Poor	18 (17.1)	346 (33.8)	455 (49.8)
			Have been away from Home over a Month			
55 (40.7)	150 (27.0)	201 (36.0)	Yes	20 (35.7)	156 (29.9)	177 (38.7)
80 (59.3)	405 (73.0)	357 (64.0)	No	36 (64.4)	366 (70.1)	280 (61.3)
			Know a place to get HIV Test			
85 (29.2)	1074 (85.0)	787 (74.6)	Yes	36 (37.5)	473 (59.6)	168 (21.1)
206 (70.8)	190 (15.0)	268 (25.4)	No	60 (62.5)	321 (40.4)	630 (78.9)
			A healthy-looking person can have HIV/AIDS			
177 (73.1)	911 (86.3)	806 (83.0)	Yes	34 (45.9)	123 (13.9)	17 (2.2)
65 (26.9)	145 (13.7)	165 (17.0)	No	40 (54.1)	772 (86.3)	748 (97.8)
			Wife justified asking Husband to use Condom if he has STD			
214 (82.3)	1152 (87.5)	834 (76.4)	Yes	11 (11.8)	343 (33.7)	104 (13.3)
46 (17.7)	165 (12.7)	258 (23.6)	No	82 (88.2)	674 (66.3)	679 (86.7)
			Would buy vegetables from vendor with HIV/AIDS			
84 (28.9)	670 (53.4)	680 (66.3)	Yes	76 (80.0)	465 (57.4)	259 (32.9)
207 (71.1)	584 (46.6)	346 (33.7)	No	19 (20.0)	345 (42.6)	528 (67.1)

In Table 5.17, respondents' characteristics in Plateau State - gender, age group, marital status, religion, and place of residence - showed a statistical significant association with HIV risky behaviour and a person having an STD. Other factors related with risky behaviour in Plateau State comprised: educational levels, employment status, wealth status, knowledge of a place to take an HIV test, and the willingness to buy vegetables from a vendor with HIV/AIDS. In Nasarawa State, only gender, marital status and educational levels had a significant association with the risk of HIV during sex with someone having an STD. Table 5.18 presents results that further determine the likelihood that respondents engaged in risky behaviour with the presence of a STD. The result indicates that only respondents who were ignorant of a place to take an HIV test were 3.2 times more likely to be at high-risk of acquiring or transmitting HIV through having sex with a person with an STD. However, females (AOR: 0.49, 0.24-0.95 CI) and married people (AOR: 0.42, 0.18-1.00 CI) were less likely to engage in sexual activity with a person with an STD compared to males and unmarried people.

Table 5.17: Factors Associated with High-risk Sex with Persons with an STDs by Study Location

Sexual intercourse and Sexually Transmitted Diseases						
Plateau State			Characteristics	Nasarawa State		
Low	High	P-value		P-value	Low	High
		0.041	Gender	16.536, p=0.000		
1451 (48.7)	17 (33.3)		Male		607 (31.6)	16 (13.4)
1527 (51.3)	34 (66.7)		Female		1315 (68.4)	103 (86.6)
		0.029	Age group	0.207, p=0.649		
1304 (43.8)	14 (27.5)		≤15 years		530 (27.6)	30 (25.2)
1675 (56.2)	37 (72.5)		≥25 years		1392 (72.4)	89 (74.8)
		0.028	Marital status	8.129, 0.004		
1056 (35.4)	10 (19.6)		Unmarried		233 (25.3)	150 (13.3)
1923 (64.6)	41 (80.4)		Married		688 (74.7)	979 (86.7)
		0.147	Types of Marriage	1.244, 0.265		
858 (59.7)	17 (77.3)		Monogamy		672 (51.6)	53 (58.2)
579 (40.3)	5 (22.7)		Polygamy		630 (48.4)	38 (41.8)
		0.107	Number of times Married	0.049, p=0.825		
1533 (88.0)	28 (77.8)		Once		1267 (86.7)	88 (85.4)
208 (12.0)	8 (22.2)		More than once		194 (13.3)	15 (14.6)
		Marital/Spouse Living Arrangements				
		0.891	Living together	0.256, p=0.613	1393 (91.4)	98 (93.3)
1610 (88.3)	31 (86.1)		Living elsewhere		131 (8.6)	7 (6.7)
		0.023	Religion	2.341, p=0.126		
423 (14.6)	1 (2.0)		Muslims		750 (39.7)	38 (32.2)
2478 (85.4)	48 (98.0)	Christians	1137 (60.3)	80 (67.8)		
		0.004	Place of Residence	0.719, p=0.397		
2102 (72.0)	27 (52.9)		Urban		323 (17.0)	16 (13.6)
816 (28.0)	24 (47.1)		Rural		1575 (83.0)	102 (86.4)
		0.012	Educational Levels	4.932, p=0.085		
1407 (48.2)	34 (66.7)		Secondary/Tertiary		424 (22.5)	35 (29.7)
575 (19.7)	3 (5.9)		Primary		850 (45.1)	42 (35.6)
940 (32.2)	14 (27.5)		No education		610 (32.4)	41 (34.7)
		0.002	Employment Status	0.000, p=0.986		
1200 (40.6)	9 (17.6)		Unemployed		490 (25.5)	31 (26.1)
1757 (59.4)	42 (82.4)		Employed		1429 (74.5)	88 (73.9)
		0.343	Nature of Employment	1.676, p=0.195		
1004 (55.4)	21 (50.0)		All through the year		785 (52.3)	55 (59.8)
808 (44.6)	21 (50.0)		Seasonal/Occasional		717 (47.7)	37 (40.2)
		0.001	Wealth Status	3.730, p=0.155		
713 (23.9)	24 (47.1)		Rich		532 (27.7)	27 (22.7)
1528 (51.3)	16 (31.4)		Middle class		615 (32.0)	48 (40.3)
738 (24.8)	11 (21.6)		Poor		775 (40.3)	44 (37.0)
		Have been away from home over a month				
		0.400	No	0.463, p=0.862	644 (65.8)	38 (67.9)
817 (67.2)	25 (75.8)		Yes		335 (34.2)	18 (32.1)
398 (32.8)	8 (24.2)					
		Know a place to get HIV test				
		0.003	Yes	0.000, p=1.000	633 (40.1)	44 (40.0)
1900 (74.2)	46 (93.9)		No		945 (59.9)	66 (60.0)
661 (25.8)	3 (6.1)					
		A healthy-looking person can have AIDS				
		0.574	Yes	0.006, p=0.937	164 (10.1)	10 (9.3)
1852 (83.4)	42 (87.5)		No		1463 (89.9)	97 (90.7)
369 (16.6)	6 (12.5)					
		Wife justified asking husband to use condom if he has STD				
		0.529	Yes	0.008, p=0.927	430 (24.1)	28 (25.0)
2165 (82.5)	35 (77.8)		No		1351 (75.9)	84 (75.0)
459 (17.5)	10 (22.2)					
		Would buy vegetables from vendor with HIV/AIDS				
		0.000	Yes	0.050, p=0.822	754 (47.2)	46 (48.9)
1386 (55.0)	48 (98.0)		No		844 (52.8)	48 (51.1)
1136 (45.0)	1 (2.0)					

Table 5.18: Predictors of HIV High-risk Sex with the Presence of STDs between Plateau State and Nasarawa State

Plateau state		
Background Characteristics	Model 1	Model 2
	COR (95% CI)	AOR (95% CI)
Gender		
Male (ref.)	1.000	1.000
Female	0.526 (0.293 - 0.946)	0.485 (0.244 - 0.961)**
Age group		
≤15 years (ref.)	1.000	1.000
≥25 years	0.486 (0.262 - 0.903)	0.838 (0.418 - 1.680)
Marital status		
Unmarried (ref.)		
Married	0.444 (0.222 - 0.890)	0.420 (0.177 - 1.001)*
Religion		
Muslims (ref.)	1.000	1.000
Christians	0.122 (0.017 - 0.887)	0.346 (0.046 - 2.620)
Place of Residence		
Urban (ref.)	1.000	1.000
Rural	0.437 (0.251 - 0.761)	0.572 (0.260 - 1.268)
Educational Levels		
Secondary/Tertiary (ref.)	1.000	1.000
Primary	0.350 (0.100 - 1.224)	0.196 (0.025 - 1.528)
No education	1.622 (0.866 - 3.040)	0.931 (0.453 - 1.911)
Employment Status		
Employed (ref.)	1.000	1.000
Unemployed	0.314 (0.152 - 0.647)	0.630 (0.290 - 1.370)
Wealth Status		
Rich (ref.)	1.000	1.000
Middle class	0.703 (0.324 - 1.521)	1.040 (0.430 - 2.516)
Poor	2.258 (1.098 - 4.644)	1.599 (0.640 - 3.990)
Know a place to get HIV test		
Yes (ref.)	1.000	1.000
No	5.334 (1.654 - 17.209)	3.238 (0.974 - 10.765) *
Would buy vegetables from vendor with HIV/AIDS		
Yes (ref.)	1.000	1.000
No	39.342 (5.422 - 285.465)	0.542 (0.258 - 1.141)

Nasarawa State		
Background Characteristics	Model 1	Model 2
	COR (95% CI)	AOR (95% CI)
Gender		
Male (ref.)	1.000	1.000
Female	1.337 (1.197 - 3.575)	1.694 (1.126 - 4.684)*
Marital status		
Unmarried (ref.)	1.000	1.000
Married	1.782 (1.097 - 3.738)	2.588 (1.150 - 5.953)*
Educational Levels		
Secondary/Tertiary (ref.)	1.000	1.000
Primary	0.735 (0.472 - 1.145)	0.903 (0.575 - 1.418)
No education	1.228 (0.769 - 1.961)	1.137 (0.710 - 1.820)

*P<0.05; ref.=Reference group; COR=Crud Odd Ratio; AOR=Adjusted Odd Ratio; CI=Confidence Interval

5.3. EXPLANATIONS ON THE STATISTICALLY SIGNIFICANT LIKELIHOOD OF HIV-RISK BEHAVIOURS

Following the multivariate logistic analyses (previously discussed), the study explored explanations of high-risk behaviours. The evidence offers responses to each of the high-risk behaviours discussed in section 5.2, as almost all related responses were given and collectively organised. The purpose of a qualitative study is to understand the realities that motivate the specific background characteristics of respondents and any increase or reduction to the risk of acquiring or transmitting HIV infection in Plateau State and Nasarawa State. Drawing from the Adjusted Odds Ratio results for the two study locations (summarised in Table 5.19), significant evidence concerning increased or reduced HIV high-risk were found to be related to gender, age-differences, marital status, religion, and levels of education. Other factors include: wealth status, the knowledge of a place to take a HIV test, or the perceived risk of HIV from a healthy-looking person, the right to ask for protected sex with an STD-infected spouse, and the willingness to buy vegetables from a vendor with HIV/AIDS. The details are discussed in the following sub-sections.

5.3.1 Gender inequality and high-risk behaviour

As highlighted section 2.8.1, the low status of women within society has limited their ability and right to a range of opportunities and resources in the community (UNDP, 2013), including those related to sexual behaviour, health and HIV prevention. This gender imbalance affects the women's and girls' access to sustainable health (Makama, 2013; Gilbert and Wicker, 2002), and particularly those vulnerable to sexual and reproductive health risks, including HIV infection (Balakrishnan, 2015; Gupta, 2000).

Table 5.19 shows that, in Nasarawa State, a female was 60.0% more likely to engage high-risk behaviour that could result in the acquisition or transmission of HIV through non-marital sexual activity in Plateau State, and were more likely to become involved with a high-risk casual partner in Nasarawa State. Moreover, compared with the males, females had a 70.0% risk of HIV infection through having sex with a person who has an STD. The themes that emerged regarding why women were more likely exposed to HIV high-risk behaviours include: male dominance, trust and love in an intimate relationship, masculinity and sex sensation seeking, women's overdependence on men, and migration to seek a livelihood. These factors are discussed as follows.

5.3.1.1 Male dominance in heterosexual decisions

Regardless of the status of a relationship (married or civil partnership), men were said to often assume, by default, to take the leading role or the dominant position in the relationship. Consequently, this feeds into how a relationship runs, thus arriving at a decision often less considered the opinion of the female partner. Such unequal treatment usually results in the women being unable to take control of her reproductive health decisions including demanding a condom or HIV test, which can have a significant impact on their lives. On the social influence of a man's dominance in the relationship in Nasarawa State, a woman said:

“This is a man's world. He cannot accept no to a sex demand and so, a woman's view is less important even when it relates to her right to sexual and reproductive health. If she asks for a condom, he judges her for suspecting him on promiscuity... and so women trust the authority of their husband and would not question what he does with other women outside the union”
(Urban, married female 52 years old_NS979)

5.3.1.2 Trust and love in an Intimate relationship

Participants were asked to give brief accounts of how safe the intimate relationship between them and their partners was. Many claimed that sex without a condom in a nonmarital sexual partnership is symbolic of trust in the relationship. The male partner regarded the demand for a condom or HIV testing by the female partner is a breach of trust. The action is claimed to voice scepticism or even admit guilt and promiscuity on the woman's part. One of the unmarried female participants in Plateau State expressed her concern as follows:

“For the five years we have been together, he loves me and is the only man in my life and he told me he has no other girl. To ask him to use a condom, he will suspect me having sex with other men”
(Urban, unmarried woman, 26 years old_NS723).

“A girl who ask[s] me for a condom at the time of sex clearly shows she thinks I have a disease to give her. If she cannot trust me, then she has other men out there.”

(Rural, unmarried male, 28 years old_NS713)

Table 5.19: Summary of Significant Adjusted Odds Ratios of HIV High-risk Behaviour in the Study

Plateau State AOR (95% CI)	Background Characteristics	Nasarawa State AOR (95% CI)
Risky Age at First Sexual Intercourse		
	Female	0.240 (0.116 - 0.493)*
	Number of times Married	0.444 (0.271 - 0.729) *
Risky Nonmarital sexual Behaviour		
1.680 (1.018 - 2.772)*	Female	0.382 (0.206 - 0.712)*
	Middle class	0.355 (0.170 - 0.739)*
	Members of Poor households	2.539 (1.204 - 5.358)*
	Have been away from Home for over a Month	0.525 (0.283 - 0.973)*
2.380 (1.346 - 4.206)*	Did not know a place to have HIV test	
2.380 (1.346 - 4.206)*	Do not know a place for HIV test	
Risky Sexual Behaviour in Marriage		
	Female	5.756 (2.059 - 16.090)*
0.245 (0.079 - 0.816)*	Polygamy	0.175 (0.039 - 0.789)*
0.454 (0.047 - 4.395)*	Primary education	
	Members of Poor households	1.474 (1.482 - 4.508)*
Risky Sexual Activity during the Last Four Weeks (Frequent Sex)		
1.387 (1.130 - 1.703) *	Age ≥ 25 years	No significant
	Being Married	2.588 (1.492 - 4.488)*
	Married spouse living elsewhere	2.588 (1.492 - 4.488)*
0.705 (0.560 - 0.888)*	Ignorant of a place to get HIV test	
0.732 (0.555 - 0.964)*	Ignorant that a healthy-looking person can have HIV/AIDS	
0.748 (0.577 - 0.970)*	Disagreed that a wife is justified asking husband to use a condom if he has STD	
Unsafe Types of Sexual Partner		
	Females	1.622 (0.813 - 2.848)*
34.417 (12.696-93.304)*	Age ≥ 25 years	Not significant
64.605 (21.443-194.648)*	Being Married	154.063 (78.232-303.401)*
0.321 (0.145- 1.182) *	Christians	
0.453 (0.159 - 1.411)*	Primary education	0.507 (0.261 - 0.982)*
	No education	3.073 (1.022 - 9.242)*
3.409 (1.045 - 11.120)*	Members of Poor households	
4.030 (1,551 - 10.473)*	Unwilling to buy vegetables from vendor with HIV/AIDS	
Sex with a person having an STD		
0.485 (0.244 - 0.961)*	Females	1.694 (1.126 - 4.684)*
0.420 (0.177 - 1.001)*	Married respondents	2.588 (1.150 - 5.953)*
3.238 (0.974 - 10.765)*	Ignorant of a place to get HIV test	Not significant

*p<0.05; AOR = Adjusted Odd Ratio; CI = Confidence Interval

5.3.1.3 Masculinity and sex sensation seeking

The need for sexual sensation is a common trait among most men (Wade et al., 2013). This quest for a thrilling experience often blinds them to the risk of sexual and reproductive health consequences, thereby increasing risky sexual behaviour as using a condom or seeking to know the HIV status of a partner becomes less of a concern. Indeed, one participant in Plateau State was of the view that using a condom renders the experience unnatural:

“Eating chocolate in a wrapper does not give its sweet taste. Remove the cover; you enjoy the fat-bloom chocolate”

(Urban, unmarried male, 31 years old_NS700).

5.3.1.4 Lack of female autonomy and out-migration

In most societies, the control and decision-making power around resources, and family inheritance favours the man, as the woman is treated as a subordinate. The gender imbalance of wealth distribution between men and women have been a key account and explain why women in Nasarawa State depend on their men for financial support for every need:

“Men are powerful in society. Families acquire properties in their names, prefer them to go to school and allowed them to manage the resource. So, women rely on me for survival and with no choice even if they are a risk to our health” (Urban, married female, 37 years old_NS703)

In an economic crisis situation, women and young girls gain permission to travel to the city within or outside the state in search of the means of livelihood for the family. While away, they become vulnerable to social changes in the new environment that influence high-risk sexual activity. A community leader who lived most of his life in the village explained that:

“The women travel out to the city to raise funds in the event of a difficult economic situation in the family. Mostly, women go to establish roadside restaurants or engage in the business of transporting farm produce to other cities to sell. They travel and live away for months and return home with money for the family. While away, they combine the business/work with giving sex to gain favours or extra income. In the past, wives who have embarked on such trips took oaths never to have sex with any man while away. If the pledge is broken, the woman is stuck together to the partner during sex, unless she makes a confession, and a fowl is offered to appease the gods; terrible things happen - even death. Today, the tradition has faded; married women travel and do all kinds of things and return with nothing happening. More and more married and single women now travel out and come back with much money”

(Rural, married female, 37 years old_NS703)

The experiences above clearly indicate that women are vulnerable to sexual risk and that it is imperative to emphasise the fact that the ideal role of a woman in a relationship is a far cry from its traditional definition. A woman should rather be an agent with the capacity to freely and independently make informed decisions on her personal health and wellbeing (Bay-Cheng, 2019). However, her position in a heterosexual male-dominated relationship sets significant limits to her freedom (Choby and Clark, 2014), which impinges on her right to sexual health (Evans et al., 2010). The dominant ideas around masculinity and men’s sexual behaviours may make some men think that they have a right to sex, eagerly seeking and practising it with multiple women (Fleming et al., 2016). Hence, as is clear from the results of this study, gender

inequality is a major risk factor of HIV infection, exacerbated by the traditions that place the man as superior, and as someone with the freedom to engage with multiple sexual partners (Rosenthal et al., 2012). A recent study in Northern Nigeria reported married men living with HIV often engage in a sexual relationship with their discordant spouse without the use of a condom, which exposes women to the risk of HIV transmission (Iliyasu et al., 2020).

5.3.2 Being married, spouse living apart HIV high-risk behaviour

The marital status of a person is a significant factor of HIV transmission (Mkandawire-Valhmu *et al.*, 2013) in a conjugal relationship (Nalugoda et al., 2014; Coma, 2013). This section examines the effects of respondents' marital positions concerning the high-risk of contracting HIV. The literature review in section 2.8.3 established that being married no longer offers any protection from the risk of HIV transmission. The result from the multivariate analyses presented in Table 5.19 shows that, in Nasarawa State, married people were 154 times more likely to be involved in high-risk behaviour associated with the acquisition or transmission of HIV from a casual sexual partner compared with males; in comparison, this high-risk behaviour was 64.6 times more likely in Plateau State. Similarly, married spouses not living together were 2.6 times more likely to engage in frequent HIV high-risk sex than spouses living together. The reasons for the HIV high-risk behaviour among married people revealed themes that include: cultural practices, wife's postpartum abstinence, and the continued presences of security personnel in communities.

5.3.2.1 Cultural practices

A tradition where a person gives his wife to another man, whether a close friend or relative, for a sexual relationship poses a great danger to sustainable sexual health (Osagbemi et al., 2001, 2002). This practice is mentioned as common in some communities in Nasarawa State. Although the culture was said to be eroding, it has, however, exposed married people who have become vulnerable to concurrent multiple sex partnerships which were characterised as having less care for condom use. Moreover, there was less concern about sexual history and whether either partner is aware of his/her HIV status. A participant in Nasarawa State said:

“I tell you, in this place, we have people from different tribes. Some of these people still give their wives to their important guests or relations for sex”
(Rural, married female, 37 years old_NS703)

The out-migration tendency for economic survival raised in the section 5.3.1.4 involved both married men and women who travel to other locations to seek opportunities. Separation from a spouse, and living or working in another place can create intimate-emotional withdrawal, making both partners susceptible to the high-risk sexual behaviour associated with HIV. A key informant shared his years of experience handling family conflicts emanating from married people living and working in different locations:

“People who came to work in the Abuja live in many adjacent Nasarawa State communities. Most married people do not live together with their spouses. The husbands or wives and children have a family base in a different location. While here, the married man or woman brings in another person to live. I have been involved in reconciling attempted divorce emanating from such extramarital cohabitations. Only a few husbands or wives who live away from their spouse resist the temptation of seeking sexual satisfaction from another man or woman here”

(Urban married male, 37 years old_NS703)

5.3.2.2 Wife’s postpartum abstinence.

Section 5.3.1.1 expounded the fact that men are traditionally impatient in terms of their drive for sex. At times when a wife gives birth, she stays away from having sex with her husband for some weeks after the child’s delivery. The period in which the man allows his wife to recover after the delivery becomes an occasion to seek sexual satisfaction with partners other than his spouse:

“The time it takes women stops having sex after she delivers a baby are always a serious tempting moments forms most men with high libido. She is maint to stay away from sex for her body to recuperate from the labour experiences for her health and safety of the baby. I tell you, men do not hold their sex desires, but go to satisfy it with other women out there”

(Rural, married male, 66 years old_NS903)

“Each time my wife has a new baby, the period she has stop close her laps from push me looking outside beause I find difficult to stay without sex that long. So, go to the girlfriends I have with whom the window period my wife is sex-leave is not completely dry for me”

(Urban, married female, 47 years old_NS714)

5.3.2.3 Continuous presence of security personnel in communities

In Plateau State, for almost two decades since 2001 there have been a series of conflicts and violence. The security threats posed by the conflicts have necessitated the deployment of soldiers, police and air force personnel to maintain peace and order in the different communities

directly or indirectly affected. In peace-keeping missions, the law enforcement officers (e.g. the police and the army) dispatched to protect lives can end up raping or coercing women and young girls into sexual relationships (Jolie et al., 2014; Iqbal, 2010; Becker and Theodosios, 2008). These security personnel have left their wives and girlfriends to live in a distant setting. While away, troops and peacekeepers engage in high-risk sexual behaviour (Mulindwa et al., 2016). Though the odd ratio of chance for sexual activity with a high-risk partner is lower in Plateau State (64.4 times vs 154 times) compared with Nasarawa State, two participants, a woman and a man, narrated their experience concerning the motivation for sexual behaviour:

“The security personnel sent to here go after married women and young girls for sex. They give them money and promise them protection. We have a case of one of the security men raped a woman”

(Urban, married female, 55 years old_PL277).

“Almost all communities in the State have a military base or presence because of the recurrent crises. The security men who left their wives in barracks lure local married women and force some for sex. The officers have been caught and there are reports from many communities about the sexual safety of our wives. In fact, we want the misbehaving officers transferred out”

(Rural, married male, 41 years old_PL205).

Recent studies with similar findings reported that uniformed men on peacekeeping operations engage in risky sex (Iqbal and Zorn, 2010; Watts et al., 2010). Indeed, the literature shows that military men in sub-Saharan African countries live with HIV (Lloyed et al., 2014; Azuonwu et al., 2012; Ba et al., 2008). As increasing reports reveal that, in the peacekeeping process, officers engage in transactional sex, and in most cases coerce women, especially those who are married, leaving them at risk of HIV (Gilliard, 2012; Lopes, 2011; Patel and Tripodi, 2007; Dunkley et al., 2006).

5.3.3 Being older (age ≥ 25 years) and HIV high-risk behaviour

Table 5.19 presents a summary of the results on the odds ratio age-difference associated with HIV high-risk sexual behaviour. The results reveal that being older (aged ≥ 25 years old) only represented a significant chance of HIV high-risk behaviour in Plateau State. People who were older were 1.4 times more likely to engage in frequent HIV high-risk sex compared with younger people (15-24 year olds). Similarly, being older meant that an individual was 34.4 times more likely to encounter HIV with a high-risk sexual partner than a younger person (aged 15-24 years old). An in-depth discussion with participants in their older age group reveals that the adventure for new sexual experiences and unfulfilled sexual relationships with their partner explains why they engaged in HIV high-risk sexual behaviour.

5.3.3.1 Exploring new sexual experiences

Older adults remain sexually active as they grow in age. The desire differs, depending on a person's health status (Lindau *et al.*, 2007). Men and women maintain a strong sexual desire at an older age (Zhou *et al.*, 2014; Trompeter, *et al.*, 2012; Kelly *et al.*, 2003). As such, they engage in sex with younger people or multiple partners as an adventure involving the seeking of new experiences and independence. Moreover, they often do not use condoms in their sexual encounters (Foster *et al.*, 2012). A participant narrated a romantic relationship he had with an older woman, which indicates that some older women seek new sexual intimacy and independence than the subjected societal norms generally permits:

"I have a sugar mama³⁵ who was in her late fifties, who comes for holiday and business trips regularly. On each arrival, she invites me over to her hotel room, where we live and made love until she completes her activities and would be returning... she has been very nice to me"

(Urban, unmarried male, 31 years old_PL488).

Another participant shared his experience on why he goes for a woman much younger than his wife, as sex with her was no longer exciting:

"Sex with my wife is just like taking the same meal again and again all the time, which becomes boring. I go to blend it with a new and fresh one"

(Urban, married male, 38 years old_PL400).

5.3.3.2 Material and financial support

Older people who are experienced and have resources represent an attraction to many younger people. As such, transactional sex between an older and younger person has become more prevalent. In a quest for modernity, most young women used their sexuality as a resource for economic gain:

"Men are easily attracted to a beautiful young lady, who usually come and promise to support in any way. Many of the girls my age now have cars and houses built for them, apart from regularly financial support they receive. I see this as a good opportunity for having sugar daddies"

(Urban, unmarried female, age 31 years old_PL444)

A key informant explains why high-risk sexual behaviour is more common among older people:

³⁵ an older rich woman who likes a younger man for sexual intimacy

“Many men in their later age in life have saved much money and are now wealthy because they control resources as politicians, managers or owners of businesses who travel a lot. They often do not travel with their wives and as they meet with colleagues and socialise, they go for girls who are much younger. Most of the girls are from the higher institutions around here and are campus big girls recruited to go and meet the men in hotels for sexual services in return for financial benefits”

(Urban, married male, 58 years old_PL213).

The position of older people exploring new encounters and independence in a sexual relationship is consistent with the findings in studies by Ortese (2009) and Smith (2007) who found that sex outside a primary relationship is driven by fun. These forms of sexual relationship often result in the lack of condom use (Beauchair et al., 2012) and studies have found that this pattern of behaviour is responsible for HIV spread in many sub-Saharan African countries (Halperin, and Epstein, 2004). Moreover, because older people have accrued wealth over time, young people can be drawn into sexual relationships for their material benefit, without attention to the risk of HIV infection (Morrison-Beedy and Passmore, 2013). The findings further revealed men’s displeasure over unmet sexual desires due to the ageing of their spouse. A similar experience in recent studies among Yoruba men and women by Agunbiade and Gilbert, (2019) and Chinese men by Zhou *et al.*, (2014) reported the preponderance of unprotected sex with multiple partners.

5.3.4 Polygamy and the number of times a person marries

The literature in section 2.8.3 has highlighted polygamy as a pathway that increased heterosexual HIV transmission in Sub-Saharan Africa because of multiple concurrent sexual partnerships. Moreover, the number of times a person is married is associated with HIV risk (Nabukenya et al., 2020). However, this study has found that polygamy reduced the chances of HIV high-risk behaviour in marriage by 75.0% in Plateau State and by 82.0% in Nasarawa State. Those who were married more than once in Nasarawa State have reduced chances of exposure to HIV high-risk at their first sexual before age 15 years old. Some participants who were polygamists in both Plateau State and Nasarawa State shared their options on why being married to more than one wife was a protection against the risk of acquiring HIV:

“I currently have three wives; each of them has been given money to do business and earn her income to support the family. I also ensure I provide household needs sufficiently. These have shielded my wives and me from temptations that come out there”

(Urban married male, 46 years old_PL300)

“I have right by my religion and traditions to marry as many wives up to four. Each of the wives I have currently respects and believes the teachings that strictly instructs married woman to patiently wait for her turn, for sexual satisfaction in marriage. Only loose married woman can protest the injunctions in Holy Book. The same goes for the men who ensure they seek and provide sexual satisfaction only from/to their lawful wife/wives. These are why in my home there is sexual sanctity. I do not think diseases gotten from sex are found in this form of devoted polygamy setting”

(Urban married male, 66 years old_NS903).

This view is responsible for why polygamy is known to increase the risk of HIV infection, but on the contrary participants indicate they are responsible for a reduced risk of HIV in a marital relationship. This finding concurred with a similar study in some African societies where women and men experience different social experiences that, in turn, reduce vulnerability to the sexual risk of HIV (Saddiq et al., 2010; Maganja et al. 2007; Gray 2004).

5.3.5 Religion and HIV high-risk behaviour

Religion is significant to many Nigerians, especially in Plateau and Nasarawa States, with their predominantly Christian and Muslim populations (Gofwen, 2011). Religious beliefs and practices shape sexual and health behaviour (Burdette et al., 2015); for example, they can delay the initiation of early sex (Anarfi and Adobea, 2011), discourage sexual infidelity (Adamczyk and Hayes, 2012) and reduce the risk of STIs and unwanted pregnancy (Zhang et al., 2017). Generally, religion has been found to have a positive effect on sexual health (Chatters, 2000). This study has further explored perspectives on religious social capital (in Chapter Six, section 6.3.2) and how it modifies HIV risk behaviour and contributes to the decline of the prevalence of HIV.

The research shows that religion had a significant positive effect on reducing sexual activity with HIV high-risk partner in Plateau State. In detail, the results indicate that being a Christian (OR=0.32) reduced exposure to a type of partner with a tendency towards HIV high-risk by more than three-quarters (68.0%) and more than those who were Muslim:

“I had a Church wedding and I took a vow to leave all other men and be faithful to my husband till death separated us. I have kept the promise and that is what has prevented me from accepting sexual advances”

(Rural married female, 36 years old_PL455).

The result corresponds with some studies in sub-Saharan Africa that reported a person's Christian religious conviction constrains risky sexual behaviour (Zhang et al., 2017; Aguiwa, 2010; Odimegwu, 2005). Other studies, however, found that risky sexual behaviour was more

likely among Christians than Muslims in Nigeria (Rumun, 2014; Agha 2009), across other African countries (Gyimah et al., 2010; Muula, 2010; Rigillo, 2009) and worldwide (Adamczyk and Hayes, 2012). The dissimilarity of outcomes may be due to differences in religious groups in a study setting (Koenig and Shohaib 2014; Smith, 2009). Suffice to say, membership of religion is slightly different from devotion to religious activities in terms of influence on behaviour (Shaw and El-Bassel, 2014). Religion relates to an affiliation with a belief; it does not explain whether membership comes with a commitment to religious activities. Religiosity is a vital characteristic of a religion expressed in a deep and regular commitment to spiritual beliefs (Gallagher and Tierney, 2013). Participation in religious activities reduced high-risk sexual behaviour, which is discussed further in Chapter Six.

5.3.6 Education and HIV high-risk behaviour

Education plays a crucial role in the prevention of the risk of HIV transmission and mitigates its impact (Leon et al., 2017; Aggleton et al., 2011). Thus, when a person has adequate knowledge, he/she has access to information that shapes his/her behaviour towards risk reduction in the prevention of HIV infection (Vandemoortele, and Delamonica, 2000). People with no education or those with a low level of education may be limited in terms of skills and opportunities to maintain a healthy lifestyle (Song *et al.*, 2011).

The study results indicate that a person who attained an education is less likely to engage in high-risk sexual behaviour in the study settings. For example, in Plateau State, when a person completed only primary school, he/she had a half odds ratio (0.45 time or 50.0%) chance not engaging in sex with a high-risk partner and in a marital relationship compared with those who completed secondary school education. Similarly, in Nasarawa State, primary education significantly reduced by 50.1% the likelihood of exposure to types of sexual partner that are HIV high-risk, whereas, lack of education increased HIV high-risk in marriage by 3.1 times.

In Nasarawa State, primary school education has not benefited much from the Family Life and HIV Education curriculum implementation, as out-of-school children are excluded from information about age-appropriate sexual and reproductive health education. The key informants described thus:

“Family Life and HIV Education are designed to reach children in junior and senior secondary schools. Only a few NGOs have specific material for children who do not go to school. This information gap has made younger people who do not go to school lack adequate HIV/AIDS awareness”

(Programme Officer, 4years old _NS973)

“Parents and religious groups did not accept sexual and reproductive health education in schools because they think it will expose their children to sex and become promiscuous”

(Development Consultant for 11 years _NS903)

Results in the two states are similar to those found in a systematic review of past studies that found a high risk of new HIV infection was higher among people with no education than among those with levels of education (Leon *et al.*, 2017; Hargreaves and Glynn, 2002). In Nigeria, education has played a significant role in sustainable health and national development (Boyi, 2014; Obianuju, *et al.*, 2013). No country can outgrow the educational investment in its citizens. Countries with low education, such as Botswana and Namibia among others, were the hardest hit by the HIV/AIDS pandemic in sub-Saharan Africa, where the lack of necessary skills to maintain health and good hygiene alongside prevailing cultural practices facilitated the quick spread of the infection (Leon *et al.*, 2017; Ogunbodede, 2004; Hargreaves and Glynn, 2002).

Literature has established that communities with low educational attainment are likely to be limited in the skills and resources required for the prevention of health risks, including HIV (de Castro *et al.*, 2018; Cutler and Lleras-Muney, 2006; Arendt, 2005; Adams, 2002; Ross and Wu, 1995). The situation suggests that the exclusion of out-of-school and lower primary school pupils in the Family Life and HIV/AIDS Educational (FLHE) at a formative age might encourage early sexual debut. For instance, a recent study reported that out-of-school young people engaged in higher-risk sexual acts, such as unprotected sex with multiple sex partners (ENR, 2015).

The implementation of the educational response to HIV/AIDS in secondary and tertiary schools in Nigeria since 2003 has increased health awareness that encouraged safe sex by conveying messages about sexuality, gender and HIV/AIDS (Igbokwe *et al.*, 2019; Udegbe *et al.*, 2015; NERDC, 2003). The literature has established that the attainment of higher education influences access to better jobs, information and opportunities to access relevant resources that promote health, including the prevention of HIV transmission (Painter *et al.*, 2012; Bingenheimer, 2010). As a ‘social vaccine’ for HIV prevention, educational attainment empowers a person to adopt appropriate and adequate skills, as well as translate the knowledge

acquired into the modification of behaviour that is useful for navigating risky values and customs to enable sustainable health (Vandemoortele and Delamonica, 2000).

5.3.7 Wealth status and High HIV Risk

In line with the literature in section 2.8.7, the wealth status of family members influences exposure to safe or unsafe sexual behaviour related with HIV transmission (Faust et al., 2017; Fox, 2012; Dinkleman and Leibbrandt, 2008). The results in Table 5.19 show that, in Plateau State, respondents from poor households were 3.4 times more likely to engage in sex with a HIV high-risk partner than those from members of rich households. Thus, being from the middle-class reduced the high-risk of HIV by 64.0%. In Nasarawa State, members of poor families were 2.5 times more likely to encounter HIV high-risk through nonmarital sex, and 50.0% more likely to engage in HIV high-risk sex while in a union.

5.3.7.1 Lack of Jobs

The fragile economies that characterise most African countries have contributed to unemployment. The economic situation has brought extreme poverty in the population (Coulibay, 2020, 2019). In the struggle to survive, many active populations, particularly women and young girls, give sexual services in exchange for financial gain (Fox, 2010; Masanjala, 2007; Whiteside, 2002). As earlier highlighted, the social condition has increased the risk of HIV transmission, as a condom is less likely to be used, and neither is the sexual history of a partner requested:

“I do not have a better work I can do to earn a steady income and have no one who can support me that is the way I have to do this kind of job”
(Rural, unmarried female, 46 years old_PL300).

A gatekeeper was of the opinion that poverty exists in many communities. Most rural families no longer have the resources to support their children, which force many youths to migrate for survival elsewhere as women resort to prostitution to financially support families:

“I have gone around the many rural communities to assess their livelihoods. Many people in the areas cannot afford a meal in a day and have many children they cannot send to school. As parents do not have resources and their wards lack good education empowerment grows with limited access to basic awareness where the poverty circle in many families continues and health problems persist”
(NGO Director and Consultant for over 19 years_PL213)

A key informant in Nasarawa State expressed a similar opinion and highlighted that low education, particularly among women, makes them dependent on men:

“This State is educationally disadvantaged and that made people, most especially women deprived of jobs for not having the qualifications to compete as women in other States do. The subsistence income activity they do does not solve many of their needs that is why you see their children hawking on the street who also do not go to school”

(Male, Development Consultant_NS903)

5.3.7.2 Resources deprivation

In Nasarawa State, similar views were expressed (in section 4.2.2) by an unmarried female (NS724) and a married male (NS907); inadequate resources in a family often placed people in difficult social and economic situation that increases vulnerability to HIV transmission (Mufune, 2015; Masanjala, 2007; Callan et al., 1993). To this end, the health priorities of poor people, including HIV, generally decrease when weighted against their basic needs or immediate care. Inadequate means compelled people to take health risks, including HIV, to enable financial survival:

“My parents are already finding it hard to care for my siblings. I cannot wait on them to provide me support; for I know they do not have the means. As an adult, I know what is good for me and how to get it. Men are out there to support as I have been cooperating with what they ask from me.”

(Urban, unmarried male, 31 years old_NS700)

A married woman recounted the experience of her friend with financial constraints that exposed her to adultery with someone willing to offer her a job:

“My friend who needed a job that pays better than the one she had to have more to support her children schooling and other family needs, unfortunately, lured by the man who promised her the job and later offered to support her. One thing led to the other, only to recently find out that she has HIV”

(Rural, married woman, 37 years old_NS703)

This evidence clearly described that, when people do not have the resources to meet their basic needs, they risk their health to get they need. The findings in this study corroborated those of Harling et al., (2014), Silas, (2013), and Wojcicki, (2005) who reported that the poor are exposed to conditions that encourage the high risk of HIV transmission compared with members of rich households. Members of middle-class households were less likely (at 64.8%) to engage in nonmarital high-risk sex in Nasarawa state.

5.3.8 Awareness, attitudes and perceived risk HIV/AIDS

In the absence of a cure for HIV and AIDS, improving knowledge about infection is vital for behaviour modification (Coates et al., 2008). Health behaviour models indicate that decisive action to reduce danger is often taken once there is a perceived risk of harm. In ensuring sustainable sexual health, perceived risk is the first step in decision-making towards a behaviour change in sexual activity with a high risk of HIV transmission. It is, however, unclear whether the awareness of the risk of HIV influences risky sexual behaviour in both Plateau State and Nasarawa State.

Respondents' attitudes towards HIV/AIDS, which described their knowledge and perception of HIV risk, are presented in Table 5.19. The results for Plateau State reveal that respondents who were ignorant that a healthy-looking person could have HIV/AIDS, those who disagreed that a wife should ask her husband for a condom if he has an STD, and people who indicated an unwillingness to buy vegetables from a vendor with HIV/AIDS were not linked with HIV high-risk frequent sex. In Plateau State, people who were ignorant of a place to get an HIV test were at a higher risk (by 3.2 times) of acquiring HIV from a person with an STD. Results from the participant interviews established evidence that inadequate awareness increases stigma and discrimination, the denial of HIV, and doubts about HIV prevention services.

5.3.8.1 Lack of comprehensive HIV awareness

The attitude and behaviour that unfairly attributes blame and judges people with certain health conditions displays a lack of social power to promote sustainable health (Parker and Aggleton, 2003). Such a discriminatory attitude is also an indicator of low HIV risk perceptions, which are rooted in limited knowledge of HIV and AIDS. A participant in Plateau State with such an attitude towards HIV infected people, reported to have never tested for HIV and inconsistently used a condom:

"No, I do not have anything to do with a person who has HIV, not even going close. Most of the HIV people you see are reaping the seeds of sexual immorality they had. If a person lives in my family, I am going to leave the house. I don't want to be infected with the virus"

(Urban, married female, 39 years old_NS701).

Sewell and Blankenship (2018), Fagbamige et al. (2017) and Lammers et al (2013) found that those who engaged in high-risk sexual behaviour perceived themselves to be at low risk of HIV. Moreover, studies revealed that people who held stigmatising attitudes were more likely to engage in high-risk sexual behaviour (Genberg et al., 2009; Hu et al., 2006; Chen et al.,

2005; Letamo, 2003) and discrimination is the reason why most people hide their status and avoid health services, which allows HIV to thrive (Arrey *et al.*, 2017; Marsicano *et al.*, 2014).

5.3.8.2 HIV/AIDS denialism

Some people held the view that HIV does not exist at all. The AIDS denialists claim there is no proof that HIV causes AIDS and they believe that HIV and AIDS do not exist. This attitude explains why HIV high-risk respondents in Nasarawa State did not bother to identify a place for an HIV test: the

"There is nothing like HIV. The HIV thing is just an idea to discourage youths like me from having sex. If you have a high fever and go for a test, an HIV positive result will show. Go to another health centre for the same test; the result will be a high fever. I do need such a place for a test of a virus that does not exist"

(Urban, unmarried male, 36 years old_N708)

5.3.8.3 Suspicions of HIV prevention services

Similar to the above view, some participants in the research expressed concern about the sincerity of the HIV testing services in designated health centres, indicating that test results are unfavourable, even if one has no infection. This attitude prompted some people to suspect medical examinations, and discouraged them from attending services:

"I often do not use protection during sex, and I do not want to know my HIV status. My reason is 'a bin da ba kasani ba, bazai kashe kaba' (What you do not know, will not kill you). The problem with the test is once you go there and do it, the result will show positive ... so, what you know kills faster than what you do not know"

(Urban, unmarried male, 31 years old_NS700).

Past studies showed that those who held this belief and attitude, such as doubting the existence and scientific validity of HIV and AIDS, were significantly less likely to be receiving antiretroviral therapy (Kalichman *et al.*, 2010; Bohnert and Latkin 2009), and were discouraged from accessing HIV testing (Ford *et al.*, 2013). Such beliefs ignore the importance of condom use (Bagart *et al.*, 2011; Bogart and Bird, 2003). This situation has become more critical with the naming of non-scientific causes of HIV and AIDS to deceive people. This may have deterred people from seeking support at accredited hospitals and healthcare centres, and instead prompted their patronage of traditional healers and religious quacks who promise healing miracles. This represents a significant barrier to the global scientific efforts to halt HIV and AIDS by 2030. This is similar to the myths about HIV in South Africa, discussed in section

2.2.2, page 34, in which HIV treatment using ART drugs were replaced with unscientific prescriptions of nutritional diets (Natrass 2012).

5.4 CONCLUSION

The chapter has adopted many appropriate statistical techniques to present the distribution, associated statistical significance, and predictors of HIV risky behaviour in the two study locations. The study shows that, in both settings, females, married people, age, the number of times a person is married, and spouses' living arrangements predicted increases and decreases in high-risk behaviour. Other factors include the levels of education, living standards (wealth status), and awareness and attitudes towards HIV/AIDS. Major agents of HIV high-risk behaviour in Plateau State were: married people, older adults, people from poor households, and those with low knowledge of HIV and prevention skills. Evidence from in-depth discussions reveal that the presence of male security forces on peacekeeping operations, the quest for sexual independence, and exploration of new sex experiences among older adults, and the quest for material and financial gains among young people heightened age-difference sexual networking. Moreover, the lack of employment and recourse to meet necessities of life encouraged respondents to engage in high-risk behaviour.

In Nasarawa State, HIV high-risk was associated with being married, spouses living in separate locations, being female, lacking education, ignorance of a place to take an HIV test, and not accepting that a wife could ask for the use of a condom for protection during sex with her husband if he has an STD. The study established evidence that gender inequality, trusting a partner in a love relationship, male sensation seeking during sex, the complete dependence of women on men, and the sharing of one's spouse with friends or relatives accounted for the concentration of high-risk behaviour.

More interestingly, in Plateau State, being a polygamist, the completion of primary education, being female, knowledge and attitudes on HIV testing centres, perceived risk, and religious affliction reduced the high-risk of acquiring or transmitting HIV. Similarly, in Nasarawa State, females, married people, the number of times a person is married, the membership of middle-class households, being away from home for over a month, polygamy, and primary education were associated with a decreased chance of HIV high-risk behaviour. The next chapter presents the qualitative results concerning the social mechanisms that inform, increase and decrease the high-risk behaviour that contributes to the HIV situations in study locations.

CHAPTER SIX: SOCIAL NETWORK, SOCIAL CAPITAL AND HIV/AIDS PREVENTION

6.1 INTRODUCTION

Social epidemiology seeks to understand the social determinants of a population's health. It utilises different perspectives drawn from multidisciplinary sources that include social sciences and preventive medicine (Oakes and Kaufman, 2017; Barkman and Kawachi, 2014). The common basis in all the disciplines is human social relationships. For instance, medical sociology, among other things, is concerned with different institutional levels and organisational networking in the production of human health (Cockerham, 2017). This differs from health psychology, where behavioural and psychological angles are of the utmost interest (Sarafini and Smith, 2014). However, for health and medical geography, the use of a multidisciplinary approach and theories to offer spatial dimensions for the distribution of disease and health in a population is the key focus (Kearns and Moon, 2002; Jones and Moon, 1993).

In understanding sexual health and the risk of HIV infection in particular settings, the phrase 'no man is an island' is significant because it points to the reality that humans are social beings – who live with, interact with, and support one another. When people are isolated, it limits their capacity to realise their potential and important life expectations, including the attainment of wellbeing and capacity to manage life (Huber et al., 2011; Narayan, 2002). Social isolation, the absence of relationships with people in an environment, is characterised by fear and tension and makes one vulnerable to health risks, including risks related to HIV (Villalonga-Olives and Kawachi, 2017; Cacioppo and Cacioppo, 2014).

In Chapter Five, this thesis examined the factors that influence sexual behaviour with a high risk of HIV transmission, examining the ways that risk is linked to specific background characteristics. The characteristics included: gender, age, marital status, employment, wealth status, no education and HIV knowledge. It was unclear why Christianity, rural residence, primary education and the awareness that a woman has a right to ask her husband to use a condom in the event of an STD reduced risky sexual activity. In view of this, this research will adopt a network approach that takes into account the ways social relationships and social supports provide benefits or present obstacles to certain sexual behaviours and thereby affect HIV transmission (Woolcock and Narayan, 2000).

This chapter will first describe two urban and two rural cases in order to contextualise relationships and their spatial occurrences in the geographical settings of communities or neighbourhoods where people live, interact, trust and reciprocate support (Ziersch et al., 2011). Social organisations and groups identified as formal and informal in the study are important platforms for social relations and for developing social capital in a neighbourhood (Putnam, 2000). Furthermore, their identification will facilitate an understanding of the membership category, activities and networking experiences of the groups.

This chapter will then examine social values, norms and trust in a group and how they are utilised to generate and distribute social support and capital through horizontal (bonding and bridging) and vertical (linking) networking (Hyypä, 2010; Islam et al., 2006). In horizontal relationships, people with similar characteristics and strong ties, like family members or close friends, connect more intimately within their group (bonding). Also in horizontal relationships people may have similar interests with strong or weak ties depending on social characteristics, such as gender or age (bridging). Vertical relationships involve people or groups sharing similar interests or characteristics who differ in hierarchical position, power, capacity or influence (linking) (Ferlander, 2007; Putnam, 2000).

Finally, this chapter will explore how the rules that guide social interactions function to exclude certain people, who therefore become more or less isolated from the society, and thereby become more susceptible to sexual health risks including the risk of contracting HIV. Overall, the chapter will explore the mechanisms through which community and social resources are generated in social networks (see Appendix E, pages 489 - 490) in both urban and rural settings with both high and low rates of HIV infection, and how these social resources affect sustainable sexual health policy and practice. The layout of the chapter involves a brief description of the individual case settings, and the characteristics of social organisations and groups (formal and informal). The descriptions include an examination of networking experiences and of the mechanisms of social support, social capital and social exclusion, which increase or decrease the risk of sexual transmission of HIV infection.

6.2 BACKGROUND OF THE CASE SITES

The mechanisms within which social relationships and social capital are located exist at the individual (micro), group (meso) and communal (macro) level (Adler and Kwon, 2002). Accordingly, this section describes the locations where social actors reside, primarily for insight into the contexts in which risky sexual behaviours and HIV transmission either decline or thrive. The case sites include I, II, III, and IV which are classified as belonging to low HIV urban, high HIV urban, low HIV rural and high HIV zones, respectively. The community resources identified in each are tabulated in Appendix E, pages 489 - 490.

6.2.1 Case I: Shendam, Plateau State

Study site I is an urban area and a local government headquarters, geographically situated on latitude 8⁰.53' N and longitude 9⁰.32' E in the Southern Senatorial zone of Plateau State. Shendam Local Government Area, with Shendam town as the headquarters, has Nasarawa State to the southwest, and Taraba State to the south and east. Within the State, Mikang LGA lies to the north of Shendam, Qua'anPan to the west and Langtang South to the east. The location is a lowland savannah region to the north of River Benue whose tropical climate, characterised by dry and rainy seasons, encourages the cultivation of arable lands, which are irrigated by systems connected to a large dam. The site has B and C trunk roads, which facilitate travel from rural communities and the adjoining Nasarawa and Taraba States for social and economic activities. The multi-ethnic composition of the study site encourages social activities at wedding ceremonies, religious meetings, and political engagements. The activities of the National Union of Road Transport Workers (NUTRW) and the Association of Commercial Motorcyclists, together with over 20 hotels and guesthouses, facilitate mobility and provide jobs. Shendam serves as the Southern Senatorial zonal headquarters for some political parties, as well as some Christian and Islamic denominations.

Within Shendam, there is a private College of Education, a seminary owned by the Catholic Church, and over 25 public and private primary and secondary schools, which serve a large population of school age children. There are also primary healthcare centres and one secondary health facility, which deliver different healthcare services, including HIV/AIDS prevention and treatment. A prison service and the only active mortuary serving the entire Southern Senatorial zone are also situated in Shendam.

The selection of this site was informed by its flourishing social, economic and political activities and its low and declining HIV prevalence. HIV infection in Shendam's local government area is low and shows a similar trend of decline as its mother state, Plateau. HIV infection in Plateau state declined from 4.9% in 2009 to 2.5% in 2015 and 1.5% in 2018 (FMoH, 2019; Magaji et al., 2018; Gomwalk et al., 2012) and Shendam mirrors this trend. The HIV infection rate in Shendam was 5.0% in 2003, 3.4% in 2008, and 4.3% in 2010. PLACA reported 12.9% in the general population in 2008 (Gomwalk et al., 2012; PLCA, 2009; FMoH, 2005, 2009, 2010). However, recent data in Table 3.9, page 124 indicates how low infection rates compared with the following location, Lafia.

6.2.2 Case II: Lafia, Nasarawa State

Lafia in Nasarawa State is also known as Lafiyan Beri-Beri. It is an urban settlement, lying between latitudes 8°20' N and 8°38'N and between longitudes 6°34'E and 7°30'E. It the headquarters of the Lafia Local Government Council and the capital of Nasarawa State. The study site lies to the south of Wamba, in Akwanga LGA. To the southeast of the site lies Obi, in Obi LGA. Nasarawa Eggon lies to the north and Assakio to the northeast. The climate of Lafia is subhumid with two seasons, dry and rainy. The climate supports agricultural activities, including the cultivation of yams, cassava, and orghum.

The State Secretariat and the Government House, where the State Governor and senior officials carry out their routine activities, are in Lafia. The seat of the Emirate Council, which oversees the Nasarawa State Traditional Council, is also located in Lafia. For local administrative purposes, the town is divided into three districts: Lafia East, Lafia West and Lafia Central. As a capital city, Lafia has numerous places of worship and religious centres for Christians and Muslims. The state headquarters of the Christian Association of Nigeria (CAN) and Jama'atu Nasril Islam (JNI) are both located in Lafia. There are national, state and local roads linking the city with the neighbouring communities mentioned above.

Lafia contains many higher educational institutions, including a Federal University, a School of Nursing and Midwifery, a School of Health Technology, a State Polytechnic, a College of Agriculture (which hosts a Campus of the Faculty of Agriculture), Nasarawa State University, and the National Open University. These institutions have attracted both young and old people for study and work opportunities. Lafia has numerous primary and secondary schools. The town has a football stadium that is also used for political rallies and social gatherings. There are many public and private establishments, such as banks, hospitals, and mass media centres,

in Lafia. Dalhatu Araf Specialist Hospital is located in Lafia as are many primary and secondary healthcare centres, which deliver health services that include sexual health and HIV/AIDS risk prevention. Lafia has a history of high HIV prevalence. The infection rate was 8.9% in 2003, 19.5% in 2008 and 7.5% in 2010. NASCA (2015), in a study that mapped the most at-risk groups in Nasarawa State, found that Lafia LGA had a high concentration of female sex workers, men who had sex with men, and people who inject drugs.

6.2.3 Case III: Kuka, Plateau State

Kuka is a rural community, also known as Jibam, located about 45 km from Shendam town, in Shendam LGA. It lies to the northeast of Awe LGA in Nasarawa State, and to the northwest of Langtang South LGA. Ibi LGA in Taraba State lies to the southeast. The study site is predominantly an agrarian community with people from different ethnic and tribal backgrounds. The Geomai natives are the predominant tribe in Kuka, although tribes such as the Ngas, Doemak, Tiv and Taroh co-exist with them. These tribes form associations, which serve as united fronts. A weekly Sunday market day is observed which brings people from neighbouring communities such as Sarkin-kudu, Ibi and Dooshisma in Taraba State. People come from as far as Lafia and Awe in Nasarawa State, and from northern and central parts of the state to buy agricultural produce such as yams, sorghum, groundnuts and sesame seeds. The market is the location of economic activities, where people buy and sell to make an income. Youths and adults in the community look forward to market day, as it gives them an opportunity for both social and economic interaction. Groups such as market vendors, yam loaders, middlemen, farmers, and commercial motorcyclists have formed occupational associations.

Christian and Muslim places of worships exist in Kuka, and for some congregations it serves as the local headquarters for other villages and hamlets within its environs. Both principal religions have an umbrella association that unites the different congregations. There are one public and six private primary schools in Kuka, and one public and two private secondary schools. Some of these schools offer opportunities for family life and HIV/AIDS education. Beer parlours or drinking joints are available for people within the community and the environs to socialise, and these are well patronised on market days, enabling intermingling and socialising. In two of the drinking joints, there are commercial sex workers. The sex workers do more business on market days than on other days.

The community has seen a series of violent conflicts. In 2001, the community witnessed conflict between the Jukun and the Tiv. In 2004, the ethnoreligious crisis that spread around the southern part of Plateau State affected the community. The community experienced violent attacks in 2010 and 2015 that necessitated the creation of an army outstation with security personnel to safeguard people, in addition to a police station. There are groups for youths, women, and men, giving people opportunities to interact with one another and to volunteer to help the development of the community. Three health centres, one public and two private, exist in the community providing healthcare services, including maternity clinics, voluntary counselling and HIV testing. Although no HIV infection statistics exist for the community, in-depth discussions with participants who had lived there for over 20 years gave an insight into the trend. The participants indicated that, in the early 2000s, many people were infected with HIV/AIDS, but they stated that the prevalence of the disease had decreased in the last decade. Kuka is a rural setting with a low and declining HIV infection rate, and this makes the area relevant to the study's effort to understand the factors that contribute to HIV decline.

6.2.4 Case IV: Assakio, Nasarawa State

Assakio is the headquarters of one of the three Lafia East Development Areas created in Lafia LGA. The community lies about 40 km east of Lafia city. Wamba LGA lies to the north, Obi LGA to the southwest, and Shendam lies about 75km to the northeast. The Alago, Eggon and Migili tribes are native to Assakio. Other tribes who live in Assakio and associate with these indigenous groups include the Eggon, the Tiv and the Geomai. The Alago people, the major ethnic group in Assakio, celebrate with fanfare the cultural Odu festival that prepares for new farming season. The festivity, held annually in March, attracts people from within Nasarawa and other neighbouring states. Assakio has a weekly market that attracts people both from within and outside the state. Although the level of economic activity is low compared to over a decade ago, money received from the purchase of farm produce is one of the major sources of income in the community. Places of worship for Christians and Muslims of different denominations and congregations exist in the community. Three private health facilities and a primary healthcare centre are located in Assakio. There are six primary schools, of which five are private and one is public, and five secondary schools, three of which are private and two of which are public.

Plate 6.1: Mysterious Cross within a Mosque Precinct in Assakio



Like Kuka, Assakio has witnessed violent conflicts causing destruction to properties and affecting socio-economic activities. However, Kuka experienced an ethnoreligious conflict in which the attackers came from outside the community, Assakio had attackers who came from within the community. The conflict displaced people and fostered distrust between the Migili tribe on the one hand and the Alago and Eggon on the other. A recent phenomenon in the village was the mysterious appearance of a cross, five feet away from a central Mosque (see Picture 6.1). The scene of this phenomenon has attracted Christians and Muslims who visit to seek divine support for their health. In addition, people who participated in the past conflict in the community visit the site seeking reconciliation and peaceful coexistence.

6.3 CHARACTERISTICS OF SOCIAL ORGANISATIONS/SOCIAL GROUPS

In this section, the social organisations and groups are presented. Social organisations and social groups were identified in the neighbourhoods, which actors in social relationships used to access social support (Knoke, 1999). The forms of relationship are either formal or informal, i.e. they are either organised or spontaneous. Informal sociability is common among families, friends, and close colleagues because of strong ties. Formal social relations are guided by rules and procedures. The details of the social organisations and social groups identified in the study are presented in Appendix D (D1 – D5, pages 475 - 488).

(i) Formal Organisations

Formal organisations are registered social organisations whose activities are recognised by law. The state or local government authorities know about their existence in the community. The groups have well-defined, explicitly formulated operational structures and explicit rules to accomplish specific tasks. The categories of formal social organisations identified in this study are ethnic/tribal development associations, government institutions, professional associations, non-governmental organisations (NGOs), faith-based organisations (FBOs), sports and supporters' clubs, and business and market trading associations. Appendix D (in pages 475 - 488) present the categories of the organisations based on the location where the organisation operates, the people who constitute the membership, the activities they engage in and the agents with whom they collaborate.

6.3.1 Ethnic/Tribal Organisations

Ethnic/tribal organisations are groups whose members share the same language, cultural or historical origin and who might have come from the same locality. These social groups have branches at the community level identified as active at the time of the study. Appendix d, pages 437-451 shows that five ethnic/tribal groups exist in Shendam (I) and 10 exist in Lafia (II). Kuka (III) had seven ethnic/tribal groups and Assakio (IV) had six at the time of the study. To become a member of one of these groups, one has to be introduced by a regular member for registration. A fee is paid as a demonstration of commitment and loyalty to the rules and principles of the organisation. The membership comprises youths, adult males and females aged 20 years and above. Emergency meetings are called when the need arises; otherwise, meetings, where members interact and discuss welfare updates from other branches, are held monthly. The language of discussion at the tribal meetings is the native language of the group in question. A women's wing of the Eggon Christian Forum was identified in Lafia.

The focus of the tribal organisations is to uphold the values and traditions of their ethnic groups. Teaching cultural values is very important for identity enhancement, especially for people born and raised outside the local communities. Cultural transmission is very important to help those born and raised outside their local communities to build an identity. Annual cultural festivals are one way in which ethnic values and identities can be displayed and communicated. Similar organisations within and outside the state are invited to these events.

The organisations attend to the welfare of their members through the provision of financial, emotional and material support to bereaved and sick members. They also offer support for

occasions such as weddings or the christenings of children. Aside from this, the organisations give back to their communities of origin through the provision of scholarship awards, medical outreach projects, and education and sensitization campaigns to encourage school attendance and peaceful coexistence. In addition, information concerning job opportunities, empowerment programmes and other significant events are circulated during meetings or through their social media platforms. Government institutions, NGOs and FBOs collaborate with the ethnic organisations for health-related information diffusion, including in relation to HIV/AIDS; this is valuable because it ensures that the information is delivered in the appropriate language. In general, the membership characteristics, relationships, and support in the organisations benefit individuals and their communities (Narayan and Cassidy, 2001).

6.3.2 Faith-Based Organisations (FBOs)

FBOs can be divided into three categories: denominational, congregational, and freestanding or non-denominational. The congregations consist of members of a denomination within a local community. Faith-based networks involve all members of the same denomination within an area. Non-denominational or freestanding organisations are independently registered and separate from the denominations. FBOs operate on Christian or Muslim principles. Case I had five congregations with 15 groups within them, and five free-standing organisations. Similarly, Case II had six congregations with 17 small groups and five non-denominational organisations. Five congregations with 15 small groups and four non-denominational FBOs were identified in Case III, and Case IV was similar, with six congregations, which had 15 small groups across them, and three non-denominational organisations (Appendix D, pages 475 - 488) . The distribution of FBOs was approximately the same in the two urban locations, and it was also approximately the same in the two rural locations.

Once a person becomes a member of a congregation, he or she is qualified to register in an appropriate smaller youth, men's or women's group. Members who attend small group meetings late or who are absent without notice have to pay fines. This stringent condition among members instils self-control and promotes obedience and accountability. Prior to approval for the registration of an intending member, a background check is undertaken to ascertain where they come from and the nature of their intentions. The check establishes their denomination of origin and their reason for leaving. Members of the FBOs consist of married and unmarried men, women and youths. Each small group in a congregation has a separate meeting day within the week.

The general congregation meeting is held two or three times a week for Christians while Muslims have prayers five times each day, which can be conducted in groups or with a general congregation on Fridays. The regular meetings are opportunities for the delivery of teachings based on the denominations' spiritual and moral values. These spiritual teachings are also delivered to the Christians at Bible study meetings, prayer meetings and house fellowships. For both religions, other events like naming ceremonies, weddings, burials and conferences also serve as media for the transmission of the spiritual and moral values of the faith. Research participants indicated multiple group memberships at different levels of the spiritual or social groups. People said that they were members at the congregational level and were members of one or more non faith-based organisation.

Table 6.1: FBOs and their HIV/AIDS Units

FBOs	Denominations/Organisations	HIV/AIDS Units	Cases	
			I	II
Church denominations	Anglican Church	Anglican AIDS Programme		x
	Baptist Church in Nigeria	Baptist AIDS Awareness Programme	x	x
	Catholic Church of Nigeria	Catholic Action Committee on AIDS/AIDS Programme	x	x
	Church of Christ In Nations (COCIN)	COCIN AIDS Awareness and Care Programme	x	x
	Evangelical Church Winning All (ECWA)	ECWA Action Committee on AIDS/ AIDS Ministry (team)	x	x
	Evangelical Reformed Church of Christ (ERCC)	EERC Health Ministry		x
	Grace of God Mission Church	-	x	
Non-denominational / Freestanding	Christian Association of Nigeria (CAN)	CAN HIV/AIDS Unit	x	x
	Fellowship of Christian Students (FCS)	Aid for AIDS and Family Life Skills	x	x
	Jama'atu Nasril Islam (JNI)	JNI HIV/AIDS UNIT	x	x
	Full Gospel Business Men Fellowship		x	
	Izalatu Bid'a Waikamatu Sunnah (IBWS)	JNI HIV/AIDS Programme		x
	Muslim Student Society (MSS)	-	x	x

It was observed that the FBOs consider HIV/AIDS to be an essential public health issue and have established HIV/AIDS units. Some FBOs already have existing healthcare facilities distributed across different communities in the States. Table 6.1 shows HIV/AIDS units organised by the different denominations to provide prevention and treatment support, as well as social and economic empowerment. Based on moral principles, the Christian and Muslim organisations advocate sexual fidelity in marriage, and total abstinence from sex for the unmarried. The religious groups either totally prohibit alcohol consumption or prohibit

excessive drinking and nightclubbing, and they implement mandatory HIV/AIDS and pregnancy testing for couples who are intending to marry. The Christian organisations mandate monogamous marriage for all devoted members, and those who do not abide by this principle are either suspended or excommunicated. The FBOs, through their principles and activities, exercise social control over a large number of people, thereby having a significant impact on the behaviours, which increases susceptibility to HIV/AIDS and other health-related conditions.

6.3.3 Government Organisations (GOs)

Government organisations are part of the machinery of the State. They are either responsible for providing services for the benefit of the public or have an oversight function in relation to services. Seven of these organisations were identified in Shendam (I), and 16 in Lafia (II). In Kuka (III) only one GO was present, and in Assakio (IV) two government organisations were identified (Appendix D2, Pages 478 - 44379). In general, two categories of GO were observed in the study, those that focused on health and those that were purely administrative in focus. Children, young people and adults of both sexes benefited from the services of the GOs. It was observed that the health-focused organisations provide a range of services. These include HIV testing services, the prevention of mother-to-child transmission of HIV/AIDS for pregnant women, the procurement and distribution of condoms, family planning services, and the treatment of sexually transmitted diseases, antiretroviral therapy, and home-based care for the general population and for people living with HIV/AIDS. Seven government organisations were identified which directly or indirectly provided HIV/AIDS and health-related services, including activities relating to the prevention and treatment of HIV/AIDS. Administrative headquarters coordinate the delivery of services to individual organisations and communities. Lafia in Nasarawa state stands out in terms of the number of government organisations that serve as administrative headquarters. It has a tertiary hospital, educational institutions, a National Primary Healthcare Development Agency (NAPHDA), and the Nasarawa State Community and Social Development Agency (NSCSDA).

6.3.4 Non-Governmental Organisations (NGOs)

The characteristics of the NGOs are shown in Appendix D1, page 4339-441. The results show that Shendam (I) had five NGOs, which were health facilities. Lafia (II) had 27 NGOs with 11 focused on HIV/AIDS and health, eight focused on women and girls, six on HIV/AIDS prevention, and the rest focused on economic and social empowerment. Kuka (III) had five, and four NGOs were found in Assakio (IV), targeting the general population and people living with HIV/AIDS for the prevention of mother to child infection, the delivery of ARV drugs and

the treatment of opportunistic infections. In carrying out their services, the NGOs rely on each other, community groups and government organisations.

Most of the NGOs provide economic support that includes credit loans, financial grants and entrepreneur skills for a vulnerable population, especially for women. This is in addition to the provision of HIV/AIDS prevention, care and support involving HIV testing services, PMTCT and ARV drugs services, family planning services and condom distribution. Some NGOs provide health equipment, the capacity development of staff, and expert support. Lafia (II) had a substantial NGO presence with diverse operations directed at women, girls, people living with HIV/AIDS and the general population. Most of the organisations were formed at the time when HIV became an epidemic, and those existing before the epidemic expanded their services to help mitigate the threat. The NGOs identified and presented in the tables were those most active, currently accessing grants and implementing HIV prevention and health-related projects. This observation supports documentation in the literature on the influence of NGOs in combating the transmission of HIV/AIDS, reaching individual children, youths, adult men and women in communities (Hershey, 2013; Ogbogu and Idogho, 2006; Numeh and Ejike, 2004).

6.3.5 Business and Market Traders Associations

These categories of association emerged due to persistent severe unemployment in Nigeria. The groups consist of people with similar interests involved in buying or selling commodities or services that generate an income. Appendix D (in pages 475 – 488) show that Case I and Case IV both had eight business associations, and that Case II and Case III both had nine. Membership of these groups is voluntary, with the initial payment of a registration fee that varies from group to group. New members are required to present a guarantor who can attest to their good character before they are registered. Group meetings take place once a month and each member pays a mandatory financial contribution saved into the group's bank account. It was observed that this category of social organisation is dominated by men, perhaps because of the nature of the occupations represented by the groups, such as yam loading, grain loading, long and short distance driving, and mediating between buyers and sellers. These jobs are considered to be, in some way, too demanding for women. However, women had membership of market associations, in addition to their membership of other groups.

Due to increasing unemployment in Nigeria, these groups have been involved in sourcing income in the communities studied. Registered members have access to loans or can withdraw from their contributory savings to address financial challenges such as the payment of school

fees and other basic family needs. Entrepreneurial skills and supplies of specific inputs are provided to members. Members also receive financial support during ceremonies, bereavements or illnesses. This access to income reduces poverty and potentially improves access to health. Poverty can lead women and young people to engage in risky sexual behaviour for survival, and reducing poverty is likely therefore to reduce the risk of exposure to HIV/AIDS.

6.3.6 Professional Organisations

Professional organisations bring together people who share an interest in protecting the legitimate practice of their occupation in order to defend the interests both of the members and the public. In this study, four professional bodies were identified in Case I and eight in Case II (see Appendix D, pages 475 - 488). No professional organisational groups exist in Cases III and IV. Membership of the groups in Cases I and II requires possession of expertise, an appropriate educational training, or work in a particular organisation. The groups exist in both the public and private sectors and include the associations of teachers, lawyers, civil servants and health workers. These groups serve as pressure groups to push for the rights of vulnerable groups in the community, to create awareness of human rights, and to resist the dismissal of employees due to their HIV/AIDS status or other health conditions. The groups have also helped to achieve increased remuneration and the payment of entitlements for active and retired workers (Finlayson and Palmvang, 2016).

These formal organisations play a significant role in diffusing health information including HIV/AIDS prevention information among their members and the community. To enhance the knowledge and prevention of HIV/AIDS, the organisations generally engage in sensitisation, the procurement and distribution of condoms, capacity building, and to increasing basic awareness about nutrition and healthy lifestyles. The organisations also engage in the empowerment of orphans and vulnerable children, offer scholarships to needy members of the community, and produce and distribute posters, leaflets and manuals on family life and HIV/AIDS education. Vulnerable people are employed to support HIV/AIDS services, and office equipment is provided to relevant offices to enhance service delivery. The organisations were observed to work in partnership with international and national donors to access grants and build capacity.

6.3.7 Sports and Supporters' Clubs

The sports and supporters' clubs identified were exclusively community football clubs and groups for the supporters of foreign football clubs. Three registered football clubs were identified in Case I. There were no international football supporters clubs in this location, so people only expressed their support while watching football matches. Case II had seven football clubs and two foreign football supporters' clubs. Cases III and IV each had one football club and had no supporters' clubs. In Cases I and II (are both urban settings), players in the football teams were recruited through a formal process of employment. Supporters' club membership requires the payment of a registration fee. Besides the provision of entertainment to the public, the clubs enhance unity between and within communities.

The clubs have been sources of income to individuals and the government. The cluster of each football team and its supporters serves as an important platform for HIV/AIDS activities relating to public and peer education. This observation aligns with recent literature, which finds that sports strengthen HIV/AIDS awareness (Tun and Carmen, 2018; Maleka, 2017; Fuller et al., 2011). For instance, Khan and Hendrin (2010) observed that sport – and football in particular – utilises role models and peers for HIV prevention, leading to significant behavioural change. Similarly, Hershov et al. (2015) report that confidence to avail oneself of an HIV test was promoted using soccer activities in South Africa.

(ii) Informal Social Groups

Informal social groups are those formed by a few people, which are unregistered and have no explicit rules. These groups emerge to satisfy the needs for intimacy and friendship among people with identical interests. Some of these informal groups are recognised as either good influences or threats to the community.

6.3.8 Family and Friends Social Groups

'Family and friends' refer to a network of people who a person knows best and sees most often. These are people existing within a circle of regular activities, and those with whom one shares love and trust (Prandini, 2014). Social ties of this nature exist with immediate or extended family, friends, acquaintances, schoolmates, colleagues, and neighbours who are seen face-to-face or touched regularly (Leby et al., 2014; Power and Willmot, 2000). People in this kind of relationship develop a sense of confidence in one another, which supports the sharing of common concerns and the giving and receiving of social support.

This study identified a number of neighbourhood micro saving groups, namely family-clans, which offer a support group for people living with HIV/AIDS and other small groupings. Eight such groups were found in Case I and seven in Case II. Cases III and IV both contained two such social groups. The groups appoint one or two people to assist in keeping records and to convey notices to members. Values the groups uphold are adhered to. Due to intimacy and familiarity, members are free to share private matters as regards sexual and reproductive health. Invitations to meetings in some groups are monthly, but there is continuous interaction in the case of a family. Members contribute money on a monthly basis to the group, which forms part of the support delivered to members who are sick, bereaved or in a distressed economic condition. Support is also provided to members who have a birthday celebration, for the birth of a child, and for the wedding of an immediate family member. This category of social group, through its closeness, offers the first unit of influence in the life of a person.

6.3.9 Most At-risk Groups

Putnam (2000) argues that, in social relationships, certain people tend to be more intimate and inclusive, while others are excluded. Those barred are usually lonely, feel rejected, and may be attracted to similarly barred individuals and form clusters. The most at-risk groups exist because of societal rejection, discrimination, and prohibition from participation in family and community groups. Leaders of organisations who carry out the implementation of the state's laws at the local level usually do not favour the most at-risk groups. The isolation of these groups hinders a close relationship with other members of society (Edelman et al., 2002). The present study identified sex workers or prostitutes and those who abused substances or consumed alcohol to excess as those isolated by society.

Two such groups were identified in Case I, four in Case II, two in Case III and two in Case IV. Those in these groups consisted of men who have sex with men (MSM), commercial sex workers (CSW), and clusters of people who consume hard drugs and other substances. In these groups, an older person who has been involved in the activity coordinates the activities. People in these groups were adult men and women and young people who often engage in risky sexual activity exposing them to the risk of HIV transmission. Members of these groups avoid participation in HIV/AIDS prevention services and health-related opportunities due to the treatment they receive from society (UNAIDS, 2017; Mahajan et al., 2008).

6.4 NETWORKING EXPERIENCES AND SOCIAL CAPITAL MECHANISMS

The previous section presented information about formal and informal social organisations in the four communities studied. In this section, findings are presented from the in-depth discussions with key informants and individuals, and from field observations concerning the daily realities of life in the study sites as the community resources were utilised (see Appendix D for detail in each Case Site). This is undertaken to understand how the nature of relationships impact sexual health (Forbs and Wainwright, 2001).

The network approach is utilised to examine the importance of horizontal and vertical associations. Horizontal relationships (bonding and bridging) form between people within homogenous informal groups with strong ties and relationships between heterogeneous formal and informal groups with weak ties; these cooperate to secure resources for mutual benefit (Aeby et al., 2014; Frumence et al., 2014; Hyyppä, 2010, Hawe and Sheil, 2000). Vertical relationships (linking), on the other hand, involve ties and networking among individuals, social groups or organisations with unrelated social responsibilities, differing social positions and power, and from different settings; their connections channel broad instrumental, emotional and informational support (Woolcock, 2001). Trust in relationships is significant for achieving collective goals (Poortinga, 2012, 2006a, 2006b; Woolcock and Narayan, 2000). The participants were asked to mention the social groups they belong to, state the activities they undertake, and say who they would freely approach first to discuss experiences related to sexual and reproductive health challenges, including HIV/AIDS.

The discussion considers the study sites Shendam and Lafia concurrently because they are both urban settings. Similarly, study sites Kuka and Assakio are also presented together as they are both rural settings.

6.4.1 Study Site I: Urban Low HIV Zone

Section 6.2 described the settings of the four study sites and section 6.3 presented the available social resources identified at the different locations. Appendices D in pages 475 – 488 shows the social capital distributed across formal and informal social organisations and groups. The in-depth discussions examine horizontal and vertical social networking within and between individuals and groups for mutual support and benefit, which encourages or constrains sexual behaviour with a high risk of HIV transmission.

(i) Horizontal Networking (Bonding and Bridging)

Families and a circle of friends are the critical units of daily face-to-face contact that naturally create substantial ties where trust, support and reciprocity facilitate adherence to norms (Gray et al., 2012). Acceptance and support from family and friends are important factors in the decisions a person makes about sexual behaviour (Frankel, 2012; Sieving et al., 2006). In families, material and emotional care and support, and the opportunity to share information about personal issues strengthens values and self-confidence (Aalsma et al., 2006; Bubolz, 2001; Whitaker and Miller, 2000). In response to questions about who participants would be comfortable discussing HIV/AIDS and other sexual health issues with, they indicated that they obtained and shared sexual and reproductive information through discussions with a relative and/or a friend.

“ ... I initially informed my mother about my HIV status when I was tested positive. She was the one that later told my father ”

(Urban unmarried female, 30 years old_PL444)

“I had a girlfriend who was pregnant for me. I first discussed with my friend to advise me on what to do”

(Urban, unmarried female, 31 years old_PL409)

People indicated that it was generally difficult to trust a stranger due to disappointing prior experiences of *“people, who wore sheep’s clothing, but ended [up] becoming wolves”* (PL4married male, 42 aged years). Moreover, ongoing mistrust has meant people becoming self-conscious and not easily opening up to others who they do not know well. Neighbourhood friends and acquaintances who had lived together for a long time had close relationships.

“I cannot just meet someone for the first time and start telling him about my private matters. We had people who came to live in this neighbourhood in the past, only to realise later that they were bad eggs. Trusting a stranger requires little more time”

(Urban,Married female, 36 years old_PL455)

The confidence to share personal sexual behaviour and HIV/AIDS experiences with a relative, or with a friend that a person might have lived with, facilitates access to social capital. Table 6.4 shows that the relationships amongst family and friends had benefits which included offers of loans or grants, the payment of school fees, and the provision of information about jobs that could change one’s economic fortunes. Emotional, psychological and spiritual strength, which are needed in difficult moments, naturally flow from the people one is close to. Economic and

social support shared among groups of relatives and friends can help to limit exposure to the risks of sexually transmitted HIV/AIDS through the support such groups give to values and norms relating to sexual behaviour. For instance, the approval of condom-use among friends can influence sexual health:

“My parents stopped me from having a boyfriend. I was also restricted from going to parties and staying late at night outside home. My mother particularly would tell me the best gift to offer my husband is my virginity. I have no regret over their supports”

(Urban, unmarried male, 32 years old_PL499)

“We told ourselves to carry raincoat [condom] always, which I now use during sex because of the plans girls have deployed into trapping a potential husband. Once they perceived you can take care of them because you or your parents have money, they do not bother to ask you for condom during sex”

(Urban, unmarried male, 26 years old_PL433)

Faith-based groups had congregations distributed in the neighbourhood. Small groups formed within the congregations provided an opportunity for people to relate on the basis of individual group identities. As earlier described (in subsection 6.3.1.2), congregations in a religious denomination consisted mostly of members from within a close neighbourhood. In a denomination, a registered member is one who frequents his or her congregation’s activities, namely a believer. Dedicated members in a Christian congregation were said to have, *“believed and surrendered to Jesus Christ, [been] baptised and taking Holy Communion or Mass”* (PL₂₂ Married male, aged 63 years). For Muslims, a believer, *“is the person who believes in Allah; upholds the pillars of Islam: declares Shahadah, observes the obligatory five daily prayers, offer charity to the poor and needy, fasts in the month of Ramadan, and takes a pilgrimage to Mecca”* (PL₂ Married male, aged 38 years). The devotion among members encourages the sharing of love, care and support with people in the community. When a member becomes sick, is in a severe economic condition or dies, it is an opportunity to demonstrate love, care and support. The leaders undertake visits to provide emotional, psychological, and spiritual encouragement to the people affected. Members who have new babies or are getting married receive similar support from their congregation. Close relationships in religious organisations explain why members had the confidence to share their intimate sexual and HIV/AIDS situations with a Pastor, Imam, or another member of the congregation.

“I told the Pastor about my HIV positive status. He arranged counselling and prayer meetings for me. At the meetings, he gives some Bible verses that spiritually inspire me whenever I am becoming low”

(Urban unmarried female, 30 years old_PL444)

Members in a congregation are registered into smaller, voluntary women's, men's or youth groups. These have separate days for meetings, in addition to the day that involves everyone, which is Sunday for Christians and Friday for Muslims. The regular meetings are avenues for communicating values as Christians study the Bible, hold prayer meetings, and preach to convey their core beliefs. Muslims use selected days to teach the Quran in mosques, mostly to men, while the women and children have separate Quranic classes during the week. All sexual activity outside marriage, whether extramarital or sex among the unmarried, is prohibited. Both religions conduct compulsory HIV/AIDS and pregnancy tests for members intending to wed. Palmer and Wong, (2013) and Maelk et al. (2011) state that people who regularly attend religious meetings benefit more from religious social capital than those who do not. Social capital reduces involvement in risky sexual behaviour (Agardh et al., 2010). A narrative from Muslim and Christian participants shows that involvement in religious activities impels people to be moral, which in turn motivate behaviour change:

“A genuine Muslim is satisfied with his wife/wives and does not involve in adultery. The life of sin brings curses upon one's life. The sicknesses that are killing people today are also contracted through sex with a prostitute or somebody's wife”

(Urbarn, Married male, 55 years old_PL229)

“When I became a believer, my lifestyle changed. I stopped my old way of life of clubbing, drinking and picking women and changing them, as I wanted. All these risky lifestyles now stopped. I had a new lease in my life”

(Urban, married male, 38 years old_PL400)

The ethnic/tribal groups are another important homogenous factor that fosters relationships, which enhance access to support. The identity associated with speaking the same language or coming from the same cultural background connects people within their groups and promotes reliance on one another in the neighbourhood. Members of each group attend monthly meetings, usually led by a team of about seven leaders, depending on the numerical strength of the membership. Those who are bereaved receive emotional and financial support. Like families and friends, ethnic/tribal groups rally around bereaved members to support them with household chores. Moreover, the family of the deceased makes plans for the final interment in collaboration with the ethnic/tribal group. Members suffering from severe health conditions receive similar support. In the event of childbirth or the wedding of a member, ethnic groups provide support, and members of the groups will often wear traditional tribal dress during the celebrations.

Networking among different ethnic and tribal groups is a medium through which positive cultural traits are diffused and nurtured. In part, this networking occurs through annual festivals such as the Bit Goemai, which is held by GUDO, Torah Day, which is held by the Torah Development Association, and Puus Kaat, which is held by the MDO. These festivals promote cultural heritage while encouraging the spirit of personal responsibility and selflessness in the community (Herrero, 2018; Hawkins and Maurer, 2010). Relationships within the ethnic groups in the community are a means by which information regarding agricultural technology can be diffused and a medium for the transmission of skills. Groups can offer known employment opportunities for members within the community or at the place of origin (for ethnic/tribes in diaspora). Tribal group leaders are sensitised and trained on HIV/AIDS during the HIV epidemic, and in return they passed across information on the mechanisms of transmission and the means of HIV/AIDS prevention to their members. GUDO has facilitated medical outreach that incorporated HIV/AIDS prevention awareness in many communities. The beliefs and cultural values in the tribal groups prohibit risky behaviour, which is termed 'Bi Geoniant', an expression that refers to fornication, adultery, prostitution or paying for sex. Fear associated with the belief that these acts attract the wrath of the gods reduces involvement in premarital and extramarital sexual activities. The discouragement of risky behaviour among the members of ethnic and tribal groups is an important factor that may have contributed to the reduction of risk of HIV transmission, leading to the observed HIV decline.

(ii) Vertical Networking (Linking)

Social organisations presented in sections 6.3 and 6.4 differ from one another. The heterogeneity of the groups result in weak ties in the relationships between them. However, the vertical networks still function to provide interaction and support. Traditionally, family and friends groups of the same cultural background are more closely connected. However, in the context of the research, families and friends of different cultural backgrounds who coexist in close neighbourhoods interact with one another. Their relationships enhance cooperation for mutual benefit. The crosscutting social relationships among people from different backgrounds allowed for the establishment of monthly neighbourhood meetings, supervised by the *Mai'unguwa* (head of the neighbourhood) in the area. At these meetings, discussion centres on issues that relate to security, health and other social amenities, and also on payment of taxes. Neighbourhood cooperation fosters familiarity between families and friends, as well as between different ethnic groups despite their socio-cultural differences. This kind of cooperation makes it easier to know a stranger who comes into the neighbourhood.

“The security threats here and in our surrounding communities [are] the reason we are all united all together regardless of one’s family, tribe or status in the society we have to protect yourselves. Only in unity would we have safety and support one another”

(Urban, married male, 63 years old_PL233)

In the event of a death, a severe health condition, a wedding or childbirth in the neighbourhood, marked as *Unguwa*, the news usually gets to the *Mai’unguwa*, who often passes the information to other families. A bereaved family member is supported by people taking cooked foods usually used for feeding visitors to their house, while women gather to assist with household chores, and men sit outside the house to commiserate with the grieving family and attend to sympathisers who come from near and far. Residents from the immediate neighbourhood contribute money to support the burial of the deceased person. Similar support is given to those in severe health conditions. When a member of a family in the neighbourhood is having a wedding ceremony, other individuals, families and friends in the neighbourhood give assistance and thereby lessen the financial or non-financial strain on the celebrant. The rapport between families living in a neighbourhood and the activities that bring them together facilitate reciprocity and a collective effort that promotes responsible behaviours.

“This was the type of cooperation I met, where people live to carry one another’s burdens. Just as our fingers are not the same, so are people of different culture and status to support one another in times of pains and also in times of happiness”

(Urban, Married male, 55 years old_PL229)

We have supported ourselves in this place very well; be it during the death of a person, sickness or celebration of a loved one. There were times we travel as far as outside the State for burials and weddings of a member of families who live here”

(Urban, married female, 36 years old_PL455)

Voluntary neighbourhood night watch or vigilante groups have been formed to secure the neighbourhoods. The night watch groups contain youths and adults who volunteer. The activities of the night watch have reduced risky social activities among people who patronised night clubs and drank late into the night at *kasuwan dare* (drinking joints). The events in *kasuwan dare* previously encouraged risky sexual activity among the youths and adults who come from other communities:

“The young girls and even some married women go to those drinking joints for men. People stay late into the night to drink and do all kind of thing. People have complained about the unsafe behaviours going on there. So, the community vigilante groups have to control the late-night activities in that place now”

(Urban, married male, 63 years old_PL233)

Christian Church denominations have a weak connection between one another due to the disparities in doctrine. However, the different Church organisations unite under the umbrella of the Christian Association of Nigeria (CAN) on the basic principles of Christianity to achieve common goals. Christian congregations register their memberships and pay an annual membership subscription as an indication of active participation in CAN. General congregational meetings occur four times a year, and any time when the need arises. CAN serves as a pressure group to the Government for social services and justice. Similarly, the Muslim groups, based on the individual mosques, had weak relationships with one another but networked under Jama'atu Nasril Islam (JNI) to form a stronger force to mobilise resources for the wellbeing of Muslims. CAN and JNI encourage total sexual abstinence and prohibit condom use among the unmarried, and both emphasise heterosexual marriage and sexual fidelity at meetings and workshops. Existing HIV units in the different FBOs contribute to behaviour change and HIV decline in the community. This supports the position in the literature that FBOs have a broad influence on the social lives of people, and their response to HIV prevention is vital to changing the course of the epidemic (Olson, 2019; UNAIDS, 2009).

Government organisations, NGOs, the Local Government Council and healthcare facilities rely on one another for empowerment, service provision and delivery to people in the community. The organisations at the state level access HIV/AIDS prevention funds from the Plateau AIDS Control Agency (PLACA), while implementation is carried out in the study sites through social organisations and groups that have a presence in the local community.

“We have collaborated with CAN and JNI in policy formation and implementation of HIV/AIDS projects and programmes. FBOs are standing advisory communities for the Ministry of Health, HIV/AIDS and the local Government Council on health programmes and project implementations”

(LACA Officer, for 6 years_PL299)

Networking among different social groups was also evident when professional organisations collaborated under the Nigerian Labour Congress (NLC). NLC is a national labour union that coordinates all public and private workers and pools resources to promote their welfare. It has

influenced government policies and the implementation of social-economic programmes involving the salaries and entitlements of workers. The NLC accessed HIV prevention activities grants and implemented prevention programmes for its members in the study sites.

The HIV/AIDS support group draws social capital from HIV testing services, condom distribution, antiretroviral therapy, and the prevention of mother to child transmission of HIV from the Government health facilities in the case study sites. Health facilities networked with the AIDS Preventive Initiation in Nigeria (APIN) for the provision of health consumables, equipment, capacity building and the employment of personnel. Country Women Association of Nigeria (COWAN) engaged members of the HIV/AIDS support groups as HIV prevention role models in schools and at social events to share their experience of living with HIV/AIDS and to raise prevention awareness. The National Union of Road Transport Workers (NURTR) and ACOMORAN, an association of commercial motorcycle owners and riders in Nigeria, collaborated with Christian Health Association of Nigeria (CHAN), an independent FBO, to implement an HIV/AIDS prevention project. Relationships between the local organisations, and some high profile organisations from outside the community, have been responsible for the provision of modern technologies that measure and document the HIV services in health facilities. These have assisted in the delivery of HIV services and information, which improved services, awareness, and the prevention of HIV/AIDS, thereby contributing to reduced risk and a decline in HIV infection levels.

The two main religions, Christianity and Islam, separated themselves into settlement clusters based on religion. It was observed that Christians were not living in neighbourhoods dominated by Muslims, nor were Muslims living where Christians were dominant. The separation of settlements within the same community is a barrier to social cohesion, with implications for a lack of trust and the widening gap of disparities, which hinders the achievement of an egalitarian society and the access to benefits from available resources in the community. Participants indicated that the separation of settlements was a blessing:

“The cause of problems that made the Christians and Muslims not to be living together in the same neighbourhood was because they accused each other of some social vices. The Christians suspected the Muslim men of having sexual relationships and impregnating their young girls. The girls involved in such relationships were given more money than their Christian boyfriends did. The Muslims blamed the Christian girls responsible for sexual transmitted infections, including HIV among them. Living in separate settlements has reduced the complaints about the unwanted pregnancies and the sexual diseases”

(Urban, married male, 63 years old_PL233)

Although individual religions had strong ties amongst themselves and drew support and benefited, as a community, this separation had implications for the access to benefits from community resources, such as the market, hospital facilities, playgrounds, schooling and even football achievements, which typically unites people regardless of difference. This situation presents the darkside of a social network, which has consequences for health behaviours (Martins et al., 2017; Campos-Matos et al., 2016).

6.4.2 Study Site II: Urban High HIV Zone

(i) Horizontal Networking (Bonding and Bridging)

The second study site, Lafia, is a large community with people from different social and economic backgrounds. As in Case I, Shendam, in Lafia, family and friends and members of ethnic/tribal and religious groups and organisations relate more closely with one another than with those in their close neighbourhoods who belong to other groups. The forms of ties in relationships were designated along the lines of age and gender. Relatives and friends within the same age group and gender appeared to stay closely together within a neighbourhood. In the informal groups, it was easy for members to share without hindrance intimate issues that relate to sexuality. Vital information was freely shared regarding business opportunities and advice on marital concerns. Emotional and financial support was given to bereaved members. At social events, like childbirth or the wedding of a member, friends and families gathered to celebrate and provide support. A participant narrated that they discussed the issue of condom use and HIV/AIDS. The discussion was felt to have benefited their circle of friends, and it led to them initiating sex education for children to support them with the right information.

“We have been friends right from our secondary school days and now are married and have our families ... [We] share life experiences on raising our children and on relating happily with our spouses. In one of our meetings, we talked about initiating discussion with our teenage children on sex and condoms. We did not get information on sex from our parents. Our children need to be helped with the appropriate information”

(Urban, married female 52 years old_NS979)

Social groupings were observed to be mostly according to age group and gender. The females were comfortable being together, and so were the men. A younger person was expected to respect an older person, thus limiting age-mixing within friendship groups. This cultural conduct, existing in traditional communities, ensures that younger people value and have

confidence in the guidance offered by older people. However, such cultural values have been diluted by urbanisation in the study site, as it is a new multi-ethnic location with diverse people from across the country. Individual ethnic and tribal groups are associated more closely with each other, often sitting together outside their homes, playing local games and communicating in their own language. When a person dies in a neighbourhood, the first point of support is from the ethnic or tribal group of the deceased, which gathers to provide emotional and financial support and to plan the burial.

Regarding religious organisations, people within the same congregation appear to know each other more closely. This intimacy was observed due to the fellowships within the week among individual Christian congregations, and the five daily prayers among the Muslims at the mosques within a neighbourhood. Regular meetings provided the platform that allowed members who belong to women's, men's or youth groups to learn and imbibe the individual FBO's beliefs, and to benefit from the emotional and spiritual support offered by the religious organisations. The value the FBOs place on sexual abstinence and fidelity in a union helps married women to rebuff extramarital sexual advances and helps unmarried people to retain their virginity. Participants said they shared their intimate sexual health risk and HIV/AIDS experiences with religious leaders for spiritual support. In addition to the spiritual component of social capital, issues that relate to hygiene and nutrition, sexual health and HIV/AIDS were also emphasised.

Ethnic/tribal organisations have members from the different identified individual groups, who were tightly bound due to their similar identity, language and traditions. It was easier convey information to people about their cultural heritage and opportunities that could benefit members. Tribal groups found it easy to establish their cultural values, which discouraged pleasure-seeking conduct related to sex. A curse was expected to follow persons who engaged in sexual infidelity or had sex before marriage, while blessings were said to be associated with a life devoid of filthiness. Some ethnic or tribal groups propagate the belief that members who participate in prohibited sexual activity may become inseparably stuck to their partner until certain rites are undertaken which have the power to release them. Beliefs of this nature persist despite the progress of civilisation and increased cultural heterogeneity, and they have notably reduced involvement in sexual activity in neighbourhoods with a high density of tribal group members.

(ii) Vertical Networking - Linking

The different leadership structures in the study site networked to ensure people's wellbeing. The Nasarawa State Traditional Council (NSTC), the JNI and security agencies worked in partnership and pursued a sexual health agenda for the entire community. The groups networked based on traditional values and Islamic beliefs to counter the activity of an Islamic sect, Hakika. Hakika, an emergent group that recruits young people, encourages sexual relations among the unmarried, and thus promotes extramarital sex. In addition, the NSTC and JNI have combined efforts to initiate and implement a mandatory HIV/AIDS test and relevant medical examination before marriage between a man and woman can be instituted. This prevention action has been a success and has been extended across other communities throughout the state.

Mandatory HIV/AIDS testing existed in the Christian FBOs. The confidence the State Government had in FBOs facilitated the provision of funds that aided the construction of the State's CAN Secretariat. This enabled the coordination of all Christian FBOs in the State domiciled in the study site. In addition, a relationship was observed to exist between NASACA, an agency that controls HIV/AIDS activities in Nasarawa State, and the NGOs, together with government organisations and the FBOs, who serve as stakeholders in the development of policy, strategies and implementation of HIV prevention activity. Funds are disbursed to the Christian and Muslim FBOs for the enactment of HIV/AIDS prevention activities among their members at selected sites within the state.

NASACA, a state agency that manages HIV/AIDS prevention activities mapped all the NGOs, FBOs, and Professional Associations and other social organisations and groups; these organisations collaborate in the implementation of HIV/AIDS activities. The Civil Society Organisations (CSOs), an umbrella organisation, was involved in the development of capacity and provision of expert services to the NGO, FBOs and government to support the effective implementation of HIV/AIDS prevention projects. Another level of networking was through the Nasarawa State Primary Healthcare Development Agency (NSPHDA). NSPHDA coordinates primary healthcare deliveries and a programme, Nigeria State Health Investment Projects (NSHIP). The programme aims to strengthen the primary healthcare system and improve the standards of health services on a results-based investment approach.

It needs highlighting that the strong ties which can exist in homogenous groups like families, friends, ethnic/tribal and other similar social groups, do not preclude the existence of conflict. However, the strength of the ties and the sense of belonging among members encourage tolerance, with people taking responsibility to get along for the benefit of all. However, some individuals found the rules in the social groups too strict, as some left to avoid being stigmatised. For example, the principle that sex is acceptable only within the confines of marriage, a principle common to the ethnic/tribal organisations and the FBOs, is hard for many people to live up to in practice. The consequence of this is that sex outside marriage occurs among group members, but is often kept hidden, and people participating in these practices may not use protection.

6.4.3 Study site III: Rural Low HIV Zone

(i) Horizontal Networking (Bonding and Bridging)

Case III, Kuka, presents a typical village setting. Family compositions are mixed, some being polygamous while others are monogamous. As members of a primary unit of the society, members of individual families display a sense of trust. Families all go to the farm together and relate closely with one another. No family group was identified as organising and holding meetings. However, the common tradition practiced in the community makes women loyal to their husbands and people in the husband's extended family, which encourages informal interactions among individual families. The father serves as the head of the family. He rewards obedience and punishes any form of non-compliance with the family rules. Family rules include curfews on staying outside late into the night and a ban on young boys and girls having a boy or girlfriend, and there is an expectation that family members will be honest and work hard. As a tradition in the community, sex is prohibited among the unmarried. A parent participant highlighted that:

“... each family member serves as a watch to the rules. The children may not challenge us as parents; we tried to be good examples. Breaking of the rules are reported and attract punishment of fetching water from the river on a number of trips or certain favour is taken away.”

(Urban, Married woman, aged 36 years_PL455)

Setting family rules is an important opportunity to instill a sense of responsibility, and this serves to counter negative peer influence which can lead to early sexual debut (Ankomah et al., 2011).

Most parents do not directly discuss sex with their children, as it is considered inappropriate. Lack of knowledge about sex is responsible for most parents' inability to talk about sexual issues with their children (Wilson et al., 2010). When youth participants were asked who they would like to discuss their sexual and reproductive health problems with among family members, their response was with parents. Young adults who lived with parents would freely share an incident relating to unwanted pregnancy or HIV infection with parents to prevent giving the family a bad name. The following responses from a female young adult and a male young adult are representative of this:

“My father will be mad at me. I will tell the boy about the pregnancy and discuss what to do before the next plan. And because many of the guys do not take responsibility, I have to first tell my mother, she will handle it kindly and know how to tell my father to protect the family image”

(Rural, married male, 48 years old_NS907)

“My parents are the first place of call to report about my HIV positive status. They will be in the best position to advise me and support my condition”

(Rural, unmarried male, 36 years year_PL344)

Although the above participants did not experience sexual or reproductive problems, the willingness to share such intimate issues with parents demonstrates the confidence they had in them. This is related to the position of Adler et al. (2005) that trust in family relationships delayed sexual activity among children. Parents in family relationships supported their children's growth into adulthood by instilling values to enable independence from parental control outside the home (Van De Bongardt et al., 2014; Pearson et al., 2006). Members of families who had no support and were neglected often went to peers for support, who became vulnerable to risky behaviour due to bad influences (Fergus and Zimmerman, 2005).

Groups of friends also share personal feelings, advice and plans. Members of a group of friends shared information about condoms and the need to use them so as not to forestall future education plans. This discussion was among young adult men, who believed that condom use could help them avoid causing an unwanted pregnancy, which could truncate their educational progress. This aligned with the argument on the influence of peers in the social acceptance of the use of condoms (Aaron and Jenkins, 2002). One of the participants, studying at a tertiary institution, describes how within his circle of friends, he acquired information about the need

for condom use to prevent the occurrence of pregnancy which would hinder the pursuit of his academic goals:

“We just hang around mostly in the evening after returning from the farm to discuss our plans with friends. Not all of us accept the talks on condoms; one of us has much experience about the danger of getting married at this stage in our lives. He talks about how the use of a condom can avoid the risk of unwanted pregnancy”

(Rural, Unmarried male, aged 27 years old_PL366)

Christian and Muslim congregations have a significant influence on the lives of their members. Individual groups in closely located neighbourhoods associate with one another. For instance, besides their established small groups, which allow devoted members to register membership that fosters close interaction in the church Christian congregations have weekly activities outside the church environment, for example, house fellowships that bring members together. In this way, some families in a congregation or a tribal group within a congregation meet regularly. People in a social group trust their fellow members and reciprocate support from one another more than with people in a different group (Malmendier et al., 2014; Fehr and Gächter, 2011; Putman and Leonardi, 1993).

Apart from the groups people meet at the place of worship, members were again put into units of relationship with people from the same denomination who live in close neighbourhoods. These were identified as ‘unguwan Salama’ or ‘Angwan Kauna’ meaning among others, in a congregation for neighbourhood meetings.

“We created different opportunities for our members to meet and share fellowship. The meetings are avenues for members to know themselves and be close to be able assist themselves in times of need, unless a situation is beyond a small group to handle then it gets to the Church. The Clergies may not know everyone. The different units are the first place of call for support”

(Rural, Unmarried male, aged 27 years old_PL366)

Members who participated in the small group meetings appeared to be more informed of the Christian norms and values than those who did not participate, and therefore had a reduced risk of HIV infection (Odimegwu, 2005; Gregson et al., 2004). Muslims have separate mosques in close proximity to each other for the Sunni and Shia groups, and both denominations pray five times a day with a weekly Friday congregational prayer in the central mosques. The FBO meetings were dissemination points for religious core beliefs and values including belief in a supernatural being, God or Allah, who instructs purity. Purity in this context means refraining from sex before marriage, and sexual fidelity to a spouse. Affiliation to a religious organisation

decreases the likelihood of unmarried people engaging in sex and also decreases the likelihood of people having multiple sexual partners (Adamczyk and Hayes, 2012; Barken, 2006). As risky sexual behaviour reduces, the chance of acquiring HIV infection reduces and therefore HIV occurrence declines (Gregson et al., 2010).

The community had ethnic/tribal associations, two of which are Tweitkyop Development Association and Jaapwual Jiaam, which emerged because of the violent conflict that affected the community. The community suffered four different attacks, which, for many, led to the loss of property and the major source of livelihoods, such as farming and the marketing of farm produce. The situation placed most members of the community in a difficult economic situation and this reduced the patronage of commercial sex workers by people from within the community and its environs. People with multiple sex partners, including people within polygamous marriages, reduced the number of sex partners. Some ended sexual relationships, which became economically unsustainable in the conditions of hardship that followed the conflict. The excerpt below from a community youth leader discussing some of these experiences is illustrative:

“The attacks on the community caused us unpleasant situations that exposed everyone to hardship. The rich people in the community who had vehicles left and never returned because their investments were destroyed. Our Monday market days that were booming, and which attracted people from the surrounding states were closed and people could not go to farms. The situations led to the formation of Tweitkyop Development Association for women and a youth group, Jaapwual Jibaam an all male group with the exception of children. The men serve as vigilante groups to safeguard people in the community and they work together with the security personnel posted to the community. We had many businesses that closed down and some did not return. We used to have seven drinking joints, five that had prostitutes, but only two have returned, and just one has a few sex workers who returned. The youths who patronised the prostitutes are struggling to survive and have no money to visit the prostitutes like before. I know many youths who no longer relate with the girlfriends they had when they were getting money. Even married people who had many wives reduced the number for them to survive the economic situation we went through”

(Urban Married male, 41 years old_PL205)

The youth leader’s account of the effect of post-conflict hardship on the demand for the services of sex workers is corroborated in the following remarks made by a female sex worker:

“I lived here for seven years before the community was attacked. Since I returned, about six months now, customers do not come as before. Only on market days customers now come, but other days only three or four people come”

(Rural married male, 46 years old_PL300)

The women’s group empowers women with information and economic opportunities; they encourage peaceful coexistence among women in the community. The Jaapswal Jibam engages all the youths in the community, who volunteer at burials and weddings, and conduct night watches for the community. The activities of the two groups have increased cooperation among the community members. This has reinstated confidence amongst people, who now patronise the weekly market, which was closed during the multiple violent crises in the community. The re-opening of market day activities has increased socio-economic activities and revived people’s sources of income, which in turn has aided a gradual recovery from the financial shock faced.

Health facilities in the community include one public and two private health facilities providing HIV testing services and condom distribution. People in the community visit the health facilities for HIV tests and those who need condoms receive them free.

6.4.4 Study Site IV: Rural High HIV Zone

(ii) Horizontal Networking (Bonding and Bridging)

Like study site III, Kuka, study site IV, Assakio, is predominantly a rural farming community. Traditionally, the family units comprise a compound, where parents and their married or unmarried children live together or in a cluster. Unlike the previously discussed study sites, the dominant natives, the Alago and Migili, communicate in their local language. Although other ethnic groups exist, the tribal identity of the dominant groups enhance relationships among families and friends. People practice their cultural beliefs, which generally instil discipline in the community. One value the community is known for is its communal volunteering, whereby people living in the close neighbourhood, mostly from the same tribe, undertake to support vulnerable people. The people supported are widows, elderly people, and relatives or friends who need help with farm activities. A participant who offered support of this kind explained that neighbourhood support improves the socio-economic lives of the people who benefited:

“The plan to support some weak people in the community was an informal arrangement by some neighbours. Most of the people supported were those who had no one to help them. I participate in some of the farming activity free. The ones I know all had their farm produced improved which helped them with food and income”

(Urban, female, 33 years old_NS715)

An Alago association in the community supports the education of indigent students through the provision of scholarships and creates awareness on sending children to school and seeking treatment in hospital. A community leader said:

“My association has focused much on the education of young people and youths by giving scholarships to those who cannot afford the payment of their tuition fees. The group recently facilitated awareness that informed parents and youths about the need to go to school and to seek medical support at appropriate facility. Including HIV. These efforts yielded results because in this community, there is no family that does not have at least a child in school”

(Rural, married male, 48 years old_NS907)

As with study site III, religious groups provide support to members who belong to units in their congregations. Trust in religious leaders was explored, by focusing on the question of sharing intimate issues relating to sexual and reproductive health. Participants’ responses suggest a weak trust in religious leaders among members who belong to different ethnic/tribal groups, even if they are from the same congregation. A community leader described the experience at the root of the situation:

“We have been living in peace among ourselves in this community, until the recent farmland disputes that arose between the Alago and the Eggon people. The farmland belong to the Alago people, whose great-grand parents gave to the Eggon and other tribes that came to settle here to be using and be paying tributes or royalty at the end of harvest to the community leader each year, as the tradition of the community demands. The payment went on for decades until recent times when some Eggon people claimed ownership of the farmlands and stopped making returns on the lands. The Chief of Assakio ordered those who would not make returns on the farmlands to stop the cultivation for the year’s farming season. Some Eggon people violated the order issued by the traditional ruler. In an attempt to stop the farmers, who already started cultivating the land, it raised serious tension. The Government intervened and the tense atmosphere that would have led to violence between the Alago and Eggon was averted. However, with the emergence of Ombatse militia, the Alago community was attacked in 2012 and another in 2013. The conflict caused havoc to this community. Reconciliatory meeting were done, the initial cordial relationship has not completely been restored”

(Rural, Married male, 48 years old_NS907)

The above narrative explains the mistrust, not only between the Eggon and the Alago but also between the Alago and the Migili, since a cluster from a neighbouring community, Shigogo village, which is predominantly Migili, was said to have aided the Eggon Ombatse's³⁶ attack on the Alago. The disharmony between the dominant natives in the community affected confidence between the tribes, who therefore do not have a close relationship which would otherwise provide opportunities to access support from members of the other tribe. The conflict affected the booming rural markets in the community that attracted people from within the State, neighbouring Plateau, Benue, Kaduna, and as far as the eastern part of the country, who came to buy farm produce. The situation was said to have affected the farming based source of income and the weekly market that takes place on Wednesdays.

The violent conflict affected the livelihoods of people in the community. Similar to study site III, drinking joints and the residences of sex workers were closed and, at the time of the study, only two had returned. While similar conflict in study site III caused severe economic hardship that caused men to reduce the number of wives and sex partners, in study site IV the conflict led to forced outmigration. Initially the displaced people, especially women and girls, exchanged sex for food and money to survive. Subsequently, young adult men and women, married and unmarried, migrated to Lafia and other cities in the Eastern part of the country for survival. On arrival at their destinations, adult women and young girls engaged in menial jobs as attendants in restaurants and bars, or earned money hawking, selling sachet water, bread or other foods. The young adult men went into similar restaurant jobs and became involved in commercial motorcycling. A participant shared his experience:

“I narrowly escaped the day the attackers came and surrounded the community. Many of us ran through the bush and finally came to Lafia. A few days later, I just moved to the East where I worked as a commercial motorcyclist for five months ... I had three girlfriends, but made love with two [of] them”

(Rural, unmarried male, 26 years old_NS707)

“The crisis we had here affected us badly and forced many of our youths to leave the community to where they make a living. The market that was our source of income stopped and we did not farm for about two seasons. Things were very difficult for everyone. It was sad that some of our young women had to exchange their bodies for what they can eat or wear during those times”

(Rural, married male, 48 years old_NS907)

³⁶ Ombatse is an ethnic group in Nasarawa State that seek the liberation of their people then later attack the police and communities.

The violent conflict in the study site presented a difficult experience that forced people to move to an entirely different environment away from their already established social contacts. Such separation from social support can lead to loneliness and exposes a person to risky sexual behaviour.

6.5 SOCIAL EXCLUSION AND DISCRIMINATION

Social relationships in society are a 'double-edged' reality, which results in negative outcomes (Vallalonga-Olives and Kawachi, 2017). Human relationships offer an important platform that provides access to support for individuals or a group (Vallalonga-Olives and Kawachi, 2015). Involvement in many such relationships is said to bring multiple benefits that foster healthy behaviours and reduce exposure to risky situations (Frumence et al., 2010; Cohen, 2000). Non-participation in social groups results in low access to social support and this has been linked with involvement in risky behaviours which increases the risk of HIV infection (Frumence et al., 2014; Agardh et al., 2010).

This study found that participants who had access to support were those who freely participated in social groups in the community because they complied with the norms and values of the society, while those who did not freely connect with people in society lacked support because of their social lifestyles. The different formal organisations identified and described in section 6.3 have rules and conditions for becoming a member. Even informal groups, consisting of clans or family members and circles of friends, disown a person whose behaviour and lifestyle is contrary to acceptable values and traditions. According to Giddens (1979), the adherence to social norms which is a precondition for accessing support in communities constitutes a structure that constrains the capacity of agents who are most at risk in the social system to realise their potential.

Participants were asked during in-depth discussions if they accept everyone living in the neighbourhood as members in their social groups. The most at-risk were also asked about how people in the community treated them. The study found that people whose lifestyles are socially prohibited had no freedom to mix with, and express themselves, in relation to members of the society. The societal attitude toward some groups of people constructed a world of isolation resulting in pain, fear and doubt that affected access to health (MacDonald and Leary, 2005).

A religious leader described how people who engaged in behaviours the denomination does not approve of are ex-communicated from the congregation and groups:

“None of the congregations under our association accepts a person who consumes hard drugs or into sex work as a member into any unit. The person cannot be stopped from coming for Sunday services. But, to become a devoted or communicant member, the person has to first stop his/her way of life and accept the Christian faith”

(Rural married male, 52 years old_PL209)

The district head representative explained how social exclusion impacts the wellbeing of the whole community:

“We are aware of the existence of sex workers who live [in] hotels and of people who consume marijuana and different kind of drugs. As leaders, we cannot reject anyone, our duties include ensuring orderliness in the community, abiding by the laws of the land, and people live a satisfied life. Everyone is welcomed to live in this community if he/she wishes. If you go to the ‘Carpet’ area, you will see many young people and adults who take drugs and other substances like marijuana that even their family does not allow and that our culture prohibits. These people were not given the needed support at certain points in their lives, who now turned to be sources of problems we all are paying dearly for it”

(Urban, married male, 43 years old_NS909)

A programme officer in one of the organisations explained that interventions were targeted specifically at those deemed most at-risk:

“NASACA mapped the MARPs in Nasarawa State in collaboration with donors and density of the subgroups. There are NGOs whose area of prevention activities are specifically to reach the MARPs, who were given funds and provided treatment interventions and empowerments for the sex workers, MSM and PWIDs”

(Female, programme officer for 6 years_NS953)

Discussions with sex workers in both high and low HIV study sites revealed that the communities within which they live do not treat them with respect. Sex workers shared experiences of hostility and stigmatisation:

“... If I go out to buy something in a close-by shop, I hear people shouting ‘ashawo’ and ‘karuwa’ [translation prostitute]. People are not friendly to us here at all. It is better that one walks around at night than in day for all the insults”

(Rural, Unmarried female, 37 years old_PL355)

“One man throws stones at me one day when I was out on my way to the market. The way people around look at us is as if we are very bad people that is why we are always indoor”

Urban, Unmarried female, aged 31 years old_NS733)

Commercial sex in Nigeria is not a crime. However, each state exclusively decides on regulating the activities. In the Northern states, the Sharia penal code prohibits sex work and the operation of brothels (Terfa, 2011). Moreover, sex work or prostitution is taboo in the culture of most natives in the study sites. The socio-cultural beliefs in the settings orchestrate prejudiced attitudes toward the most at-risk groups in society. Regmi et al. (2019) reported an ethnic dimension to discrimination, where Napolis’ were excluded from accessing health care because of their identity. This results in the exclusion of people who consume alcohol or drugs, sex workers, or MSM from membership of social groups and causes a sense of isolation. Because these excluded people desire relationships, they seek to connect with people who share similar circumstances. The humiliations they face and the biased attitudes increases their vulnerability to the risk of HIV infection, which thereby helps to sustain a high level of HIV infection in some locations.

6.6 CONCLUSION

In low HIV urban and rural settings, individuals from families, friends, and religious and ethnic/tribe groups were like-minded and had close ties. These close ties are likely to be because the membership of the social groups in question is involuntary, that is to say, because people are born into these groups. The strong social connection within the groups sustains relationships, norms, trust and the exchange of favours and social support. Role model activities among the HIV/AIDS support groups, HIV/AIDS and health-related service deliveries, including socio-economic empowerment, prevention, care and support, were responsible for the sexual behaviour and social changes that facilitate HIV prevention and a low incidence of HIV. Christians and Muslims have a very weak relationship in low HIV settings. The poor relationship was traced back to violent ethnoreligious conflicts in Plateau State, particularly on the 1st June, 2002 and 1st May, 2004 in Yelwa-Shendam (Oladosu and Ludin, 2018; Aliyu, 2015; Onwe, 2014). Since then, residential houses have been separated along religious lines. The Christians live on one side and the Muslims are clustered at the other side of the community. The lack of social cohesion is a great setback that affects daily socio-economic relationships, with the potential risk of mistrust when seeking health services, including HIV prevention, from each other.

However, while horizontal relationships facilitate frequent intimate interactions within and between groups with similar interests and reciprocating support, the social norms which the groups enforce put sex workers, PWID, and MSM beyond ready access to social support (Villalonga-Olives and Kawachi, 2017; Wacquant, 1998). The social norms in various groups forbid the social behaviours of these people and obstruct them from relating freely with people in the neighbourhoods. The most at-risk groups identified in the high HIV zone were found to be greater in number than the low HIV zone. The members of risky groups carried out their activities in a secluded environment, often on the outskirts to avoid harassment by members of the community or security personnel. The exclusion was a reason for their engagement in behaviour that exposed them to the risk of HIV transmission (Mathieson et al., 2008; Putnam, 2000b).

CHAPTER SEVEN

ROLE OF POLICY IMPLEMENTATION ON HIV/AIDS PREVENTION

7.1 INTRODUCTION

This chapter examines health policy implementations and their influence on the HIV/AIDS situation in the study sites, which is essential for understanding the broader aspects of the issue and in achieving sustainable improvements in health and human development. Three key global development agendas so far have significantly shaped the policy context. The first was the Beijing Declaration of September 1995 at the Fourth World Conference on Women, which was a platform for action that triggered a course for women's empowerment (UN, 1995). The second was the Millennium Development Goals (MDGs), declared in September 2000, which had eight goals of which number six focused on HIV/AIDS (UN, 2015a). The Sustainable Development Goals (SDGs), which lead on from the MDGs, is the third agenda with 17 specific goals, including SDG3 on Good Health and Wellbeing, and a target of 3.3, which seeks to eradicate HIV/AIDS by 2030 (UN, 2015).

HIV epidemics in Nigeria between 1981 and 1986 were characterised by the widespread denial of the existence of infection. As such, there were no prevention support efforts from governments at that time. From 1986 to 1997, was an “*era of AIDS scepticism, indifference and misconceptions*” and myths about HIV (Balogun, 2010, p.168). The year 1997 ushered “the era of AIDS reality and awareness” (Balogun, 2010, p.168). One event that stimulated the reality of HIV/AIDS in the country was the death of Fela Kuti, a popular music artist. His death had been linked to AIDS, which triggered a national response (Balogun, 2017, 2010; Fatusi and Jimoh, 2006). Drawing from the experiences of HIV/AIDS, discussed in section 2.3, it can be said that the recent HIV/AIDS situation denoted the era of ‘decline success story’ in places that were initially most hit by HIV/AIDS (FMoH, 2019; UNAIDS, 2019a, 2019b; Cauadra and Abu-Raddad, 2014, 2013).

The HIV/AIDS response was co-ordinated by the National Agency for the Control of AIDS (NACA) with State AIDS Control Agencies (SACAs) at the subnational levels, across the 36 States including the FCT, Abuja. The first National Strategic Plan was legislated for a multi-sectoral response to HIV/AIDS prevention. The plans that followed incorporated the MDGs, National (Nigerian) Economic and Empowerment Development Strategies (NEEDS), and SDG indicators. In this study, key informants shared their views on the implementation of

HIV/AIDs programmes in Plateau State and Nasarawa State by participating in interviews about the wider policy context of HIV/AIDS in each State.

The chapter discusses HIV/AIDS policy implementation as it relates to political motivation and participation in the establishment of institutions, providing health facilities and care deliveries, and collaborating with donor partners. Policy implementation promoted access to HIV/AIDS prevention and intervention services. The discussion examines the policy environment and how it relates to key thematic areas that include: HIV awareness and behaviour change to reduce new infection, HIV counselling and testing to determine status and commence treatment, prevention of mother-to-child transmission (PMTCT), and antiretroviral treatment (ART).

7.2 MOTIVATING POLITICAL PARTICIPATION

A civilian administration emerged in Nigeria in 1999 after the change from the military administration that put the country under sanctions and prevented international support to address the HIV/AIDS epidemic (Fatusi and Jimoh, 2006). Shortly after that, the national response on HIV/AIDS commenced with the formation of the Presidential AIDS Committee, chaired by the President and all members of the executive arm of government as members. The team established the National Agency for the Control of AIDS (NACA) in 2000. NACA then prepared the first national action plan on HIV/AIDS, and the HIV/AIDS Emergency Action Plan (HEAP) in 2001 (Adeji and Miller, 2006). State Action Committees on AIDS (SACAs) were established by law in all 36 States, while only seven States became active and had SACA offices. Plateau State and Lagos State were active and rated the best by the National Agency for the Control of AIDS (NACA) at that time for having functional offices, the employment of full time staff, and for carrying out prevention activities (NACA, 2003). The first response to HIV/AIDS policy was the establishment of HIV/AIDS agencies at the national level, the provision of health facilities, and a partnership with international, national, and local organisations for the mobilisation of resources.

7.2.1 Establishment of Supporting Institutions

In 1997, the National AIDS and STDs Control Programme (NASCP) that coordinated HIV/AIDS activities under the Federal Ministry of Health (FMoH) adapted HEAP. When NACA was established, it coordinated the creation of policy implementing institutions across the country. Within the transition from NASCP to NACA, Plateau State was one of the first pilot States in the implementation of multi-sectoral HIV/AIDS prevention in Nigeria by the

World Bank (Odutolu et al., 2006). The prevention program in Plateau State targeted two LGAs - Pankshin and Jos North. However, the success of the activities for the improvement of HIV awareness led to the scaling up of the prevention activities in an additional 10 LGAs. The expansion and completion of the HIV/AIDS programme implementation meant the State was rated one of the most successful in the country (PLACA, 2007).

The rating motivated the government to legislate for the establishment of Plateau State Agency for the Control of AIDS (PLACA) in 2002 as an autonomous entity, which was known as SACA, under the Plateau State Ministry of Health. The government effort yielded a positive outcome, as PLACA became the second vibrant and functioning HIV/AIDS agency in the country. The success helped PLACA access a World Bank assisted HIV and AIDS Programme Development project in 2004. Access to the fund and the successful implementation of the multi-sectional HIV prevention programmes was due to the existence of HEAP:

“The establishment of SACA was based on the national HIV/AIDS Emergency Action Plan (HEAP). The government of Plateau State relied upon State legislation for the establishment of an independent organisation. The legislation that created the Plateau State Agency for the Control of AIDS (PLACA) to coordinate prevention activities facilitated access to the World Bank HIV/AIDS Prevention Grant and other supports from donors”

(NGO Director and a Consultant for 19 years_PL213)

Similarly, the Nasarawa State Agency for the Control of AIDS (NASACA) was established in 2007, which between 2000 and 2006 was initially known as SACA. The organisation emerged a few years after PLACA took off in Plateau State. PLACA provided training to build the capacity of NASACA staff when the agency was created. A development consultant, who was involved in HIV/AIDS before the start of NASACA said:

“NASACA operated for four years before its establishment by law as an independent agency went to the the Nasarawa State House of Assembly in 2006. The legislative process for the anency was approved in 2007 and made an autonomous institution of the State”

(Development Consultant for 11 years_NS903).

In response to development challenges in Nigeria, the National Economic Empowerment and Development Strategy (NEEDS) was adapted at the State levels (SEEDS), where the MDGs and later the SDGs emerged for adaption in Plateau State and Nasarawa State. SEEDS, as a policy framework, incorporated HIV/AIDS and comprehensively focused on addressing social and structural factors impeding sustainable development at the community level:

“NEEDS is about the Nigerian people. Their welfare, health, employment, education, political power, physical security, and empowerment are of paramount importance in realising this vision of the future”

(Nigerian National Planning Commission, 2004: p. ix).

The strategic plan led to the creation of the MDGs/SDGs Offices in 2006 and later the Community, and Social Development Agencies (CSDA) in 2009 (NSCSDA, 2017) for the implementation of World Bank assisted development projects. In the study locations, social and economic projects in the area of health, education, gender and vulnerable groups, among others, were implemented (Nasarawa State MDGs, 2016, 2013; Plateau State MDGs, 2016, 2013, 2008).

Social Investment Programmes Policy (N-SIP), domiciled at the Office of the Governors in the States, particularly addressed unemployment among youths (Jame et al., 2019). From October 2018, Table 7.1 shows that more people in Plateau State benefited from the programme than in Nasarawa State. The youth were engaged in volunteering and earning N30,000 (£60) monthly, and others obtained loans. Low-income families in rural communities benefited from a cash transfer of N5,000 (£10) monthly. The implementation of the programmes intended to reduce unemployment and poverty among the vulnerable populations (Yinusa, 2020; Musa et al., 2019).

Table 7.1: Beneficiaries of Social Investment activities in Study Location

Intervention Implementation		Beneficiaries in State	
		Plateau	Nasarawa
Volunteers		194,616	19,531
Npower Build Trustees		466	428
Government Enterprise and Empowerment Programme (GREEP)	MarketMoni Active Loan	7116	1,767
	TraderMoni	12,154	11, 272
National Cash Transfer Programme (NCTP)		20,879	4,561
Start date		May - July 2017	October, 2017

Source: Social Investment Programme, 2018 [Available from: <https://www.yemiosinbajo.ng/national-social-investment-programmes-october-2018-update/> [Retrieved on the 21/01/2020]

The first policy document for the establishment of an institution to coordinate HIV/AIDS was initiated some years before a civil administration came into office. However, the commitment to address social and structural barriers to sustainable human development encouraged the establishment of HIV/AIDS supporting institutions in the States. This political involvement could influence reductions in vulnerability to the risk of HIV epidemics. Similar political

participation supported the establishment of organisations for a multi-sectoral response, whose activities contributed to the reduction of HIV infection. In Kagera, Tanzania, Zimbabwe's national provinces and Uganda, in Sub-Saharan Africa, the benefits experienced were similar (Muchini et al., 2011; Green *et al.*, 2006; Lugalla et al., 2004). In the early pilot response to the implementation of multi-sectoral prevention activities, policy that established PLACA might have contributed significantly to the decline in HIV rates from 8.5% to 6.3% (2001 to 2005) while in Nasarawa it rose to 10.0% in 2008, one year after NASCACA was legislated.

7.2.2 Health Facilities' Reform Response

Health systems in most sub-Saharan African countries constituted a significant public health challenge at the endemic phase of HIV/AIDS (WHO, 2006). In Nigeria, the health care system was weak and ineffective at providing some essential services, and rated 85th out of 191 countries (Who, 2000). The WHO Health System Report coincided with the period of the declaration of MDGs, shortly after civilian administration emerged in Nigeria. This affected the HEAP and NEEDS/SEEDS policy formulations, which were ongoing. At the same time, the Health System Development Programme (HSDP) was formed to provide a framework for investment in the health system across the country (African Development Fund, 2002; World Bank, 2002). The policy events might have informed the integration of health components and strategies to carry out health system reforms for the provision of health service delivery to improve life expectancy.

To this end, the Plateau State government had health reforms, where seven cottage hospitals were upgraded to general hospital status. Additional new general hospitals were awarded for construction in five LGAs (PLACA, 2007), which are the secondary health facilities providing today's HIV/AIDS services, including HTC, PMTCT and ART. Moreover, government at the national level constructed Jos University Teaching Hospital (JUTH) at its permanent site, which today is a leading tertiary health facility in HIV/AIDS research. Since 2002, JUTH has developed an 1800 square foot laboratory for HIV/AIDS and STD research and for the treatment for HIV infected clients. In 2004, the government established a Plateau State Human Virology Research Centre (PLASVIREC), which represented an expansion of HIV research activities in collaboration with the West African International Collaboration for Scientific Culture World Laboratory. As the result of the health reforms, 83 health facilities now provide HTC and PMCT, while 28 secondary and tertiary health facilities provide ART. The setting up

of these health facilities was a function of the policy that focused on the attainment of sustainable health and significantly contributed to the decline of HIV rates in Plateau State.

In Nasarawa State, similar health reform events occurred. The State initially had one tertiary health facility. However, the health reform strategies by the democratically elected government in the country, earlier highlighted for Plateau State, were implemented by the state government; thus, in 2000, a Federal Medical Centre, Keffi, was located on the facility of an old general hospital. The upgrading of two general hospitals in Awe and Keana to tertiary level status followed this development. Currently, 14 general hospitals, 9 community-based health centers, and 164 health facilities experience different phases of reform that influence healthcare service delivery across Nasarawa State. In all health facilities, 191 are actively involved in HIV/AIDS activities, among which 148 provide PMTCT services, 23 provide comprehensive ART and PMTCT, 11 HCT and 9 OVC. The establishment of the School of Nursing and Midwifery, and College Health Technology Keffi came the same period that currently supports the health workforce.

Table 7.2: Distribution of Health Facilities and HIV/AIDS Services by August 2019

HIV/AIDS services	Level of Health Facility				Total
	Primary	Secondary	Tertiary	Community	
ART/PMTCT	7	12	4	0	23
HCT	11	0	0	0	11
OVC	0	0	0	9	9
PMTCT	146	2	0	0	148
Total	164	14	4	9	191

Source: Nasarawa State Ministry of Health, 2019.

The District Health Information System (DHIS) was introduced at health facility and non-health facility intervention sites to support the documentation of data to monitor and evaluate implemented programmes. The tracking of executed programmes is a component of the HIV/AIDS strategic plans. The system mainly aligns the management of information and records on HIV/AIDS and other indicators with global best practice (Meribole et al., 2018; WHO, 2013). The implementation of the National Health Information System Policy across health facilities in Nigeria has improved data documentation and reduced the stress of accessing health data (FMoH, 2013). Since 2012, the District Health Information System (DHIS) in Plateau State and Nasarawa State generates robust data for the monitoring of health indicators at LGA, state, and national levels.

The PLACA Monitoring and Evaluation Officers (M&E) and Development Consultant, who were involved in HIV/AIDS activities, shared their experiences about the DHIS.

“The Federal Ministry of Health trained me on the health information system as a Monitoring and Evaluation Officer. The data management system is a solution to the problem of obtaining health data we have faced as an Agency State, keeping vital health data. One can now easily access HIV/AIDS data at the local government, State and national levels. Multiple government Ministries, Departments, Agencies and partners now source data for planning and implementation of development goals. For PLACA, the system has simplified my job of gathering data on major themes of HIV/AIDS policy for evaluation”

(Male, M & E officer for 4 years_PL225).

“The health data from DHIS is reliable when you consider the phases of its documentation to the dissemination. The data records from the sources passed through phases of validation. The health facility staff present their records at the Local Government level for review evaluation monthly, which is then forwarded to the state validation team, which also presented to the national data monitoring team. The approved data at the national committee makes it valid to upload to the database for use”

(Development Consultant for 11 years_NS903).

The experiences suggest that DHIS document information on daily health indicators for the health and non-health sectors adds value to other sources of data for the provision of the population’s social and health. Health facility provision further requires institutions to organise and deliver the services to different levels of the community.

7.2.3 Partnership and Funding Supports

The MDGs and SGDs underscored the severe need for partnership to enable the productive delivery of development targets to end HIV/AIDS (Feeny, 2020; Bebbington and Unerman, 2018). Chapter Six described strong and weak relationships among homogenous and heterogeneous group networking to achieve common interest (Buckup, 2012). Likewise, policy implementation requires networking at local, national and global levels to access the value of international relations for common benefits (Ng, 2012). The policy is often a course of action to solve a threat and achieve the common interests (Anderson, 2010) of different actors in different sectors, who are interacting to attain the paramount goal of sustainable development and wellbeing. Policy implementation is complex; therefore, the five-Cs and seven-Cs approaches were highlighted as critical variables (Molobela, 2019; Cloete et al., 2018; Brynard, 2000). The implementation of policy implies the needs within its Content and Context, which require Commitment, Capacity to it carry out, Coalition, and Communication. Four of the seven

Cs' variables - Capacity, Coalition, Communication and Coordination - suggests partnership, which enables vertical networking among social groups and organisations, which were reported in Chapter Six and address the risk of HIV/AIDS and the health related situation.

Nationally, the role that led to the design of HIV/AIDS policies since inception are products of partnerships, as is the implementation. As a low-income country, the government relies on the expertise and financial support of donor organisations to achieve their policy strategies (Katz et al., 2014). Donor-driven networking was conceived in the first strategic plan, which stated:

“The HEAP will be funded from a variety of national and international sources. The Federal Government will provide support through line ministries at the federal level and down through to the states. The World Bank will provide funds through a loan to Nigeria. Other international donors such as the UN, USAID, DFID and others will continue to provide support directly and through their local cooperating agencies”

(FMoH, 2000, p 29).

HIV/AIDS policies and implementation often adopt a top-bottom approach. In response to HIV/AIDS, the Federal Government of Nigeria collaborated with international donor organisations. The donors consist of the World Bank, World Health Organisations (WHO, UNAID, UND, PEPFAR), the Global Fund, and the United Nations General Assembly Special Session on AIDS, among others. These organisations worked through their local bodies in the country or related directly with the government that provided support on the implementation of policies that included the funding of program development projects, capacity building amongst NACA, SACAs, and CSOs, and the supply of health facilities (Itiola et al., 2018; Adeyi and Miller, 2006; Odutolu et al., 2006). The partnership at the national level had its dimensions in Plateau State and Nasarawa State in response to HIV epidemics.

In Plateau State, PLACA have been in partnership with the World Bank, AIDS Initiative in Nigeria (APIN), and the Institute of Human Virology (IHN) in the implementation of AIDS programmes. Plateau State government and its AIDS control agency collaborated in the implementation of HIV/AIDS policies. The partnership allowed for access to funds and subsequent disbursement to CSOs, CBOs, FBOs, and NGOs who directly implemented projects. PLACA's monitoring and evaluation officer said currently they collaborate with three international organisations that now provide support to health facilities in carrying out HIV/AIDS activities:

“AIDS Prevention Initiatives in Nigeria and the Institute of Human Virology of Nigeria are current health facility-based implementing partners. Currently, APIN support 22 health facilities on comprehensive HIV/AIDS services and 46 facilities on PMTCT and HCT across Plateau State. IHVN has 37 sites supporting HCT/PMTC and six on comprehensive service. APIN represents PEPFAR and IHVN works for Global Fund in Plateau State... The collaboration is in addition to the World Bank multi-sectoral HIV/AIDS Prevention Funds we access in 2004 and the HIV Programme Development Project II (HPDP/HAF II) since 2012... We also partner with 17 local organisations that implemented the prevention projects on targeted population in various communities”

(Male, M&E Officer for 4 years_PL225).

Nasarawa State is in partnership with USAID, Pro Health International to implement comprehensive care and support for the US Government through the Centre for Disease Control (CDC) across 23 health facilities in Akwanga, Nasarawa Eggon, and Wamba LGAs. IHVN has been in partnership with Nasarawa State government since 2006 and has supported over 42 health facilities since 2008, which sit within ART and PMTCT services. AIDS Healthcare Foundation and Heartland Alliance International sourced funds independently from internal organisations and implemented projects among the most at-risk populations. The state also benefitted from its partnership with the World Bank, by accessing funds and achieving HPDP/HAF II between 2012 and 2017. NGOs, FBOs and CBOs partner with the state government in the implementation of the HPDP/HAF II project (see Appendix F, pages 491 - 492).

NASACA is the primary AIDS control agency that networks with donor agencies to support HIV/AIDS activity in this state. The government does not have enough resources to solve problems in all its sectors, which HIV/AIDS is just one of the public health challenges. The donor,s like World Bank, USAID, IHVN and Society for Family Health, provide funds and support the capacity for the building of staff in health facilities. Here we provide implementation expertise to organisations to assist them to implement their project effectively to the beneficiary communities and population. Few organisations accessed funds independently, and we collaborate to support them achieve their targets.”

(Programme officer for 6 years-NS973).

Policy implementation is a critical stage that influences the control of HIV infection in a population. The government alone does not have resources to adequately fund and deliver prevention services, which informs collaboration for the mobilisation expertise at different levels of the organisation to address a common target. However, the partnership significantly supported the implementation of policies that contributed to the prevention of HIV activities in

Nasarawa State and Plateau State, which relied significantly on donor organisations. The situation may therefore suggest weak ownership of HIV/AIDS programmes and sustainability at the State and community levels (Itiola, et al., 2018).

7.3 PROMOTION OF ACCESS TO HIV PREVENTION SERVICES

HIV prevention programmes at all levels of implementation focus on reducing new HIV infections. The risk of HIV transmission is found in fluid contact with an infected person usually through risky sexual behaviour, unsafe blood transfusion, sharp objects contaminated by HIV, and from an infected mother to a child. Addressing the prevention of HIV infection informed the formulation of a combined prevention packages consisting of behavioural, biomedical and structural interventions (NACA, 2018; Coast et al., 2008; Poundstone, 2004). Implementation of HIV/AIDS prevention programmes encouraged delivery and access to adequate knowledge about the infection that motivates behaviour change by adopting safe sex behaviour, accessing test services, enabling subsequent treatment and potentially the ultimate suppression of the virus in the body (NACA, 2019; UNAIDS 2014). The strategy for achieving effective prevention of the disease received a new 90-90-90³⁷ target by the year 2020. This section discussed the mechanism in the implementation of policies that influenced the recent HIV/AIDS situation in Plateau State, Nasarawa State and Nigeria at large.

7.3.1 HIV awareness activities

Plateau State adopted the HIV Emergency Action Plan (HEAP) 2001- 2004 from the National HIV Emergency Action Plan (HEAP). The focus of the document was to create public awareness about HIV and AIDS for adequate information about their causes, modes of transmission, prevention and treatment (FMoH, 2000). The policy had some reviews to reflect current realities for better approaches to win the war against the epidemic. As the reality of the infection began to be accepted, another dimension manifested, namely the stigma and discrimination of infected people. Even other chronic health conditions were associated with HIV because of the myths and speculations surrounding HIV (Adebamowo et al., 2002). Intensive sensitisation by CSOs contributed to increased awareness about the basics of HIV prevention. One of the informants, who heads the State AIDS control Agency in Plateau State, narrated a ambitious HIV/AIDS sensitisation that first targeted top leaders, then the community and finally the family unit:

³⁷ 90 – 90 – 90 is an HIV prevention strategy that focuses on ensuring 90% of people are tested for HIV and know their status, 90% of those tested HIV positive enrolled for treatment, and 90% of those on treatment attain a virus load suppression.

“I came out with a programme that structured the whole state into different task teams for the spread of information about HIV/AIDS prevention. Top government officers and traditional rulers received training as advocates of HIV/AIDS, who must talk about HIV/AIDS everywhere they go ... on the community, we formed the Family Action Committee on AIDS (FACA), which extends to husbands and wives called Bedroom Action Committee on AIDS (BACA) to take note of HIV. We localised the issue of HIV/AIDS... were able to reach two million, nine hundred people with HIV/AIDS information”

(NGO Director and a Consultant for 19 yeears_PL213)

“HIV and AIDS are now household names. Only a few people now still have some misconceptions about it. As far as I know, everyone has heard about the disease, the practice of prevention is what varies because people are different. For me, I am mindful about living safely and healthy, which take serious measures to prevent the infection”

(Urban, married female, 36 years old_PL455)

In Nasarawa State, HIV/AIDS awareness has recently gone beyond creating awareness, and experienced HIV/AIDS and health related education strategy implementations with a durable impact. An informant shared his experiences on HIV/AIDS education which provided sexual health and HIV/AIDS peer-led information. This is an approach that helps to spread HIV prevention messages faster:

“We use what we called a PEP (Peer Education Plus) for awareness that educates people about HIV and other related infections. The PEP awareness consists of life business skills that have to do with goal setting, decision-making, self-esteem and values, a right to health, setting and achieving goals, and making informed decisions. When it comes to HIV/AIDS, sexual and reproductive health, the right choice is abstinence and if one cannot abstain, he/she should be faithful to an uninfected partner. If one does not want to be faithful to an uninfected partner, he/she should used a CD³⁸ or a raincoat. As you can see (he pointed at it) in our condom dispensers, we have the male and female condoms for those coming to access free. We teach and demonstrate how to use the condom to give them the practical skills. We also let them know that condoms can also give the satisfaction they can feel during a skin-to-skin sexual intercourse”

(Programme Officer, 4 years working Experience_NS973)

A role model approach was used by one of the NGOs for sensitisation among the most at-risk group, which includes young people, long distance drivers and people involved in commercial motorcycling, and the general population. The NGO provided prevention activities. In this approach, people living with HIV/AIDS were used as role models to promote the need to prevent HIV infection. The role model approach is based on living openly about one's

³⁸ CD or raincoat are used to refer to a condom to avoid the embarrassment of using the word 'condom' in public

HIV/AIDS status, while sharing the experience is a double-edged approach that communicates first-hand prevention of HIV to save someone from infection and reduces the stigma and discrimination of attitudes toward people because of their health conditions, including HIV/AIDS. In this prevention strategy, a person living with HIV shares a narrative of ‘My HIV/AIDS Adventure’. This is typically a story about how they were infected with the virus and experienced living with HIV. Listening to a life story teaches more insight into the need to prevent infection. One of the role models said:

“The rationale about the HIV role model story is to utilise the method of - experience is the best teacher. I stand in a social gathering to share my life story on how I became infected and about my current ten years of living with HIV/AIDS. In the end, I respond to questions ... I am currently helping some young people who were tested for HIV and were found positive”

(Urban, unmarried female, 30 years old_PL444)

Family Life and HIV Education (FLHE) was introduced in the education system in 2003 to support the provision of adequate and appropriate HIV knowledge and prevention among young people who constitute over sixty percent of the country’s population. The awareness strategy was incorporated into the teaching curriculum. Family Health International (FHI 360) and NACA, through its Global Fund Round, implemented nine projects between 2011 and 2013. The projects consisted of support for the training of 37 CBOs who reached out-of-school children and 92 OVC service providers (NACA, 2017). Enhancing Nigeria’s Response (ENR), a funded DFID HIV response in seven states provided HIV awareness to about 12.5 million out-of school young people through its Interpersonal Communication Intervention strategy. Between 2009 and 2014, ERN provided HIV prevention services to 1,021,486 young people in Nasarawa State (ERN, 2015). For in-school children, 80 HIV/AIDS Desk officers were trained on the provision of HIV prevention in schools across all states in Nigeria. The desk officers, in turn, trained 5,432 teachers drawn from 791 schools. As of 2012, 250,973 teachers benefited from the training, which made FLHE a component of teacher training, while members of the National Youth Corps Service (NYSC) volunteered as peer educators (NACA, 2017).

FLHE is a national strategy adopted by states to convey HIV/AIDS, sexual and reproductive comprehensive information to prepare young people for adulthood and sustainable healthy behaviour. As previously highlighted, some components of the policy are implemented nationally across the states. Plateau and Nasarawa States have adapted the FLHE policy into the school curriculum and utilised it as a medium to reach in-school pupils and students with HIV/AIDS with sustainable health messages. PLACA’s Monitoring and Evaluation Officer

and one of the teachers handling FLHE in a school in Nasarawa State described the achievement as follows:

“Class Teachers and selected heads of secondary schools were trained on skills and issues surrounding the FHLE themes. The aim was for them to go back to their schools and train their colleagues. The FLHE is a curriculum-based activity we started with some science subjects, but now we have opened it to arts subjects. Instructional strategies include dramas on HIV/AIDS, which provide practical information with the students about HIV/AIDS, sexual and reproductive health, age-appropriate information ... reports from the Ministry of Education HIV/AIDS Desk Officer shows about 40,000 students, 4000 teachers and 1, 350 vice principals and headteachers have been reached by 2017”

(Male, M&E officer for 4 years_PL225).

“Of us, one teaching Biology in the senior classes and the second, Integrated Sciences at the Junior Classes, handle the modules on HIV/AIDS, sexual and reproductive information. Male and female students were separated during the FLHE sessions to create a free learning atmosphere. The boys’ sessions, which I usually handled, are fun sessions with many questions relating to myths about sex and HIV/AIDS. The students come to see me for counselling. Many of them were in tears and regretting their past risky behaviours and resolved to change”

(Rural, unmarried male, 28 years old_NS713).

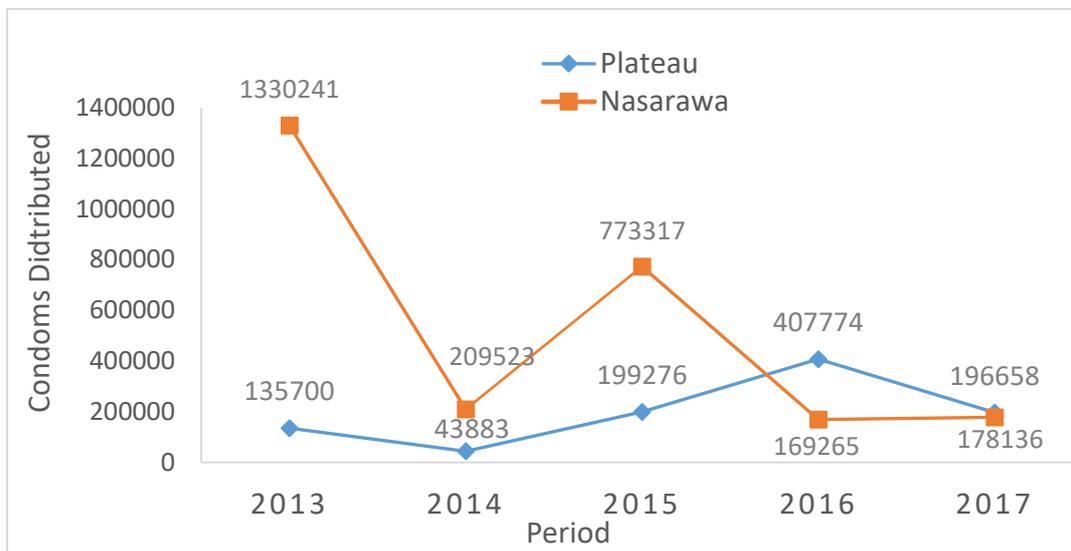
The motive and different approaches were used to increase knowledge so that people were aware of the modes of transmission and could prevent the risk of contracting the infection. However, it has been highlighted that just increasing awareness on HIV/AIDS does not translate to practice (Baxter and Karim, 2016). Instead, a multilevel approach that focuses individual and socio-structural conditions that make people vulnerable is more effective (Auerbach et al., 2011; Rotheram-Borus et al., 2009; Piot et al., 2008). Per Education Plus, Family life and HIV/AIDS Education among others represent a shift from the initial approach that was weak in influencing the translation of knowledge into practice (Dolcini et al., 2010; Halperin, 2009).

7.3.2 Condom Distribution

HIV spreads from a person already infected to other persons through unprotected sexual activities (CDC, 2016). The use of a condom is an effective barrier to contracting the infection (McFarlan et al., 2016). When effectively used during sexual intercourse, condoms reduce the chance of contracting HIV by 80% (Patel et al., 2014; Holmes et al., 2004). As such, when HIV became a public health challenge, the use of a condom was found to be very important for its prevention. The use of a condom became a component of the ABC Model of HIV Prevention, which emphasises: A= abstinence from sex, B= be faithful to one partner, and C = Condom to

be used if A and B have not been adhered to. As identified in the activities of FBOs (Chapter Six), condom use among the unmarried is unacceptable, as emphasis was placed on the promotion of sexual abstinence among the unmarried and sexual fidelity for the married.

Figure 7.1: Distribution of Condoms in Plateau State and Nasarawa States, 2013-2017



Source: DHIS, PLACA and NASACA, 2018

Condom distribution is one of the strategies in the plans to support people who are most-at-risk of HIV infection by promoting the use of condoms during sexual intercourse. Figure 7.1 shows the distribution levels of condom sachets in Nasarawa State between 2013 and 2015, which declined in 2016 and slightly increased in 2017. An in-depth discussion provided explanations as to why Nasarawa State had a greater quantity of condoms, which later decreased. PLACA Monitoring officer said:

“Plateau State falls in the category of ‘Maintenance State’ where the spread of the infection is less threatening than it used to be in the past. HIV/AIDS funding for outreaches has reduced, and the focus is now facility-based prevention activities involving treating services, and ARV therapy and PMTCT. Condoms are largely provided at the facilities for peoples to access”
(Urban, HIV Contact Person for 4 years_NS905)

“Nasarawa State has a rural population which is still ignorant about HIV/AIDS. There are more hot-spots where the most at-risk groups live. There are NGOs who implement prevention activities among them, that is why more condoms are needed to come to Nasarawa State”
(Female programme officer for 6 years_NS953)

The ERN 2009-2014 report on prevention in seven states, including Nasarawa, shows that over one million condoms were distributed (ERN, 2014). A condom is useful for people who need it for the prevention of new HIV infections. Recent reports indicated that 19.3% of men used

condoms at their last sexual encounter, while 58.3% women used a condom during sex with multiple partners who were not their spouse, which is more than the proportions in Plateau State, with 16.8% of men and 36.2% of women (NPC, 2019). One expects that a greater distribution and use of condoms in Nasarawa State than in Plateau State should have translated to a greater HIV decline. However, Nasarawa continues to have an HIV rate above the national average and is marked as one of the states with the highest HIV burden in Nigeria (NACA, 2019).

7.3.3 HIV Testing Services (HCT)

An HIV test service is a packaged prevention that consists of voluntary counselling, testing for HIV and enrolment for treatment if diagnosed with the virus that causes AIDS. The strategy in this prevention activity now includes test-and-treat. In the new approach, a person who avails himself/herself of the health service (in a facility) test for HIV is included in terms of medical examination. Thus, once a person is tested, he/she undergoes counselling if diagnosed as HIV positive and is enrolled to commence treatment within two weeks. The intervention package is found to be substantially useful at reducing HIV transmission (Dodd et al., 2010). Religious organisations require their members to test for HIV and pregnancy as a pre-condition for marriage and this is advocated in many countries around the world. Although the testing strategy is not universal, its selective geographical implementation is potentially cultural (Chattu, 2014).

Table 7.3 HIV Tested and Received Results (HCTR) in Plateau and Nasarawa States, 2013-2017

Period	Plateau		Nasarawa	HV +
	HCTR	HV +	HCTR	
2013	66466 (19.7)	9805 (14.8)	84702 (10.2)	12576 (14.8)
2014	67547 (20.0)	5178 (6.8)	138966 (16.7)	172879 (5.2)
2015	228, 110 (67.6)	5817 (2.6)	237914 (28.6)	15000 (6.3)
2016	88142 (26.1)	5551 (6.3)	170893 (20.5)	4007 (2.3)
2017	115182 (34.1)	7161 (6.2)	199903 (24.0)	4679 (2.3)
Total	337,337	33512	832,378	209141

Source: DHIS, PLACA and NASACA, 2018

One would expect more people to be tested for HIV/AIDS in Nasarawa State. A discussion with a participant to seek an explanation as to why a low proportion of people availed themselves of HIV test indicates the fear of a positive result and the resulting isolation. Participants were asked during the discussion whether they had recently been tested for HIV to know their status, and quite a number confirmed they have done this:

“HIV can be acquired through different means and one may not be certain about the source. I tested to know my status because of the lifestyle that may expose me to the disease”

(Urban, married male, 38 years old_PL377)

One participant from Nasarawa State expressed his view that testing is essential; however, he states that a positive outcome kills faster than the disease itself:

“People run away from you once you become HIV positive. It is better not be aware and live freely. When I think about what the outcome of the will be, I avoid presenting myself for the test”

(Urban, unmarried woman, 26 years old_NS723)

In Chapter Four, a male participant (NS715) expressed a similar view, suggesting that it is what people know that leads to their death; thus, whatever a person does not know does not kill. So not knowing one's HIV status does not kill as much as knowing. Studies have shown that the fear of discrimination or stigma was associated with the avoidance of HIV testing (Liamputtong, 2015; Mall et al., 2013; Meiberg et al., 2008; Link and Phelan, 2001). Isolation or exclusion because of one's social life was also found in Chapter Six to be responsible for people networking in groups that encouraged behaviours with a high-risk of HIV transmission. Fear of isolation might have affected HIV prevention and increased new infections.

Faith-Based Organisations have used mandatory HIV testing as a tool to fight against HIV/AIDS. As discussed in Chapter Six, abstinence from sex by unmarried members and sexual fidelity are prevention strategies used. Mandatory HIV testing is a recent development, where members who intend to marry are required to present certification of HIV and pregnancy status (Chattu, 2014). Compulsory testing of HIV is argued to infringe on a person's rights to personal health information (Silvia, 2012; Mekonnen, 2010; Beggs and Jernigan, 2001). The context for a mandatory test aims to reduce the sexual transmission of HIV to a partner in marriage (Chettu, 2014) and save a child in pregnancy, should the mother be infected with HIV (Schuklenk and Kleinsmidt, 2007).

Christian and Muslim congregations in Nigeria approved compulsory testing for HIV and pregnancy for unmarried people who indicated an interest in marrying. The practice is believed to be a gateway to save an innocent person who would enter a marital relationship with an infected partner, who ordinarily would not have accepted the health condition. The Holy Books of the two major religions in Nigeria were said to have instructed that a person who wants to marry has the right to know the health and reproductive conditions of the partner before

marriage. Christian and Muslim informants shared the view that mandatory testing is a prevention strategy and not meant to embarrass members:

“Churches in Nasarawa State have practised testing women for pregnancy before a wedding takes place to safeguard the sacredness of marriage which God required to be holy. So, the need to prevent the spread of HIV among Christians was what led to the inclusion of mandatory HIV/AIDS counselling and testing. The two tests were carried out in the Church denominations or a public health facility where a true result will be obtained. The initiation of this important strategy installed decorum among our congregations. The Marriage Committee in the Church presents her position.”

(HIV/AIDS Contact-Person for 4 years_NS905)

“The Emir of Nasarawa State (now late), invited all the Chiefs and Imams from the Local Government Areas to discuss the menace of HIV/AIDS on his people. The meeting ended with a resolution that Imams must certify the health status of people getting married and the result of them to be confirmed by parents or representatives from both sides of the families before the solemnisation takes place. The proactive step has reduced the situation where innocent people were getting married to people already HIV positive, who themselves may not know”

(Development Consultant for 11 years_NS903).

In Plateau State, similar views were highlighted while the religious perspective to HIV testing as a prevention activity was also recognised. If the HIV test result of one or both parties is positive, betrothed couples can decide whether to proceed with the marriage plans or not. Members of both religions have embraced compulsory HIV and pregnancy testing. Those who objected were not considered for the blessings of the Clergy or Imam. The Clergy’s withdrawal from the weddings of people who decline HIV and pregnancy tests, is similar to the social exclusion treatments discussed in section 6.5. The behaviour may cause a sense of humiliation and rejection that would lead to health risks, including HIV/AIDS.

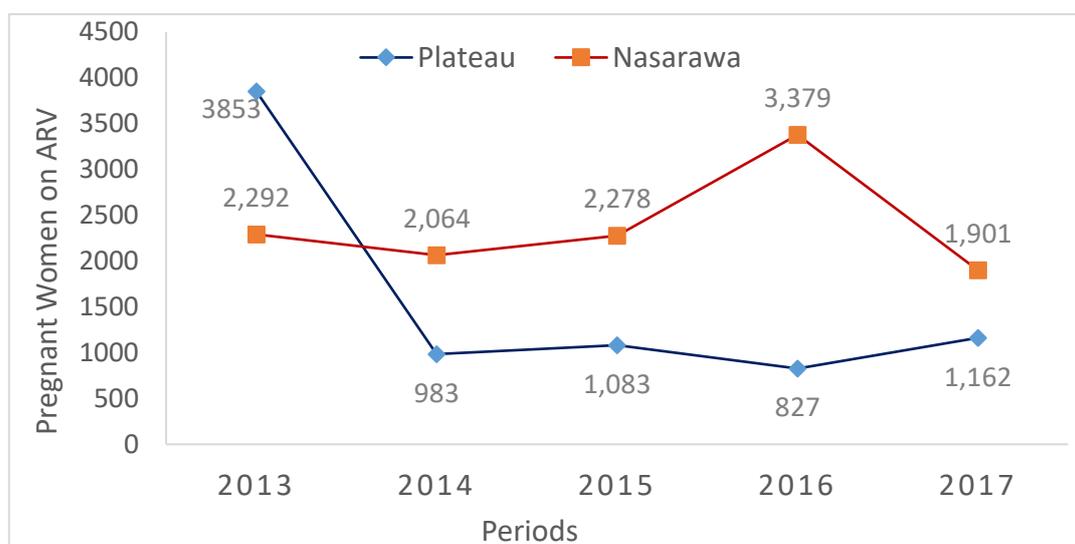
7.3.4 HIV/AIDS Treatment Prevention

The mid-term review of the 2010 -2015 HIV/AIDS national Strategic plan introduced a new 90-90-90 target that by 2020 intended to diagnose 90% of people so they knew their HIV status; out of those found with HIV, 90% would be provided with antiretroviral therapy (ART) in order to achieve 90% viral suppression among those on treatment. The treatment approaches consisted of people infected with HIV on therapy and pregnant women on ARV. Nationally, by 2015, of the 46% pregnant women with access to HCT services, 30.3% were on ARV (See Appendices A and B pp.21-22).

7.3.4.1 PMTCT for pregnant women

The transmission of HIV from mother-to-child accounts for more than 90% of newly infected children (de Cock et al., 2000). The prevention of mother-to-child transmission is an effective strategy that uses antiretroviral drugs for treatment to reduce the transmission of HIV to an unborn child at pregnancy, during labour, delivery or breastfeeding (WHO, 2015). This prevention treatment serves the dual purposes of reducing infant and maternal mortalities. Table 7.2 shows that the implementation of PMTCT policy had more women in Nasarawa State enrolled for PMTCT.

Figure 7.2: Pregnant women on PMTCT in the Study Locations (2013 to 2017)



Source: DHIS, PLACA and NASACA, 2018

While the number declined in 2017, it was low and steady for four years in Plateau State. The 2015 national report indicated that Nasarawa State had 79% PMTCT coverage while Plateau State had 29% (NACA, 2015). An explanation offered for the drop in PMTCT in Nasarawa State and low enrolment in Plateau State was donor fatigue. Conflict violence has recently affected HIV activities in Plateau State. Some implementing partners (IPs) ended their projects and left. The HAF II projects in the study locations were completed in 2017 have not been scaled up:

“The low enrolment is because some IPs³⁹ like CCFN, Pro-Health, local CSOs ended their projects and left the State. Only IHVN and APIN remain. They have taken over the facilities managed by those IPs who left. So, you can expect a drop in service provision”

(M&E Officer for 4 years_PL225).

³⁹ The participant uses IPs during the discussion to refer to Implementing Partners.

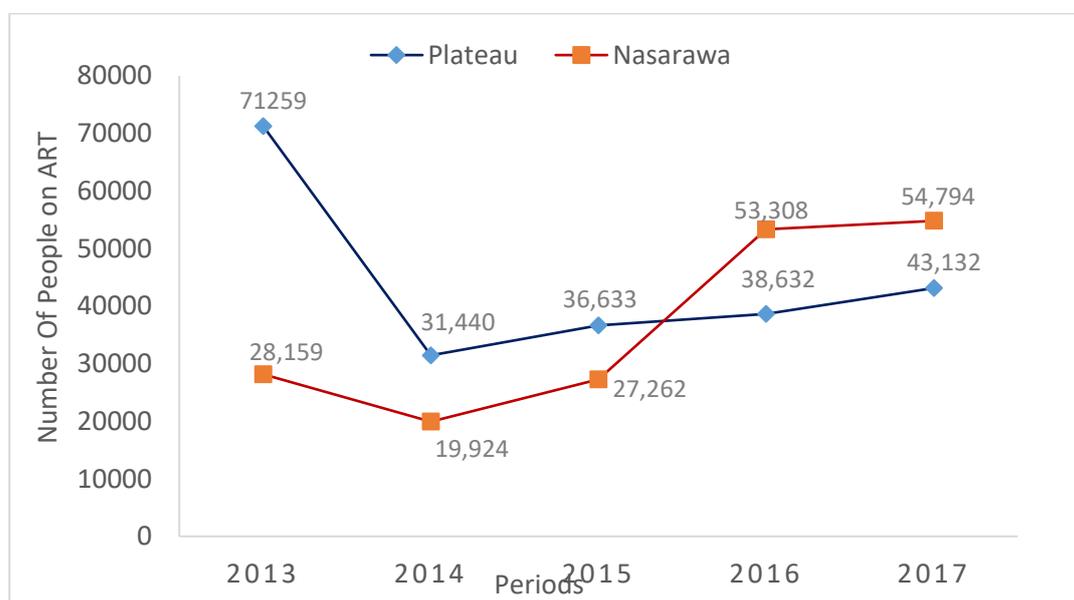
“There was tension among CSOs in Nasarawa State, when some donor partners ended their projects and no longer funding HIV/AIDS activities in Nigeria. The government was to take-over the funding and sustain the implemented programmes by establishing national AIDS Funds that integrate subsidising HIV/AIDS treatment in the National Health Insurance Scheme as most people living with HIV/AIDS can not afford the cost of the treatment”

(Married, Leader of People Living with HIV/AIDS for 8 years_NS905).

7.3.4.2 ART for people with HIV

The implementation of this HIV treatment strategy started in 2001 across about 25 tertiary health facilities, with Jos University Teaching Hospital (JUTH) serving the northern part of the country. It involves the enrolment of patients who were HIV positive, on ARV treatment, expected to adhere to taking the drugs, and with a regular viral load testing to monitor their suppression progress. In achieving the 90-90-90 global targets, the test-and-treat, task-shift, and scale-up plans utilise ART for effective implementation. The evolving strategies make the ART approach a life-saving treatment, a transmission prevention measure and a human right (WHO, 2016).

Figure 7.3 ART Treatment in Plateau State and Nasarawa State, 2013 -2017



Source: DHIS, PLACA and NASACA, 2018

As shown in Figure 7.3, from 2013 until 2015 the number of people placed under ART was initially higher in Plateau State, while enrolment rose in Nasarawa State. The national report by NACA 2015 indicated that 50.8% of adults and 38.6% of children were enrolled on ART in Plateau State, whilst 88.6% and 14.8% adults and children respectively were similarly

enrolled in Nasarawa State (NCAC, 2015). Similar to the explanation highlighted on decreased treatment enrolment, donor fatigue has affected the access to and provision of ART in Plateau State. The decrease in access to ART in Plateau State could lead to drug resistance, and the consequence would be treatment failure and the slower attainment of the 90-90-90 target (by 2021).

7.4 CONCLUSION

This chapter discussed the role of HIV/AIDS policy implementation programmes on the prevention of new infections in Plateau and Nasarawa States. Since the first national policy on HIV/AIDS was formulated, the strategies have continued modifications to fashion the best approaches for the prevention. The first policy focused mainly on creating awareness about modes of HIV/AIDS transmission and the prevention of new infections. Subsequent strategic plans targeted six thematic areas:

- i. Promotion of behavioural change and prevention of new HIV infection
- ii. Treatment of HIV/AIDS and related health conditions
- iii. Care and Support of people living with HIV, orphans and vulnerable children
- iv. Policy, advocacy, human rights and legal issues,
- v. Institutional architecture, systems, coordination and resources
- vi. Mentoring and evaluation system(s).

The study outcomes in Chapter Seven first identified that political participants were motivated which led to responses that focused on structural factors including health facilities, service delivery and other issues. The second outcome was that improved access to HIV prevention services that target individuals with health conditions relating to HIV/AIDS. The first policy on HIV/AIDS influenced the establishment of supporting institutions to facilitate the implementation of HIV and health-related programmes. The institutions include SACAs, which changed to PLACA and NASACA, Community and Social Development Agencies, MDGs, SDGs, and Social Investment Programmes Offices in Plateau State and Nasarawa State. Health facility reforms motivated a response to the establishment of primary, secondary, tertiary and specialist health systems that interact to serve as sites for diagnosis, treatment, documentation and empowerment to support sustainable health. The government have inadequate resources, therefore, networking with foreign, national and local organisations provide human and material resources that support the delivery of this development.

The third outcome is improvements to the access and delivery of HIV/AIDS prevention services. HIV awareness approaches that involved the grassroots delivery of prevention actions facilitated a sense of community ownership of the implemented projects and programmes, as Peer Education Plus, FLHE and the HIV role model increased awareness. Awareness increased HIV testing in the population. The 90-90-90 targets, test-and-treat, and enrolment for treatment were corroborated to impact HIV prevalence in the study locations. As an extract from the document review, policy plays a critical role in the organisation and delivery of HIV/AIDS prevention:

Plateau State benefited through:

- Early involvement in HIV/AIDS prevention activities
- More access to Social Investment Programme opportunities,
- More presence of cutting edge tertiary health facilities: Plateau State virology Research Centre, Just University Teaching Hospital (JUTH) Bingham University Teaching Hospital (BUTH), National Blood Transfusion Service (NBTS)
- More people on ARV = 69% in 2014
- PMTCT = 56, 2013, 70% in 2014
- No Injecting drug User (IDU) in HAF II Project (Appendix F)
- No Men who have Sex with Men (MSM) in HAF II Project (Appendix F)

Nasarawa State benefited through:

- More primary healthcare facilities providing HCT and PMTC services
- Greater distribution of condom sachets
- PMTCT = 68% in 20013, 80% in 2014, and 79% in 2015
- ART = 41%, 2014
- Including Injecting Drug Users (IDU) in the HAF II Project (Appendix F)
- Including Men who have Sex with Men (MSM) in the HAF II Project (Appendix F)

CHAPTER EIGHT

CONCLUSION, STUDY IMPLICATIONS AND RECOMMENDATIONS

8.1 INTRODUCTION

This research aimed to contribute to an understanding of the complex dynamics that facilitate or constrain the risk of HIV acquisition or transmission in settings with declining and rising/high prevalence. The study argues that HIV/AIDS is a social disease, whose process relies on the social context of person-to-person heterosexual relationships motivated by multifaceted conditions to heighten the risk of acquisition or transmission. Specifically, this research used a multilevel theoretical framework to understand the personal, social and structural factors that facilitate or constrain the risk of HIV transmission, responsible for the disproportionate HIV epidemiological situations in Plateau State and Nasarawa State. To answer the research questions, specific objectives were set out and explored using sequential explanatory mixed-methods methodology. A quantitative approach managed the survey data, whose outcomes directed the qualitative study process undertaken. The qualitative results have been used to explain the motivation for engaging in sexual behaviour that enabled or limited the risk of HIV transmission in the two study locations. The study results are presented in Chapters Four and Five and these addressed objective one, as Chapters Six and Seven achieved objectives two and three, and parts of the objective one.

Following the completion of the empirical chapters, this chapter is a summary that highlights significant findings and the implications for academia, methodology, and policy and practices for sustainable sexual health to halt HIV epidemics in Nigeria and countries similarly struggling with the disease. Suggestions for future research have also been highlighted.

8.2 OVERVIEW OF THE RESEARCH

The research examines and provides explanations for the disproportionate distribution of HIV/AIDS between Plateau state and Nasarawa State in Nigeria, one of the top five countries with high new infection rates and a heavy burden of HIV (UNAIDS, 2020). Plateau State and Nasarawa State were selected to investigate the factors that influence the epidemic in these situations. This research is essential because, in Plateau State, which initially displayed the highest HIV prevalence in the early 1990s, peaked at 11% in 1996 at the time when the national average was 3.3%. However, the HIV infection level began to decline from 2003, although there were spikes in 2010 (7.7%) and 2015 (5.8%). The spikes have been attributed to

unpleasant social forces. Nevertheless, the infection rate has further declined to 1.5%. In contrast to Nasarawa State, the infection rose, and the current rate of infection is higher than that of Plateau State. As the HIV infection started falling in Plateau State, in Nasarawa State, the rate was rising (subsequently slowing, and then decreasing since the start of this study), and it currently remains higher than that of Plateau State and the national average.

Epidemiological literature suggests that the transmission of infections, such as HIV, do not respect administrative or in this case, regional boundaries. This research has critically examined and provided insights into why the prevalence of HIV declined in Plateau, which was initially the epicentre of the HIV/AIDS epidemic in Nigeria, with the highest infection, and to explain why the prevalence remains higher in Nasarawa State. In so doing, the research argued that heterosexual activity is the most significant source of HIV infection risk, particularly when it occurs with an infected person without the use of a preventive method. The sexual risk of HIV infection increases when the persons involved have additional partners with whom they do not use a condom, and are ignorant of the condition of a partner's sexual health.

The majority of studies undertaken on sexual behaviour mostly focused on adolescents and women (Pharr *et al.*, 2018; Envuladu *et al.*, 2017; Agaba *et al.*, 2016; Ogbé *et al.*, 2014; John *et al.*, 2014; John, *et al.*, 2012; Dongurum and Osagbemi, 2010; Dongurum *et al.*, 2009; Slap *et al.*, 2003). The studies have been descriptive or quantitative, and mainly dwell on the presence or absence of sexual behaviour. Such studies have a positivist underpinning and are more limited in providing robust evidence as to *why and how* people are motivated to engage in sexual behaviour when there is a high chance of acquiring or transmitting HIV. Answers to such questions (how and why) are qualitatively driven; thus, this requires an approach founded on the belief that sexual experiences and exposure to the risk of infection are better understood by interacting with people who engaged in it. Existing studies that have used qualitative approaches are limited. The few qualitative studies undertaken to date have only concentrated on young people (Envuladu *et al.*, 2013) and women in certain ethnic groups (Orisaremi, 2016). There is a lack of mixed methods research that combines the strengths of quantitative and qualitative approaches to understand questions about complex social phenomenon related to sexual behaviour and risk of HIV.

To this end, the social epidemiology of the theoretical perspectives of disease is studied by adopting a pragmatic philosophical position. This examined a multilevel context in order to understand the potential for supporting sustainable sexual health that enable the eradication of

HIV/AIDS by 2030. The combined approach helped to explore individual, social and structural conditions that ameliorate or serve as barriers to behavioural and social changes that contribute to the decline or rising/high HIV situations. Two urban and two rural communities in each of the states - Plateau and Nasarawa - were selected for the study. The multiple cases study units with their distinct HIV epidemic experiences were designed to achieve the following research objectives:

1. To understand sexual behaviours in relation to HIV transmission in Plateau and Nasarawa States:
 - a) To describe the forms and timings of sexual behaviour in the study settings.
 - b) To determine factors associated with risky sexual behaviour and the likelihood of acquiring or transmitting HIV.
 - c) To explore the underlying factors, including personal motivations that explain the concentration of sexual behaviours and risk of HIV transmission.

2. To investigate the role of social groups/networks and social capital in the prevention of HIV transmission in the study locations:
 - a) To identify the key characteristics of social groups and networks related to HIV transmission and prevention in the study sites;
 - b) To describe the mechanisms through which social groups and networks construct social capital that constrain or facilitate exposure to risky sexual behaviour and HIV transmission.

3. To analyse the roles of HIV/AIDS prevention programmes on the epidemiological situations in the Plateau and Nasarawa State.
 - a) To characterise HIV/AIDS prevention and health-related activities in the study locations;
 - b) To explore the mechanisms through which the implementation of HIV/AIDS activities may have influenced the HIV prevalence situations in Plateau State and Nasarawa State.

8.3 SUMMARY OF MAJOR RESEARCH FINDINGS

This section encapsulates the evidence-based outcomes of the study, as presented in Chapters Four, Five, Six and Seven. The outcomes summarised are based on each of the three specific objects achieved: (i) Sexual behaviour and the factors influencing the sexual risk of HIV transmission; (ii) Social groups, networking, capital HIV/AIDS prevention; (iii) The role of HIV/AIDS policy and programme implementation.

Chapters Four and Five of the thesis identified indicators of sexual behaviour that provided insights into the dimensions of risk associated with the risk of HIV transmission that contributed to the HIV situations in Plateau State and Nasarawa State. Chapter Four identified seven indicators that accounted for different sexual behaviours within and between the two study settings. The behavioural variables provided a context for insights into the risk of acquiring or transmitting HIV. The study found that low risk sexual practices in terms of contracting HIV infection occurred more in Plateau State than in Nasarawa State.

In Plateau State, low risk behaviours were generally more likely than in Nasarawa State (for example, low total sex abstinence):

1. First sexual at age ≥ 15 years old had less risk because of a mature reproductive organ (in young girls) who can negotiate safe sex with sex partner who may be HIV risky.
2. The sexual relationship in marriage has been only with a spouse that reduced HIV transmission.
3. Sexual activity was mostly with a regular partner (in a stable relationship) where the partner's sexual history and health status are often known.
4. More respondents had sex with people who had no STD.

The most obvious finding to emerge from this study is that a significant proportion of respondents used a condom during sex before the age 15 years, during non-marital sexual activity, during sex with a casual partner, and when he/she or a partner had an STD. Residents in Nasarawa State were more likely to abstain from sexual intercourse than in Plateau State. Generally, a greater proportion of respondents in Nasarawa State than in Plateau State engaged in sex without a condom and had never had an HIV test. The socio-demographic backgrounds of the study respondents were significantly associated with risky sexual behaviour in both states. Consequently, in Plateau State, being female in a nonmarital sexual activity, being aged

≥ 25 years old and engaging in frequent sex, coming from a poor household, and being unwilling to buy vegetables from a vendor with HIV/AIDS posed a significant risk of acquiring HIV. The presence of peacekeepers, most of whom were men from the national security forces sent to the communities most hit by violent conflicts, encouraged transactional, extramarital and sexual violence. The quest for sexual liberty among older respondents and the pursuit of material and financial gains by young people explained age-differences in sexual networking that often held less interest in condom use or in the partners' health history. Moreover, the lack of jobs and resources constrained women and girls to high-risk sexual behaviour for survival.

However, in Nasarawa State, the chance of acquiring or transmitting HIV from a high-risk casual partner was more likely among married (154 times) than unmarried people; it was greater among those with no education (3.1 time) than those who had secondary/tertiary education, and more among women (1.6 times) than men. Married people and those whose spouses lived separately were more likely to acquire or transmit HIV during sex with a person who had an STD than unmarried people of spouses living together. Moreover, women were 5.8 times more likely than males, and members of low-income families were half as likely as those from rich homes to engage in high-risk sexual activity in marriage. Similarly, people who came from poor households were 2.5 times more likely to engage in high-risky non-marital behaviour. The transmission or acquisition of HIV was 2.6 times more likely among married than unmarried people who engaged in sex with someone with an STD or had an STD themselves. Moreover, this was 1.7 times more likely among women than men. The qualitative study provided evidence that gender inequality encouraged the domination of masculinity in heterosexual relationships, which restricted women's agency to demand sexual rights and safety. The lack of resources to address personal needs among women and girls meant they relied on men for help and transactional sex was encouraged. A culture that allowed men to marry many wives at a time also carried an increased risk of HIV. Also, trust in a partner and intimate loving relationships meant partners were less concerned with using a condom during sex. Men's libidos and sensation-seeking prompted them to refuse the use of a condom. Traditions that allowed spouse sharing with friends or relatives also accounted for the concentration of high-risk sexual behaviour in Nasarawa State.

In Plateau State, polygamists were far less likely to contract HIV in marriage. If a person completed primary education, he/she was less likely to engage in sexual behaviour associated with a high risk of HIV transmission in marriage. Women and people who were married were unlikely to contract HIV from a high-risk partner with an STD. There was also a low chance

of engaging in HIV high-risk behaviour among people who were unaware of a place to go to for an HIV test, and those who did not know that a healthy-looking person could have HIV/AIDS. Others included respondents who rejected the view that a wife should ask her husband for a condom during sex if he has an STD. Moreover, being a woman, from a middle-class household and being away from home for over a month was linked with a decreased chance of contracting HIV in non-marital high-risk sex. Similarly, polygamy and the completion of primary education in Nasarawa State was significantly associated with a low risk of HIV infection in marriage. The qualitative study explained that interpersonal relationships and the consequent effects influenced behaviour change that reduced high-risk behaviours. Participants narrated that their rapport and networking within and between groups provided access to support and social capital that helped them to overcome barriers that exposed them to the risk of contracting HIV. People who were discriminated against and criminalised because of their sexual and social attitudes in the family or community felt neglected and socially isolated. The neglect compelled them to find solace in alcohol, drugs, and sex work, which meant they became vulnerable to HIV risk.

8.3.2.1 Social drivers of a declining/low HIV situation

In communities with a low or declining HIV prevalence in Plateau State, family members and friends had close ties and confidences with one another, which meant they felt able to share their intimate health-related issues. The bonding encouraged those diagnosed with HIV to first share their status with a relation, from whom support to cope primarily came. Close ties in a family setting restricted specific social opportunities for sexual relationships and emphasised total sexual abstinence that delayed the sexual debut. Friends in close neighbourhoods gained advice from one another on how to handle issues relating to the use of a condom during sex and on unwanted pregnancies. It was hard for those people in close neighbourhoods to trust someone they had never met face-to-face or been familiar with for support (Levi et al., 2017). This attitude suggests that generalised trust was weak because of the disappointment they had encountered in the past.

HIV positive participants who were involved in multiple groups, especially religious groups, often relied on a divine being, 'God' or 'Allah' through the clergy for prayers and encouragement, which supported them in difficult conditions. This helped them to change and move away from risky lifestyles. The benefits of belonging to a religious group were the expectations of sexual fidelity in marriage, and sexual abstinence among the unmarried, which

both reduced HIV risk. Moreover, the delineation of communities in settlements was based on the predominant religion. The separation of communities based on religion weakened close relationships between the Christian and Muslim neighbourhoods which prevented benefits from reciprocity and social cohesion, which can support the realisation of health. However, participants indicated that the separation was beneficial. In Shendam, Christians explained that, due to poverty, their young girls were lured into transactional sex by rich and influential Muslim men. The opportunity for men and girls to meet for such a relationship has been reduced, as Muslims claimed that the rate at which Christian girls transmitted HIV to their men also reduced.

Ethnic/tribal group pride in promoting cultural heritage and traditional values prohibited sexual relationships with another person's spouse or sex before marriage. The ethnic groups circulated information about employment and empowerment opportunities among members who shared a similar identity. The traditions practised among people in a horizontal relationship promoted safe sexual values among both married and unmarried population in the communities. People living openly with HIV/AIDS and their support group served as role models as they advocated safe behaviour for the prevention of HIV infection. They shared their HIV/AIDS health conditions and experiences that exposed them to the risk of infection. Such first-hand information conveyed the reality of HIV and the need for prevention, which led to behaviour change in the community. Moreover, neighbourhood night watches were formed that served as security groups in the immediate neighbourhood, where night parties and late-night alcohol drinking activities were reduced. The impact of these safeguarding efforts meant the promotion of responsible behaviour, which significantly shaped the prevalence of risky behaviours that made people susceptible to HIV. Moreover, they particularly decreased social activities involving prostitution, sexual violence, and drunkenness at hotspots. Financial, emotional, and psychological support in the event of bereavement, sickness, child-delivery or weddings in the neighbourhood reduced the burden and provided quick access to resources that prevented exposure to risky social and sexual activities.

A vertical relationship, as highlighted by Islam et al., (2006) and Narayan and Cassidy (2001), were noted in the relationships within and between people and groups or organisations through strong or weak ties, and by supporting each other to achieve health and wellbeing. Government and non-governmental organisations supported one another to establish HIV/AIDS and health-related programmes in the communities. In such interactions, social groups and individuals had access to healthcare, education, funds (including HIV testing services), free condoms, and

ARV treatments. The complementary relationships facilitated grants and a range of equipment to empower people, which resulted in sexual and social behaviour changes. Religious groups were involved in bonding and bridging relationships within and outside their umbrella organisations (like the CAN and JNI who collaborated with national and international bodies). The partnership facilitated the provision of healthcare, agricultural input, and financial and educational support for their local congregations; these were distributed to individuals and groups to address poverty and the lack of health and education facilities. Persistent conflict and violence in the communities studied led to the interruption of socio-economic opportunities including the weekly market, drinking joints, and commercial sex. The disruptions triggered the displacement of sex workers and the owners of the drinking joints from the communities. The economic hardship experienced meant that some men reduce patronage to sex partners, and some polygamists divorced a number of their wives to cope with the challenges they faced. Thus, conflict violence had two implications: first, it reduced the risk of sexual opportunities and behaviour; second, it exposed women and girls to hardship which meant they became vulnerable to selling sex for survival, which increased HIV risk at their destinations.

The dimensions of social relationships, and access to social support in Shendam and Kuka offered explanations for the reduced likelihood of engaging in HIV high-risk sexual behaviour. As the chances of exposure to the risk of HIV acquisition or transmission reduced, HIV new infections also decreased, which consequently contributed to the substantial decline of HIV prevalence in Plateau State. This was similar to the reported situations in other developing countries, especially Sub Saharan Africa and the Caribbean (García et al., 2014; Campbell et al., 2013; Halperin et al., 2011, 2009; Gregson et al., 2011, 2010; Frumence et al., 2010).

8.3.3.2 Social drivers of a rising/high HIV situation

The study found that high and low HIV zones in urban areas share similar social group characteristics. Social groups accessed social resources that influenced the most recent situation, as social networking in the high HIV communities differed from the low HIV zones. The significant difference between those two HIV zones (rising/high and declining) was the social relationships in the high HIV neighbourhoods, which had more clusters of the most at-risk populations. This group consisted of sex workers, people who inject drugs or those who consumed harmful substances (such as marijuana, codeine, among others), men who have sex with men and adult-dating networks on social media (such as Badoo, Myspace, Tagged). People in these groups have faced stigma, discrimination and criminalisation because the norms guiding the social groups forbid their lifestyles and behaviours. This neglect explained their

deep involvement in risky behaviours, which increased the risk of HIV acquisition and transmission.

Social capital is a pathway that promotes health as individuals receive care and support, which enables self-value. In comparison, it damages health outcomes when individuals are 'down-levelled' or their social freedom is forbidden (Villalonga-Olives and Kawachi, 2017; Graeff, 2009; Portes, 1998). Studies have found that repression that emanated from societal norms facilitated exposure to risky behaviours, like drugs or alcohol, and resulted in engagement in unprotected sex (including with multiple partners) resulting in health risks (Kumar et al., 2016; Takakura, 2015; Kim, 2014; Kishimoto, 2013). This study found that society, in general, has been hostile to this group of people by using security agencies to harass, arrest and even incarcerate them. This treatment has made them avoid healthcare services, including HIV/AIDS prevention and treatment services (Sivaram et al., 2010; Graeff, 2009; Pronyk et al., 2008; Gargiulo and Benassi, 1999). In a generalised epidemic population, like Nasarawa State, the most at-risk groups likely aided the spread of HIV and sustained the high prevalence of HIV.

8.3.2.3 Implementation of HIV/AIDS prevention programmes

Political participation facilitated responses to the structural factors of HIV risk. In both study locations, health facilities had an upgrade as service delivery improved to achieve the MDGs. Consequently, national HIV and AIDS policies were passed to State and local governments, as SACAs and LACA, and thus PLACA in Plateau State and NASACA in Nasarawa State emerged. The establishment of public institutions (CSDA and SIP) in both States assisted the achievement of MDGs and SDGs in collaboration with foreign and national donors. These efforts ensured health facility reforms that established health systems for diagnosis and treatment to attain sustainable health. Bottom-top advocacy and sensitisation allowed grassroots ownership of HIV/AIDS prevention activities including Peer Education Plus, FLHE and HIV/AIDS role models. HIV testing patterns also improved as the 90-90-90 test-and-treat approach targeted and enrolled the most at-risk groups, including pregnant women, for interventions. HIV/AIDS policy implemented the report reviewed between 1990 and 2017 and shows the followings benefits:

Table 8.1: Benefits/Outcomes of HIV/AIDS Related Situation in the study Locations

<u>Plateau State</u>	
<ul style="list-style-type: none"> ▪ Involved in first HIV/AIDS control activities in the country ▪ Had greater access to Social Investment Programme opportunities ▪ Had the highest presence of tertiary health facilities, like the Plateau State virology Research Centre, Just University Teaching Hospital (JUTH), Bingham University Teaching Hospital (BUTH), National Blood Transfusion Service (NBTS), AIDS Prevention Initiative in Nigeria (APIN) Laboratory for HIV research. ▪ Higher people accessing treatment (69%) in 2014 	<ul style="list-style-type: none"> ▪ PMTCT in 2013 was 56, and 70% in 2014 ▪ No Injecting Drug Users (IDU) in the HAF II Project ▪ No Men who have Sex with Men (MSM) in HAF II Project
<u>Nasarawa State:</u>	
<ul style="list-style-type: none"> ▪ Highest primary healthcare facilities providing HCT and PMTC services ▪ Had more sachets of condoms distributed ▪ PMTCT = 68% in 20013, 80% in 2014, and 79% in 2015 ▪ People on antiretroviral therapy were 41%, 2014 	<ul style="list-style-type: none"> ▪ Large population of Injecting Drug Users (IDU) in the HAF II Project ▪ Presence of Men who have Sex with Men

8.4 RESEARCH CONTRIBUTIONS

This thesis contributes to the body of knowledge on the theoretical, methodological, policy and practice levels. HIV/AIDS has been studied from the biomedical approach, which argued it was purely a medical science health challenge. However, the mode of transmission, prevention and treatment has recently been found to be rooted in social relationships and structure. In eradicating the epidemic and attaining sustainable health and wellbeing, the emphasis is currently located within a broad dynamic conceptual framework that focuses on individual and socio-structural effects in the prevention and transmission of HIV. The investigation represented a overlap between Public Health, Epidemiology, Health Psychology, Political Economy, and Medical Sociology perspectives. The interdisciplinary and multilevel approach served as a useful novelty in health geography and the social epidemiology of health debates, and is relevant for application in settings with similar epidemic situations and systems. The multilevel strategy in an inquiry in social epidemiology of health (Evans et al., 2015; Lisa and

Kawachi, 2014; Crankshaw et al., 2012; Rothenberg, 2007; Poundstone et al., 2004) informed the understanding of the local reality of sexual behaviour and transmission risk of HIV.

8.4.1 Theoretical

The HIV decline was appreciated for its value for the health-economy of people in countries most hit by the pandemic. However, high prevalence raised concern about the burdens it exerts on development (Haacker, 2016). The mechanism for understanding pathways through which HIV/AIDS transmissions thrive was hitherto dependent on individual behaviours, which are limited in providing the basis for measuring and understanding the social environment, disease and health nexus. For example, before this study on Plateau State, Envuladu et al., (2017, 2013) and Dongurum et al., (2010) looked at sexual behaviour among adolescents, while John et al., (2017; 2012) and Smith et al., (2003) investigated sexual activity among secondary students, and Orisaremi (2016) examined sexual seeking behaviour among Tarok women. In Nasarawa State, Cortez et al., (2016) studied adolescents' sexual health, Bako et al. (2017), and Gyar et al., (2014) analysed concerns about high HIV transmission and the low number of HIV tests. Enegela et al. (2019) reported unprotected sex among people with HIV/AIDS, but is limited in theoretical detail.

These studies focused only on the sexual behaviours of small subgroups of the population over a particular time, with no trend on behavioural change and the local social realities that shaped the phenomena over time, place and space. In comparison, this study provides evidence for the measurement of sexual behaviours, specifically associated with background characteristics and the local HIV epidemiological experiences in Nigeria, particularly Plateau State and Nasarawa State. Hence, this research conceptually underscored those of Poundstone et al., Barkman and Kawach, Honjo et al. Moreover, the social epidemiology (of HIV) was corroborated by Gidden's agency and structure, Haggett's disease and Roger's information diffusion theories. These all offered conceptual bases for the empirical investigation and the operationalisation of complex pathways of prevention through which HIV varies within and between settings.

8.4.1.1 Sexual behaviour and social epidemiology of HIV in Plateau State

Prior to undertaking this study, it was unclear why and how HIV declined in certain places and failed to reflect the same trend in the Sub-Saharan African countries most hit by the epidemic. Although the mode of HIV transmission is primary through heterosexual activity, factors that contribute to the epidemiological conditions were based on speculation, and in most cases from

studies that reported one or two behavioural indicators within a particular period. The evidence in this study found that a multilevel context significantly contributed to the social epidemiology of HIV and the health-related situation (see Table 8.2, page 370).

As such, the research contributes to knowledge on the possibilities in social relationships within and between social groups or organisations that served as collective resources to ameliorate vulnerable circumstances that heightened the tendency to engage in risky behaviours associated with acquiring or transmitting HIV. How people access social capital, social support, livelihood opportunities and societal norms (from formal and information sources) can facilitate a delay in early sexual debut, encourage abstinence from sexual intercourse among unmarried people, and encourage faithfulness to a spouse. Also, the networking within and between the groups served as major sources of information about economic opportunities, HIV/AIDS and health-related services that include confidential counselling, testing, condoms, treatment, and remedies on sexual and reproductive health.

On the other hand, in 2001, 2010 and 2014, HIV spiked in Plateau State (see Figure 1.1, page, 22). The situation may be associated with the significant evidence that indicates people who were unmarried, females, people aged ≥ 25 years, members of poor households, and those who would not buy vegetables from a vendor with HIV/AIDS engaged in HIV high-risk sex. The motivations for behaviour have been explained by in-depth discussions, which indicate that ununiformed men, the need for sexual liberation amongst older people, joblessness and loss of income, and the quest for material and financial gain encouraged high-risk sex.

Table 8.2: Multilevel Factors that Influenced the Decline of HIV Prevalence in Plateau State

Personal Factors
<ul style="list-style-type: none"> ▪ First sexual experience at a later age (≥ 25 years old); low non-marital sexual activity; total abstinence; sexual fidelity in marriage; sex with a regular partner; and low reported STD ▪ Use of a condom; sex before 15 years of age; nonmarital sex; sex with a casual partner; never tested for HIV; sex with the presence of a STD. ▪ Reduced chance of high-risk HIV likely among Polygamists; those who completed primary education; of HIV in marriage; women; married people.
Social Factors
<ul style="list-style-type: none"> ▪ Family and friends had a close rapport and trust that encouraged the sharing of private sexual experiences, HIV infection status informing relations first about HIV infection for support to cope with the situation. Family ties restricted opportunities that exposed members to risky social behaviours and promoted total sexual abstinence. Friends in close neighbourhood discussed condom use during sex to prevent unwanted pregnancy and STI. ▪ Religious groups provided multiple opportunities for HIV positive people to access support through the clergies for prayers and encouragement that influences behaviour change. Married and unmarried people experienced the application of a religious ABC model for HIV prevention which upholds sexual fidelity in a union and sexual abstinence among the unmarried. ▪ Persistent community conflict and violence caused severe economic depression that forced men to reduce the number of sex partners and people with more than one wife to divorce some, which constrained exposure to risky sexual behaviour. ▪ Traditional heritage and values amongst ethnic groups treat extramarital sex and sex before marriage as taboo. ▪ Circulation of economic opportunities to members that facilitated access to resources and empowerment. ▪ People living openly with HIV/AIDS advocated for safe behaviour by sharing their HIV infection realities during the community meetings. ▪ Formation of community vigilantes provided neighbourhood security that reduced night parties, late-night drinking, the taking of hard drugs, and clubbing activities ▪ Civil Society organisations collaborated at international, national and local levels in support of HIV/AIDS and health-related activities by proving grants, office and health equipment and services that enhanced HIV testing services, free condoms, and antiretroviral treatments.
Structural factors
<ul style="list-style-type: none"> ▪ Involvement in the implementation of the first national pilot of an HIV prevention policy. ▪ Early establishment of State Action Committees on AIDS (SACAs) ▪ One of the first to adopt the first national HIV/AIDS action plan - the HIV/AIDS Emergency Action Plan (HEAP) ▪ Introduction of top-bottom HIV advocacy Committees that increased HIV and AIDS awareness. ▪ Formation of government institutions (e.g. CSDA, MDG and SDG offices) for the implementation of development of interventions to achieve the Millennium Sustainable targets. ▪ Family Life and HIV/AIDS Education (FLHE) curriculum was implemented at the upper primary, secondary and tertiary education levels that promoted awareness about sexual and reproductive health; HIV/AIDS modes of transmission, prevention and treatment. ▪ Presence of tertiary health facilities with state of the art HIV/AIDS health-related research laboratories for HIV testing and therapy services ▪ Early invention of development strategic Plans. Examples include: “<i>Plateau State Peace Building Agency (PPBA) Strategic Action Plan 2018-2022</i>”, “<i>Plateau State HIV and AIDS Strategic Plan 2017 -20212</i>”, “<i>The Child Right Law</i>”, The National Drug Law Enforcement Agency (NDLEA)

8.4.1.2 Sexual behaviour and the social epidemiology of HIV in Nasarawa State

This study analysed the differences between the context of the decline of HIV and its rise in Nigeria, and gave an explanation as to why and how the HIV situation varied in the study settings. Although the detail has been presented in the results chapters, personal and socio-structural factors are highlighted in Table 8.3 and contribute to the empirical literature that offered insights into why and how the high HIV epidemiological context occurred. Young people under the age of fifteen and unmarried people cared less about using a condom at their last sexual encounters, even with casual partners with whom they did not live. People at risk of HIV and agents who sustain the epidemics were associated with the downstream and upstream factors argued by Lorence et al., (2013), and include females, married people and those living separately, those who lack education, poor family members, and those ignorant of the modes of HIV prevention. These conditions can be attributed to the excessive powers of males in heterosexual relationships, men's social, political and economic advantages, and cultural practices depriving women of the agency to demand sexual rights for health and wellbeing. This is in addition to the barriers caused by social relationships, where the existing norms stigmatised, discriminated, and criminalised the way of life of certain members of society, which caused seclusion and social distance and carried HIV risk and health-related implications. Nasarawa State neighbourhood with its HIV hotspots (Benue State that has routes linking Cross River, Akwa Ibom and the Rivers States, FCT-Abuja and Taraba State) provided the possibility of spatial diffusion of the disease, as highlighted in the literature (Sadikov et al., 2011; Haggett, 2000; Jenkins, 1999; Gould, 1993).

A close examination of Table 1.1, page 19 shows that HIV prevalence is generally higher in Nasarawa State than in Plateau State. In recent times, the epidemic fluctuated with significant decreases in 2003, 2010 and 2018. New HIV infections reduced because of low HIV risk behaviours among women, members of middle-class families and people away from home for over a month in a nonmarital relationship. Polygamists and people who completed primary education had low tendencies towards the exposure to HIV risk in marriage. Similar social factors identified in Plateau State, and particularly religious groups, were found to be greater in number than in Nasarawa State, whose role shaped behaviour and enabled safe sexual activity. Healthcare facilities and health-related institutions collaborated for the implementation of HIV/AIDS prevention programmes that contributed to the observed decline in the epidemic.

Table 8.3: Multilevel Factors that influenced the rising/high rate of HIV prevalence in Nasarawa State

Individual Risk Factors
<ul style="list-style-type: none"> ▪ A significant number having unprotected sex at their first encounter at ≥ 15 years old; unsafe non-marital sex; unprotected sex with casual partners; non-condom use at last sex; never had an HIV test; unprotected sex with the presence of a sexually transmitted disease. ▪ Married people engaged in high-risk sex with a casual partner. ▪ Spouses living apart had a chance of acquiring or transmitting HIV during sex with a person with an STD. ▪ Women highly likely to engage in high-risk sex in marital relationship, with a person with an STD ▪ Members of poor families were more likely to have high-risk sex in marital relationships. ▪ People with no education had a greater chance of becoming infected with HIV than those with secondary/tertiary education. ▪ Lack of awareness about HIV test centres exposes one to greater risk during nonmarital sex. ▪ Rejection of the idea that a wife needs to ask her husband to use a condom if he has an STD was associated with a 70% risk of HIV during frequent sexual activity.
Socio-structural risk factors
<ul style="list-style-type: none"> ▪ Gender inequality manifested in the man who dominated heterosexual decisions. Culture that sees women as a man's property and sharing a spouse with friends or relatives. Women's total dependence on men for resources. Masculinity and sensation seeking. Restricted agency to negotiation and limited exercise over sexual and reproductive health rights. ▪ Religious opposition to sexual and reproductive health awareness amongst children deprived access to knowledge on HIV prevention. ▪ High concentration of commercial sex workers, people who inject and use drugs, men who have sex with men and adult-dating networks on social media ▪ Resource deprivation worsens sex for cash or gifts ▪ Low HIV and AIDS awareness ▪ High HIV stigma and discrimination ▪ Trusting in a love relationship compels partners to be less resistant to unsafe sex. ▪ Ignorance that leads to doubts about the reality of HIV and the safety of prevention services ▪ Borders with high HIV neighbouring states with which social, economic and spatial ties exist increasing risk through mobility ▪ Social groups have norms that stigmatise, discriminate and criminalise the lifestyles and behaviours of the most at-risk group exposing them to neglect, social isolation and vulnerable health risk.

The factors highlighted in Tables 8.2 and 8.3 are significant in providing insights to the multifaceted dynamics in the declining/low and rising/high epidemic conditions between Plateau State and Nasarawa State. The realities provided by the study outcomes on the social epidemiology of HIV in this study situate settings with similar HIV and health-related conditions in Sub-Saharan African countries.

8.4.2 Methodological

Researchers whose interests have focused on understanding sexual and social behaviour related to HIV/AIDS in public health have had methodological challenges (Kaufman et al., 2014; Fox et al., 2011; Mitchel et al., 2007; Diez-Roux, 2000). The approach has hitherto relied basically on biomedical models that are Western-based, which have been inadequate for insights into the realities in Sub-Saharan Africa (Wolffers, 2000). Hence, this mixed methods research that aimed at exploring to understand the realities related to existing sexual behaviour and HIV conditions (Gray and McIntyre, 2017). Underpinned by a pragmatic research philosophy, quantitative and qualitative techniques were sequentially combined to explore the epidemiological situations in Plateau State, Nasarawa State, and indeed Nigeria.

The methodology is flexible and allows the researcher to relate with the research subjects to enable them to trust and share the narratives and meaning to their social reality. In doing this, the process involved reflecting on how my status and relationship with the study participants might have been influential at the time of the data collection, analysis and interpretation when constructing knowledge (Elliott, 2018; Finlay, 2002). Amidst stigma and potential social desirability, I built rapport with the study participants based on a trust that transversed socio-cultural barriers (Neuman and Neuman, 2015; Hubbard et al., 2010). The study approach valued knowledge as unique to an individual's nature of reality in relationships and experiences that shapes health and well-being. Thus, the researcher reflected on a pluralistic ability to examine the research problems, and developed realistic and achievable plans of action to address the purpose of research.

A mixed methods approach is flexible for the investigation of complex social phenomena, which people ordinarily do not discuss. In a culture where talking about sex is taboo and the sharing of HIV experiences raise the fear of stigma and criminalisation, bias could emerge. The integration of quantitative and qualitative approaches provided multiple ways to obtain multiple data from different sources to enable evidence-based outcomes for contextual insights into sexual behaviours and the high-risk of HIV transmission. The mixed methodology is a significant shift from the often-used mono method that is limited for its reliance on a single technique. Examples of studies with mono-methods include: Envuladu et al. (2013, 2017), John et al. (2012, 2017), and Orisaremi (2016). The adoption of mono methods has meant that policymakers remain unclear as to why and how sexual behaviour and HIV events are motivated. The qualitative component in the mixed-methods approach enables the in-depth

probing of an existing reality that provides explanations of the underlying motives for engaging in certain behaviour. The evidence emerging from textual data was drawn from professionals, informed individuals and members of communities on insights into their communities.

This study has demonstrated that sensitive issues that relate to sexual behaviour and HIV are best investigated using a mixed methodological design that relies on principles that support multiple approaches to collect and analyse robust data that provides evidence of existing social realities. The methodology adopts two phases, where one is complemented by the other in order to triangulate evidence-based outcomes.

8.4.3 Policy and practice implications

In medical and health geography, locations and places are valued and considered significant for understanding disease patterns. Health is generally associated with the rules, values and cultural landscapes that constitute the basis for actions and disease diffusion (Rosenberg, 2015; Cutchin, 2007). Settings with generalised and concentrated HIV epidemics require a deliberate prevention package that meets the existing realities in localities. Hence, this study is significant for achieving a pragmatic multilevel approach for sustainable sexual health and HIV/AIDS prevention. Achieving durable sexual health and zero HIV/AIDS are practicable through the following recommendations for social development practitioners and health-related public and private authorities in Nigeria, especially Plateau State and Nasarawa State:

1) Develop and deliver comprehensive sexual health, HIV and AIDS prevention awareness.

This research has implications for the need for appropriate awareness and focuses on addressing the context of individual factors influencing the risk of HIV. Prevention awareness was hitherto generalised and did not translate to behavioural changes. As such, designing a comprehensive awareness that targets ‘attitude-behaviour’⁴⁰ and sensitisation with appropriate information that is gender (males and females) specific, and based on age groups (young-adults and older-adults) and marital status (married and unmarried). This strategy is essential because each of the mentioned identities constitute a unique cluster of people, with different worldviews and social realities. Consequently, considering these groups of people together under the same prevention services represents one reason why sexual behaviour and HIV acquisition and transmission remain unabated. Married people who live separately, people with no education and those from poor households also require special attention, especially on awareness that

⁴⁰ A concept that emphasises that a person’s opinions relate and predict his/her actions

addresses conditions and possibilities that relate to sexual behaviour and HIV/AIDS. When designing intervention packages, skills on assertiveness, culturally appropriate use of condoms, and an abstinence-plus programme that does not undermine abstinence or safer sex, role models and the life-story (or life journal) of HIV experience should be often added to ensure pragmatic delivery and application. Voluntary drug and HIV risk counselling, conflict resolution and the production of information, education and communication materials (including pamphlets posters and stickers) can enhance the process of awareness and sensitisation and reach people faster to influence thus behaviour and reduce vulnerable situations.

2) *Pragmatic execution of rights to formal education and HIV/AIDS skills for out-of-school and in-school population.*

The study found that the completion of primary education reduced the risk of HIV in marriage, whereas people who had no education and had completed secondary or higher education might be at high-risk of acquiring or transmitting HIV. As a “social vaccine” that provides lasting immunity with multiple livelihood and health benefits, the skills and knowledge acquired at the completion of primary education or junior secondary education can empower a person to successfully handle relationships, and sexual and reproductive health risks. The content can be designed to reflect social and culturally appropriate sex education, and gender awareness (as in the Family life and HIV/AIDS Education curriculum). The knowledge, when acquired, can change attitudes and behaviours about the negative gender norms and practices for women and girls to have equal rights to available opportunities as men and boys for a pluralistic society. The implementation of this recommendation has the potential to address the male dominance and sexual violence that deprived women’s sexual agency to ensure a safe heterosexual relationship and allow young people to grow up equipped with the necessary skills for the prevention of sexual risk, HIV, and health-related vulnerable situations.

3) *Design entrepreneurial and skill-building empowerment programmes.*

The economy of most low-income countries has, in recent times, been dwindling with more people losing their sources of livelihood. This trend has exposed people to financial distress, forcing many - especially women and girls - into transactional sex to survive. Young adults, both men and women, also engaged in risky sex for financial or material gain due to inadequate resources to meet basic needs or a quest to “belong to a class”. The situations have increased the risk of HIV. However, with deliberately designed, skill-building economic empowerment strategies that target the most vulnerable populations (who include commercial sex workers,

the unemployed and underemployed, economically active populations, and street hawkers) people will have sources of income, experience reduced crime and less risky sexual behaviour. The change in economic status resulting from the entrepreneurial and business skills acquired would increase health-seeking behaviours among individuals and in specific vulnerable urban and rural communities. The Ministry of Sports, Women and Youths Development, Ministry of Science and Technology and Ministry of Education at the Federal, State and Local Governments in collaboration with national and international partners, can collaborate in their policies and include these strategies. For example, the Industrial Training Fund (ITF), an agency of the Federal Ministry of Science and Technology had long been implementing a similar project, but ignored the need to focus on the selected vulnerable population this study identified, who are stigmatised, discriminated and criminalised. Hence, a “horizontal and vertical”⁴¹ synergy was required between the public and private sectors and organisations to develop this approach and thereby enable sustainable economic and health conditions.

4) Establishment of community-based sexual health and HIV/AIDS centres.

This study found that HIV tests were carried out largely in both public and private health facilities. However, only a few provided comprehensive services that included testing, sexual health, (Family Planning), treatment and condom distributions, although the rate of patronage was generally low compared with the population in need. The situation is a great threat to achieving sexual health, and to the test-and-treat model that focuses on ensuring that 90% of people are tested and know their HIV status, 90% people who are tested and diagnosed as HIV positive are enrolled on treatment, and 90% of those on treatment attain viral load suppression by 2030. Centres that provide these services are limited, particularly in the rural and suburb areas, which slows the possibility of achieving the test-and-treat targets. Establishing close neighbourhood-mobile-centres that combine and provide sexual and reproductive health, HIV testing and condom services can increase the level of access to prevention opportunities, even amongst young people (who often lack such services) and the most at-risk members of the society whose social and sexual lives have been stigmatised, discriminated and criminalised. These vulnerable groups are often afraid of stigma or arrest, and thus avoid such services. Establishment of neighbourhood centres would increase patronage, and more people would

⁴¹ Operational concepts the study adopted to reflect ties that exist among people or groups of equals or near equals (horizontal), and ties of hierarchical or unequal individuals or groups who have different access to resources and power. The two collaborate on the basis of their complementarity advantages to solve problems.

pass through the first-gateway to know one's status, to either use a condom or to commence treatment immediately. This strategy has the possibility of increasing sexual health and HIV safety attitudes that can significantly influence: behaviour change in terms of sexual risk, a decline in new infections and its prevalence. As implemented during the early HIV response in Plateau State, house-to-house testing and condom distribution are needed as is the contact-tracing of people infected with HIV, and other STIs, and the provision of condoms, including pre or post exposure prophylaxis (PrEP or PEP) for people exposed to risk. In addition to this, HIV services need to be concurrently incorporated into antenatal, postnatal and family planning services in every community, and particularly in close-neighbourhoods for easy access. This strategy can fast-track the prevention of unborn and new babies, provide safety to the growing number of intended partners or couples, and enable a large, active labour force to live healthily. Moreover, with the COVID-19 pandemic and the possibility of a health-passport to ensure national and international travel, a centre would serve dual purposes of concomitantly addressing HIV and COVID prevention.

5) *Direct funding to community and social groups for the implementation of sexual health and HIV/AIDS prevention programmes*

Community and social groups play an important role in the HIV/AIDS response by developing inclusive approaches that help people to focus on issues that affect them and raise their awareness of the need to utilise existing resources. In difficult times, such as financial crises, social imbalance, and growing health threats, the groups are often the first to call attention to swift interventions that drive change. This study highlights that the social relationship facilitates access to social support and capital that offers an important approach to sexual and social behaviour change through access to emotional, spiritual, informational and material resources that mitigate the risk conditions to which people are exposed. The interaction among members of social groups has been found to encourage behaviour change as people within and between families, acquaintances or professionals at the community levels operate on basic, yet important, values of cooperation, trust and reciprocity that help to form survival strategies. This includes the group's potential for: close and direct relationships with people, the identification of concerns, the swift articulation and response to indigenous issues, cost-effective and easy to operate strategies, developing the best medium for the implementation of HIV/AIDS, and ensuring a context for health-related prevention and mitigation programmes. International and national HIV/AIDS donors and partners can directly collaborate with groups without using a second party to implement social, economic and health intervention programmes. The groups

are known to be sufficiently flexible to respond to a variety of emerging community issues indicating their potential for the effective and swift delivery of sexual and reproductive health intervention packages to the target audience. These can reduce new HIV infections and subsequently lead to an overall decline in the infection rate. For instance, instead of awarding funds to layers of national partners to implement prevention services to People Living with HIV/AIDS, this approach would cost little and overcome the rigid bureaucratic process of project management. The funds could be directed to the National Association of People Living with HIV/AIDS (NAPWAHA), which has local branches in communities in LGAs across states in Nigeria for the programme. Similarly, faith-based organisations, most of whom have policy structures, facilities and partnerships for the effective implementation of HIV/AIDS programmes, should be funded directly and not through a third party mediator. Supporting such organisations from international and federal government funds to implement HIV/AIDS and health-related programmes could ensure that a larger proportion of the funds are used directly in project/programme activities rather than on overheads or mediating expenses.

6) *Decriminalisation and societal re-orientation for sexuality and vulnerable lifestyles*

This thesis found that the rules and norms that guide the conduct of social and community group relationships were a significant basis for stigma, discrimination and the criminalisation of certain people in society. The lack of tolerance towards such people mean they become isolated from, and feel rejected by, society; this poses a significant challenge to public health, particularly in settings with a concentrated HIV epidemic among the most at-risk subgroups. Even at the national level, the constitution has laws that propagate extreme violence against a commercial sex worker, men who have sex with men, and injecting and drug users. The enforcement of laws has created social distance where vulnerable groups are denied access to certain rights and privileges at family, community and national levels. Moreover, due to negative attitudes, these groups avoid HIV testing services and treatment, and are unlikely to use a condom during sex. The Government, community groups and families should abolish the laws and customs that constrain the most at-risk from freely relating with people to whom they feel connected. Lawmakers, religious groups and general members of society should be receptive and kind to these groups of people so that they also feel they belong to society to contribute their potential to enable a sustainable pluralistic community. This recommendation is a bottom – top approach to hastening the achievement of national HIV/AIDS response to reduce stigma and discrimination (NACA, 2016)

8.5 FUTURE RESEARCH

Research carried out on the sexual risk of HIV transmission in Sub Saharan Africa, a region most hit by the HIV pandemic are mostly quantitative and focused on individual-level characteristics. The studies were useful in providing information on directing intervention programmes to individuals. These findings are, however, not robust, as they do not provide insights into the socio-structural realities that inform the motivations for such activities at both the personal and community levels. This study used a mixed-method research design to offer significant evidence-based outcomes. There is a need to undertake participatory multilevel research that is exclusively qualitative to explore the individual, social and structural conditions that influence the risk of HIV infection among married and unmarried women, and among married and unmarried men. The homogeneity of the participants may provide an opportunity for active participants in a different approach, such as a focus group discussion, where participants may feel freer to share their feelings and personal experiences through being amongst others with whom they share similar characteristics or identities.

In Nasarawa State, the most at-risk groups, who include MSM, CSWs, and people who inject/use drugs, have been found to be socially distant and neglected by the community? Although these vulnerable subgroups, and the specific CBOs providing HIV/AIDS prevention services to those who availed themselves, have been acknowledged by the State AIDS Control Agency, much needs to be known about their sexual behaviour, HIV status, and health-related conditions to identify the regular support they require. There a growing body evidence in the literature has indicated the MSM population is increasing in Nigeria (Balogun et al., 2020; Eluwa et al., 2019; Stahlman et al., 2017; Vu et al., 2013; Merrigan et al., 2011). In Nasarawa State, Onovo et al. (2020), and Ibiloye et al. (2018), and Bako et al. (2017), and NASACA (2010) have recently reported the existence of such vulnerable groups. In Plateau State, the presence of MSM was not recognised, until the study recent study by Afolaranmi et al. (2020). These aforementioned studies are either quantitatively or qualitatively based, which are inadequate for understanding the complex conditions that link sexual behaviour and HIV transmission.

Consequently, a mixed methods approach is required amongst these populations to understand the complex mechanisms through which their sexual and social networking behaviour increases HIV transmission. This study is needed in Plateau State to thoroughly focus on the mapping of the most at-risk groups, and to identify and establish their cluster groups for the easy delivery

of specific intervention packages. Moreover, a comprehensive study to investigate the impact of incessant violent conflicts on the HIV/AIDS situation should be undertaken to provide insights into how to navigate situations of unrest when continuing the delivery of HIV/AIDS and health-related interventions. Social networks and social capital are broad concepts that have many dimensions and are sufficiently flexible for application in research. Studies should be carried out at the community level, through more extensive coverage to understand the dynamics of human relationships and their implications for limiting or facilitating disease diffusion. The study is key now that social distancing has become a model for the prevention of the COVID-19 pandemic and its emerging variants (Qian and Jiang, 2021; Courtemanche et al., 2020). The study would also clarify the crossroads in the role of human interactions in the acquisition or transmission of evolving infectious diseases (Yezli and Khan, 2020).

8.6 LIMITATIONS OF THE RESEARCH

Generally, the limitation of this research has no effect on the findings, but caution is required when attempting to understand and generalise the research outcomes. The first shortcoming of the study concerns the nature of datasets obtained from the NDHS and from personal experiences. This research utilised the NDHS to understand the patterns and factors that influence the sexual behaviour and the risk of HIV infection in Plateau State and Nasarawa State. However, a number of the indicators of sexual behaviours highlighted (in Table 2.4, page 46) were not available across the three data sets. For example, data on whether a respondent ever paid for sex was only available in the 2003 survey. There were no data on sexual frequency, unmarried multiple sexual partnership, and sexual activity with a sex worker. Similar studies in other countries have used sets of survey data and reported patterns of sexual behaviour to evaluate the changes between surveys (Amoateng and Baruwa, 2018; Neville et al. 2017; Bajos et al., 2010; Kirby, 2008; Copas et al., 2002; Kamali et al., 2000; Slaymaker and Buckner, 2004).

This study had data for three survey years and the sexual behaviour change between surveys was only determined between 2008 and 2013. The current NDHS data is for 2018 and was available for use at the end of 2019 after the outcome in this research had been completed and was undergoing completion for submission. The 2018 NDHS data was not used as it had only a few questions on sexual behaviour and HIV/AIDS and would require a long time to organise the data for use in this study. Moreover, the gap between the last survey in 2013 and the present one is seven years. Qualitative interviews obtained between August 2017 and February 2018

to provide up-to-date insights into sexual behaviour are already three years old. The sexual behaviour of respondents might have changed, and the results may not reflect the exact realities of today. The outcome of the research should have been presented earlier than now; however the delay is connected with the suspension of my studies due to my student visa being curtailed and the need to return to my country. When I subsequently resumed, I became ill; the condition affected my research. The experiences interrupted my studies, as my study time limits had to be extended.

Secondly, as in most societies, sexual activity outside marriage is taboo. This value might have been influenced by the social desirability bias, where responses on sexual experiences were either over or under reported in the study settings. Detailed information provided to participants about this research, and the assurances given to protect their privacy and rights to personal information most likely reduced the bias tendency. Thirdly, gaining access to Muslim women was challenging in both study settings because their religion does not allow them to talk with another man for a long time alone other than with their husband, not even for an interview. A few women responded to questions on their sexual activities, while others considered it a personal issue that should not be shared with any person in order to prevent their husbands hearing about it and it ruining their marriage. In addressing this, older Muslim men and women who were elites were contacted and interviewed on their vast knowledge of the communities and their perspectives on issues relating to sexual behaviour; this broadened the information on Islamic views on sexual behaviour and HIV/AIDS risk.

Fourthly, social relationships and support were studied from a neighbourhood context within the communities selected as case studies. The context may not have reflected the general picture of social networking and social capital across all research locations; similar studies on the risk of HIV and health-related issues had funded such contexts representative of wider society (Ziersch et al., 2011; Pronyk et al., 2008; Gregson et al., 2004; Campbell et al., 2002). Lastly, the stigma and criminalisation of the sexuality of MSM made it challenging to enable direct access for interviews. Moreover, their sexual behaviour may not been captured in the NDHS data; thus, the qualitative component of this research, which used key informants and document reviews, provided significant information about their social experiences associated with HIV infection.

8.7 CONCLUSION

This study consistently highlighted that past studies used individual characteristics and one-time sexual behaviour data to describe the risk of HIV perspectives. These approaches have been deficient in addressing the complex and sensitive sexual milieu when monitoring and evaluating to understand the probability of risk of acquiring or transmitting HIV and other STIs. This study found indicators of sexual behaviour, and social and structural factors that constrain or facilitate the risk of HIV/AIDS. The roles of various HIV/AIDS prevention programmes were found to significantly contribute to the epidemiological situation observed in the study contexts. The novelty in this research highlighted that social membership in social groups provide support that moderates risky sexual behaviour. In addition, rules and social norms are the bases for stigma, discrimination and the criminalisation of certain people, which encouraged vulnerability to HIV risk. The social isolation experienced by the most at-risk people posed a significant challenge to public health, particularly in settings with a high HIV prevalence. However, the evidence established from social support and social capital in relationships offers an important approach to sexual and social behaviour change, namely that access to emotional, spiritual, informational and material resources mitigate risky conditions. These relationships have a huge potential for enhancing health and enabling the decline of HIV/AIDS. Groups in the community are the best medium through which the implementation of HIV/AIDS programmes can quickly and effectively be delivered; this also overcomes the current delays and high costs associated with bureaucracy.

In all, people who were excluded from social interactions and felt a sense of isolation from stigmatising, discriminatory and criminalising attitudes at different levels of society are responsible for the rise in HIV rates. Comprehensive policy programmes have been suggested to promote: sexual health, social and economic equality for pluralistic and healthy community. These all aim to promote to achieve zero new HIV infections across settings with HIV and AIDS burdens in Nigeria, and low-income countries for sustainable health and wellbeing.

REFERENCES

- Aalsma, M.C., Fortenberry, J.D., Sayegh, M.A. and Orr, D.P., 2006. Family and friend closeness to adolescent sexual partners in relationship to condom use. *Journal of Adolescent Health*, 38(3), pp.173-178.
- Aaron, S. J., and Jenkins, R. R. 2002. Sex, pregnancy, and contraception-related motivators and barriers between Latino and African-American youth in Washington DC. *Sex Education*, 2, 5-30.
- Abah, R. C. 2013. The Universal basic education programme and the family life HIV education in Nigeria. *International Journal of Development and Sustainability* 2(2): 766-776. Available from: <http://isdsnet.com/ijds-v2n2-23.pdf> [Accessed on 27th January, 2016].
- Abdullahi, A.A. and Abdulquadri, N.T., 2018. New Media and Adolescents' Sexual Behaviour in Sub-Sahara Africa: Linking Theories to Realities. *SAGE Open*, 8(4), p.2158244018804606.
- Abecasis A.B, Lemey P, Vidal N, de Oliveira T, Peeters M, Camacho R, Shapiro B, Rambaut A, Vandamme AM .2007. Recombination confounds the early evolutionary history of human immunodeficiency virus type 1: subtype G is a circulating recombinant form. *Journal of Virology*; 81(16):8543-51. Available from: <http://jvi.asm.org/content/81/16/8543.full.pdf+html> [Accessed on 27th January, 2016].
- Abubakar, I., Aldridge, R.W., Devakumar, D., Orcutt, M., Burns, R., Barreto, M.L., Dhavan, P., Fouad, F.M., Groce, N., Guo, Y. and Hargreaves, S., 2018. The UCL–Lancet Commission on Migration and Health.
- Acemoglu, D. Johnson, S and Robinson, J. 2003. Disease and Development in Historical Perspective. *Journal of the European Economic Association* 1(2–3):397– 405. Available from: http://scholar.harvard.edu/jrobinson/files/jr_diseasedev.pdf [Accessed on 22nd January 2016].
- Adamczyk, A. and Hayes, B. E. 2012. Religion and Sexual Behaviours: Understanding the Influence of Islamic Cultures and Religious Affiliation for Explaining Sex Outside of Marriage', *American Sociological Review*. doi: 10.1177/0003122412458672.
- Adams, J., Khan, H.T., Raeside, R. and White, D.I., 2007. Research methods for graduate business and social science students. SAGE publications India.
- Adams, J., Khan, H.T., Raeside, R. and White, D.I., 2007. Research methods for graduate business and social science students. SAGE publications India.
- Adams, S.J., 2002. Educational attainment and health: Evidence from a sample of older adults. *Education Economics*, 10(1), pp.97-109.
- Adamu, A. and Ben, A., 2017. Nigeria: Benue state under the shadow of herdsmen terrorism (2014-2016). *World Watch Research*. Retrieved from: [www. Opendoorsanalytical.org/on September, 11](http://www.opendoorsanalytical.org/on-September-11), p.2018.
- Adebamowo, C.A., Ezeome, E.R., Ajuwon, J.A. and Ogundiran, T.O., 2002. Survey of the knowledge, attitude and practice of Nigerian surgery trainees to HIV-infected persons and AIDS patients. *BMC surgery*, 2(1), p.7.
- Adeji, O., and Miller, J. 2006a. Development Assistance for Building Institutional Capacity. In: Adeyi, O., P.J. Kanki, O. Adutolu and J.A. Idoko, 2006 (ed.) *AIDS in Nigeria: A*

- Nation on the Threshold. Harvard Center for Population and Development Studies, Cambridge. pp7-16
- Adelekan A.L., Bature, G.M., Tagurum, Y., Thomas, A., Christian, H., Yohana, T., Vonkat, J., Musa, S., Yilbal, J., Wukatda, B.W. and Adetunji, A., 2017d. Achievements and Implications of HIV Prevention of Mother-to-Child Transmission among Women of Reproductive Age: A Systematic Evaluation of HAF II Project in Plateau State, Nigeria. *Journal of Research in Humanities and Social Science*, 5(1), pp.89-94.
- Adelekan, A.L., Musa, G., Anyebe, G., Rosemary, A., Muraina, I., Ameloko, E., Alhassan, E., Shaibu, W., Adah, P., Abiona, O. and Adekunle, F., 2017b. Achievements and Implications of Care and Support Programme among Orphaned and Vulnerable Children: A Systematic Evaluation of HAF II Project in Kogi State, Nigeria. *IOSR Journal of Nursing and Health Science*, 6, pp.39-44.
- Adelekan, A.L., Musa, G., Okpanachi, M., Peterside, A.S., Abayomi-Oluwole, C., Godwin, A., Comfort, A., Shaibu, W., Adah, P., Owojuyigbe, M.A. and Olaleye, O., 2017a. Achievements and Implications of HIV Prevention Programme among General Population: A Systematic Evaluation of HAF II Project in Plateau State, Nigeria. *Int J Cur Res Rev| Vol, 9(3)*, p.1.
- Adelekan, L. A., M. B. Garos, M. H., Tagurum, Y. N. Bali, E. Jamaka, S.M. Koka, B.W. Wukatda, M. A. Owojuyigbe, S.Adeoye, M. Olugbile, P.I. Omoregie. 2017e. Achievements and Implications of Positive Health Dignity and Prevention Model among People Living with HIV: A Systematic Evaluation of HAF II Project in Plateau State, Nigeria: *International Journal of Current Research Review* 9 (3): 8 – 13.
- Adelekan, L.A., G. M. Bature, A. Thomas, J. Vonkat, P. Iorapuu, N. Nneji, R. Udany, H. Maina, B. W. Wukatda, M. A. Owojuyigbe, O. S. Olaleye, M. Swomen, S. Adeoye, M. Olugbile, P.I. Omoregie, T. John, O. Ladeinde, G. Danjuma, A. Akintomide, R. Adeoye, D. R. Kajang. 2017c Achievements and Implications of HIV Prevention Programme among Female Sex workers: A Systematic Evaluation of HAF II Project in Plateau State, Nigeria. *Journal of Medical and Dental Science Research* 3 (12): 10-16.
- Adeokun, L., 2006. Social and cultural factors affecting the HIV epidemic. *AIDS in Nigeria: A Nation on the Threshold*. Edited by Olusoji Adeyi, Phyllis J. Kanki, Oluwale Odutolu, and John A. Idoko. Harvard Center for Population and Development Studies, 9, pp.151-173.
- Adeoye, H. and Muraina, K., 2019. The Confluence of Pornography, Peer Pressure, and Home Environment on Senior Secondary School Students Sexual Behaviour, Counselling Implications. *KIU Journal of Social Sciences*, 5(2), pp.315-321.
- Adeyemi, O.F., Evans, A.T. and Bahk, M., 2009. HIV-infected adults from minority ethnic groups are willing to participate in research if asked. *AIDS patient care and STDs*, 23(10), pp.859-865.
- Adeyi, O. 2006b .The Epidemiology of HIV/ AIDS in Nigeria" in Olusegun Adeyi, et al., (eds.), *AIDS in Nigeria: A Nation on the Threshold*, (Harvard: Centre for Population and Development Studies, 2006:P.20.
- Adeyi, O., P.J. Kanki, O. Adutolu and J.A. Idoko, 2006c. *AIDS in Nigeria: A Nation on the Threshold*. Harvard Centre for Population and Development Studies, Cambridge.

- Adimora, A.A. and Schoenbach, V.J., 2002. Contextual factors and the black-white disparity in heterosexual HIV transmission. *Epidemiology*, 13(6), pp.707-712.
- Adimora, A.A. and Schoenbach, V.J., 2013. Social determinants of sexual networks, partnership formation, and sexually transmitted infections. In *The new public health and STD/HIV prevention* (pp. 13-31). Springer, New York, NY.
- Adler, M.G. and Fagley, N.S., 2005. Appreciation: Individual differences in finding value and meaning as a unique predictor of subjective well-being. *Journal of personality*, 73(1), pp.79-114.
- Adler, P. A., and Adler, P. 1994. Observational techniques. In N. K. Denzin and Y. S. Lincoln (Eds.), *Handbook of qualitative research* pp. 377–392. Thousand Oaks, CA: Sage Publications.
- Adler, P. S. and Kwon, S. W. 2002. ‘Social capital: Prospects for a new concept’, *Academy of Management Review*. doi: 10.5465/AMR.2002.5922314.
- Aeby, G., Widme, E.D. and De Carlo, I. 2014. Bonding and bridging social capital in step-and first-time families and the issue of family boundaries. *Interpersonal: An International Journal on Personal Relationships*, 8(1), pp.51-69.
- Afolaranmi, T.O., Hassan, Z.I., Misari, Z., Ugwu, O.J., Adeoye, P.A., Fayenuwo, O.J., Eugene, E.C., Ofakunrin, A.O.D., Chingle, M.P. and Shugaba, A.I., 2020. Sexual behaviors of HIV-infected men who have sex with men in Jos, Plateau State, North Central Nigeria. *Indian Journal of Community Medicine*, 45(4), p.550.
- African Development Fund. 2002. Appraisal Report: health System Development Project (Health IV). Federal Republic of Nigeria and African Development Fund, NGR/PSHH/2002/01, may 2002: Available from
- African Union Commission -AFU .2016. Ending Child Marriage and Stopping the Spread of HIV: Opportunities and challenges for action. Available from <https://www.girlsnotbrides.org/resource-centre/ending-child-marriage-stopping-spread-hiv-opportunities-challenges-action/>(Retrieved on the 13/08/208)
- Agaba, P.A., Makai, R., Bankat, C.T., Chebu, P.R., Apena, T., Iyaji-Paul, O. and Idoko, J.A., 2016. Sexual behavior and risk factors for HIV infection among young people aged 15-24 years in North-Central Nigeria. *Journal of Medicine in the Tropics*, 18(2), p.60.
- Agardh, A. et al. 2010. Social capital and sexual behaviour among Ugandan university students’, *Global Health Action*. doi: 10.3402/gha.v3i0.5432.
- Aggleton, P., Yankah, E. and Crewe, M., 2011. Education and HIV/AIDS—30 years on. *AIDS Education and Prevention*, 23(6), pp.495-507.
- Agha, S., 2009. Changes in the timing of sexual initiation among young Muslim and Christian women in Nigeria. *Archives of Sexual Behaviour*, 38(6), pp.899-908.
- Aguwa, J., 2010. Religion and HIV/AIDS prevention in Nigeria. *Crosscurrents*, 60 (2), pp.208-223
- Aguwa, J.C., 1997. Religious conflict in Nigeria: Impact on nation building. *Dialectical Anthropology*, 22(3/4), pp.335-351.
- Ahmed, S., Lutalo, T., Wawer, M., Serwadda, D., Sewankambo, N.K., Nalugoda, F., Makumbi, F., Wabwire-Mangen, F., Kiwanuka, N., Kigozi, G. and Kiddugavu, M., 2001. HIV incidence and sexually transmitted disease prevalence associated with condom use: a population study in Rakai, Uganda. *Aids*, 15(16), pp.2171-2179.

- Ajayi and Somefun .2019. Recently reported the children from poor household in Nigeria who school in a tertiary institution engaged in transactional sex for survival.
- Akinsoji, A.A., Olufunmilola, A-A.O., Idowu, A.A., and Pius, A-O.I .2015. Sexual and Contraceptive Practises among Female Undergraduates in a Nigerian Tertiary Institution. *Ethiopian Journal of Health Sciences*, 25 (3), pp. 209-216
- AliAkwaru, P.A., Madise, N.J. and Hinde, A., 2003. Perception of risk of HIV/AIDS and sexual behaviour in Kenya. *Journal of biosocial science*, 35(3), p.385.
- Alarie, M., 2019. Sleeping With Younger Men: Women’s Accounts of Sexual Interplay in Age-Hypogamous Intimate Relationships. *The Journal of Sex Research*.
- Albert, R.; Adams, J.S.; and Gould, P. 1972. Spatial Organization: The Geographer’s View of the World. Prentice/Hall, Canada. 197, 216 – 218.
- Alexandraki, K., Stavropoulos, V., Burleigh, T.L., King, D.L. and Griffiths, M.D., 2018. Internet pornography viewing preference as a risk factor for adolescent Internet addiction: The moderating role of classroom personality factors. *Journal of Behavioural Addictions*, 7(2), pp.423-432.
- Alhassan, E., Idoko, J., Ladeinde, O., Zanna, F., John, T., Opeyemi, E. and Oluwatosin, K. 2019. HIV Prevention Programme among Out-of-School Youths: A Systematic Assessment of HAF II Project. In Nigeria. Available at: http://www.ijiras.com/2019/Vol_6-Issue_2/paper_18.pdf [Retrieved on the [21/06/2020]
- Ali, M.M., Cleland, J. and Shah, I.H.2004. Condom use within marriage: a neglected HIV intervention. *Bulletin of the World Health Organization*, 82, pp.180-186.
- Aliyu, A.A., Abdullahi, A., Rozilah, K. and David, M., 2015. Residential segregation and existing neighbourhood pattern in Jos metropolis, Nigeria. *Journal of Natural Sciences Research*, 5, p.16.
- Allen, M.S., 2018. Sexual activity and cognitive decline in older adults. *Archives of sexual behavior*, 47(6), pp.1711-1719.
- Allen, S., Meinzen-Derr, J., Kautzman, M., Zulu, I., Trask, S., Fideli, U., Musonda, R., Kasolo, F., Gao, F. and Haworth, A., 2003. Sexual behaviour of HIV discordant couples after HIV counselling and testing. *Aids*, 17(5), pp.733-740.
- Alsan, M.M., Westerhaus, M., Herce, M., Nakashima, K. and Farmer, P.E., 2011. Poverty, global health, and infectious disease: lessons from Haiti and Rwanda. *Infectious Disease Clinics*, 25(3), pp.611-622
- Aluko, M.A.O., 2003. Strategies for poverty reduction in Nigeria. *Journal of Social Sciences*, 7(4), pp.255-266.
- Alvesson, M. 2009,“At-home ethnography: struggling with closeness and closure”, in Ybema, S., Yanow, D., Wels, H. and Kamsteeg, F.H. (Eds), *Organizational Ethnography: Studying the Complexities of Everyday Life*, SAGE Publications, London, pp. 156-174
- Ambe-Uva, T. N. 2007. Combating HIV/AIDS Epidemic in Nigeria: Responses from National Open University of Nigeria (NOUN). *International Review of Research in Open and distributed Learning*. 8 (3) <http://www.irrodl.org/index.php/irrodl/article/view/458/970>

- Amnesty International. 2000. *Amnesty International Report 2000 - Nigeria* , 1 June 2000, available at: <https://www.refworld.org/docid/3ae6aa114.html> [Accessed 28/07/2019]
- Amo-Adjei, J. and Tuoyire, D.A., 2018. Timing of sexual debut among unmarried youths aged 15–24 years in sub-Saharan Africa. *Journal of biosocial science*, 50(2), pp.161-177.
- Amoateng, A.Y. and Baruwa, O., 2018. Changes in the timing of sexual intercourse in Ghana: evidence from the demographic and health survey data, 1988-2014. *African Population Studies*, 32(3).
- Amoateng, A.Y., Kalule-Sabiti, I. and Arkaah, Y.J., 2014. The effect of socio-demographic factors on risky-sexual behaviours of adolescents in the North West Province of South Africa. *African Population Studies*, 28(1), pp.487-498.
- Anarfi, J.K. and Owusu, A.Y., 2011. The making of a sexual being in Ghana: The state, religion and the influence of society as agents of sexual socialization. *Sexuality and Culture*, 15(1), pp.1-18.
- Anderson R.M., and May R.M. 1987. Transmission dynamics of HIV. *Nature* 1987,326:137-142.
- Anderson, J. E. 2010. *Public policy making-An introduction* (7th ed.). Boston MA: Wadsworth.
- Anderson, R.M., and R.M. May. 1987. Transmission dynamics of HIV. *Nature* 1987, 326:137-142.
- Andersson, G.Z., Reinius, M., Eriksson, L.E., Svedhem, V., Esfahani, F.M., Deuba, K., Rao, D., Lyatuu, G.W., Giovenco, D. and Ekström, A.M., 2019. Stigma reduction interventions in people living with HIV to improve health-related quality of life. *The Lancet HIV*.
- Andrew G., Wilpen L. Gorr and Peter R Gould .1993. Spatial Diffusion of the HIV/AIDS Epidemic: Modeling Implications and Case Study of AIDS Incidence in Ohio. *Geographical Analysis* 25 (2): 233-246.
- Angrosino, M.V. and de Pérez, K.A., Mays.(2000). Rethinking observation: From method to context. *NK Denzin and YS Lincoln, YS (eds), Handbook of Qualitative Research*, pp.673-702.
- Ani, M.N. and Agwale, S.M., 1998. Human Immunodeficiency Virus Infection in Nigeria. *The Brazilian journal of infectious diseases: an official publication of the Brazilian Society of Infectious Diseases*, 2(3), pp.143-159.
- Aniley, A.B., Ayele, T.A., Zeleke, E.G. and Kassa, A.A., 2016. Factors associated with late Human Immunodeficiency Virus (HIV) diagnosis among peoples living with it, Northwest Ethiopia: hospital based unmatched case-control study. *BMC public health*, 16(1), pp.1-8.
- Ankomah, A., Mamman-Daura, F., Omoregie, G. and Anyanti, J., 2011. Reasons for delaying or engaging in early sexual initiation among adolescents in Nigeria. *Adolescent health, medicine and therapeutics*, 2, p.75..
- Anna Z., Katy Osborne and Fran Baum .2011. Local Community Group Participation: Who Participates and What Aspects of Neighbourhood Matter? *Urban Policy and Research*, 29:4, 381-399, DOI: 10.1080/08111146.2011.623295
- Anney, V.N., 2014. Ensuring the quality of the findings of qualitative research: Looking at trustworthiness criteria.

- Antom, V.L. and Umar, M.A., 2019. HIV/AIDS and Marriage Laws In Nigeria: Towards Providing A Legal Framework For Premarital Counselling. *International Review of Law and Jurisprudence (IRLJ)*, 1(3), pp.23-28.
- Anyanwu, P.E. and Fulton, J., 2017. Knowledge and perception of young adults in Nigeria on effectiveness of condom use in prevention of sexually transmitted infections. *International journal of adolescent medicine and health*, 29(2).
- Arbesman, M., Kahler, L., and Buck, G. 1993. Assessment of the impact of female circumcision on the gynaecological genitourinary and obstetrical health problems of women from Somalia: Literature Review and Case Studies. *Women Health*. 20 (3): 27-42.
- Arendt, J.N., 2005. Does education cause better health? A panel data analysis using school reforms for identification. *Economics of Education review*, 24(2), pp.149-160.
- Arnold, M.B., 2020. The Relationship between Gender Role Conflict and Sexual Decision Making among Heterosexual Black Men (Doctoral dissertation, Capella University).
- Arogundade, K.K., Adebisi, S.O. and Ogunro, V.O., 2011. Poverty Alleviation Programmes in Nigeria: A call for policy harmonization. *European journal of Globalization and Development research*, 1(1), pp.42-52.
- Arrey, A.E., Bilsen, J., Lacor, P. and Deschepper, R., 2017. Perceptions of stigma and discrimination in health care settings towards sub-Saharan African migrant women living with HIV/AIDS in Belgium: A qualitative study. *Journal of biosocial science*, 49(5), pp.578-596.
- Atkins, D.C. and Kessel, D.E., 2008. Religiousness and infidelity: Attendance, but not faith and prayer, predict marital fidelity. *Journal of Marriage and Family*, 70(2), pp.407-418.
- Atteraya, M.S., Kimm, H. and Song, I.H., 2014. Women's autonomy in negotiating safer sex to prevent HIV: findings from the 2011 Nepal demographic and health survey. *AIDS education and prevention*, 26(1), pp.1-12.
- Auerbach, J., 2009. Transforming social structures and environments to help in HIV prevention. *Health Affairs*, 28(6), pp.1655-1665.
- Auerbach, J.D., Parkhurst, J.O. and Cáceres, C.F., 2011. Addressing social drivers of HIV/AIDS for the long-term response: conceptual and methodological considerations. *Global*
- Auvert, B., Marais, D., Lissouba, P., Zarca, K., Ramjee, G., and Williamson, A.L. 2011. High-risk human papillomavirus is associated with HIV acquisition among South African female sex workers. *Infectious Disease Obstetric Gynaecology*. 692012.
- Avruch, K. 1998. *Culture and Conflict Resolution*. United States Institute of Peace Press, Washington DC. P 17-18.
- Awusabo-Asare, K. and Annim, S.K., 2008. Wealth status and risky sexual behaviour in Ghana and Kenya. *Applied health economics and health policy*, 6(1), pp.27-39.
- Ayikukwei, R., Ngare, D., Sidle, J.E., Ayuku, D.O., Baliddawa, J., and Greene, J.Y. 2007. Social and cultural significance of the sexual cleansing ritual and its impact on HIV prevention strategies in western Kenya. *Sexuality and Culture*, 11(3), 32–50.
- Ayoade, O.T., Blavo, F.J., Farotimi, A.A. and Nwozichi, C.U., 2015. Sociodemographic factors as predictors of sexual behaviour of secondary school students in Lagos State, Nigeria. *International Journal of Medicine and Public Health*, 5(2).

- Ayuba, J.M., 2014. Ombatse: An Invention of Tradition and Understanding Communal Conflicts in Nasarawa State, Nigeria. Lulu. Com
- Azuonwu, O., Erhabor, O. and Obire, O., 2012. HIV among military personnel in the Niger Delta of Nigeria. *Journal of community health*, 37(1), pp.25-31.
- Ba, O., O'Regan, C., Nachege, J., Cooper, C., Anema, A., Rachlis, B. and Mills, E.J., 2008. HIV/AIDS in African militaries: an ecological analysis. *Medicine, Conflict and Survival*, 24(2), pp.88-100.
- Babalola, S., 2007. Readiness for HIV testing among young people in northern Nigeria: the roles of social norm and perceived stigma. *AIDS and Behaviour*, 11(5), pp.759-769.
- Babbie, E.R., 2015. *The practice of social research*. Nelson Education.
- Bachmann, M.H., Delwart, E.L., Shpaer, E.G., Lingenfelter, P., Singal, R., Mullins, J.I. And Who Network for HIV Isolation and Characterization, 1994. Rapid genetic characterization of HIV type 1 strains from four World Health Organization-sponsored vaccine evaluation sites using a heteroduplex mobility assay. *AIDS research and human retroviruses*, 10(11), pp.1345-1353.
- Baggaley, R.F., White, R.G. and Boily, M.C., 2010. HIV transmission risk through anal intercourse: systematic review, meta-analysis and implications for HIV prevention. *International journal of epidemiology*, 39(4), pp.1048-1063.
- Bajos, N., Bozon, M., Beltzer, N., Laborde, C., Andro, A., Ferrand, M., Goulet, V., Laporte, A., Le Van, C., Leridon, H. and Levinson, S., 2010. Changes in sexual behaviours: from secular trends to public health policies. *Aids*, 24(8), pp.1185-1191.
- Baker, D.P., Collins, J.M. and Leon, J., 2008. Risk factor or social vaccine? The historical progression of the role of education in HIV and AIDS infection in Sub-Saharan Africa. *Prospects*, 38(4), pp.467-486.
- Bako, I.A., Salihu, A., Okekearu, I. and Anyanti, J., 2017. Modeling of HIV Transmission in Nasarawa State, Nigeria: an analysis of distribution of new infections. *J US-China Med Sci*, 14, pp.116-22.
- Balderrama-Durbin, C., Stanton, K., Snyder, D.K., Cigrang, J.A., Talcott, G.W., Smith Slep, A.M., Heyman, R.E. and Cassidy, D.G., 2017. The risk for marital infidelity across a year-long deployment. *Journal of Family Psychology*, 31(5), p.629.
- Balkus, J.E., Nair, G., Montgomery, E.T., Mishra, A., Palanee-Phillips, T., Ramjee, G., Panchia, R., Selepe, P., Richardson, B.A., Chirenje, Z.M. and Marrazzo, J.M., 2015. Age-disparate partnerships and risk of HIV-1 acquisition among South African women participating in the VOICE trial. *Journal of acquired immune deficiency syndromes (1999)*, 70(2), p.212.
- Balogun, A., Bissell, P. and Saddiq, M., 2020. Negotiating access to the Nigerian healthcare system: the experiences of HIV-positive men who have sex with men. *Culture, health and sexuality*, 22(2), pp.233-246.
- Balogun, A.S. 2010. HIV/AIDS Epidemic in the History of Nigeria, 1986-2007. *Journal of the Historical Society of Nigeria* 19 (6):166-176
- Balogun, F.M. and Owoaje, E.T., 2016. Perception about the 'Opt Out Strategy' for HIV testing and counselling among pregnant women attending antenatal clinic in Ibadan, Nigeria. *Journal of Community Medicine and Primary Health Care*, 28(1), pp.45-51
- Bancroft, J., Janssen, E., Carnes, L., Goodrich, D., Strong, D. and Long, J.S., 2004. Sexual activity and risk taking in young heterosexual men: The relevance of sexual

- arousability, mood, and sensation seeking. *Journal of Sex Research*, 41(2), pp.181-192.
- Bandyopadhyay, S., Rao, A.R., Sinha, B.K. and Sinha, B.K., 2011. *Models for social networks with statistical applications* Vol. 13. Sage.
- Bankole, A., Ahmed, F.H., Neema, S., Ouedraogo, C. and Konyani, S., 2007. Knowledge of correct condom use and consistency of use among adolescents in four countries in Sub-Saharan Africa. *African journal of reproductive health*, 11(3), p.197.
- Barken, S. E. 2006. 'Religiosity and premarital sex in adulthood', *Journal for the Scientific Study of Religion*. doi: 10.1111/j.1468-5906.2006.00315.x
- Bartholomew, T.T. and Brown, J.R., 2012. Mixed methods, culture, and psychology: A review of mixed methods in culture-specific psychological research. *International Perspectives in Psychology: Research, Practice, Consultation*, 1(3), p.177.
- Bashorun, A., Nguku, P., Kawu, I., Ngige, E., Ogundiran, A., Sabitu, K., Nasidi, A. and Nsubuga, P., 2014. A description of HIV prevalence trends in Nigeria from 2001 to 2010: what is the progress, where is the problem? *The Pan African Medical Journal*, 18(Suppl 1).
- Battaglia, J.M., 1998. Religion, Sexual Orientation, and Self-Realization: First Amendment Principles and Anti-Discrimination Laws. *U. Det. Mercy L. Rev.*, 76, p.189
- Bauman, L.J. and Berman, R., 2005. Adolescent relationships and condom use: Trust, love and commitment. *AIDS and Behaviour*, 9(2), pp.211-222.
- Baumeister, R.F., Catanese, K.R. and Vohs, K.D., 2001. Is there a gender difference in strength of sex drive? Theoretical views, conceptual distinctions, and a review of relevant evidence. *Personality and social psychology review*, 5(3), pp.242-273
- Baumeister, Roy F., E. J. Masicampo, and Jean M. Twenge. 2012. The social self." *Handbook of Psychology, Second Edition* 5
- Bavinton, B.R., Duncan, D., Grierson, J., Zablotska, I.B., Down, I.A., Grulich, A.E. and Prestage, G.P., 2016. The meaning of 'regular partner' in HIV research among gay and bisexual men: implications of an Australian cross-sectional survey. *AIDS and Behavior*, 20(8), pp.1777-1784.
- Baxter, C. and Abdool Karim, S., 2016. Combination HIV prevention options for young women in Africa. *African Journal of AIDS Research*, 15(2), pp.109-121.
- Bay-Cheng, L.Y., 2019. Agency is everywhere, but agency is not enough: a conceptual analysis of young women's sexual agency. *The Journal of Sex Research*, 56(4-5), pp.462-474.
- Beauchair, R., Dushoff, J. and Delva, W., 2018. Partner age differences and associated sexual risk behaviours among adolescent girls and young women in a cash transfer programme for schooling in Malawi. *BMC public health*, 18(1), p.403.
- Beauchair, R., Helleringer, S., Hens, N. and Delva, W., 2016. Age differences between sexual partners, behavioural and demographic correlates, and HIV infection on Likoma Island, Malawi. *Scientific reports*, 6, p.36121
- Beauchair, R., Kassanjee, R., Temmerman, M., Welte, A. and Delva, W., 2012. Age-disparate relationships and implications for STI transmission among young adults in Cape Town, South Africa. *The European Journal of Contraception and Reproductive Health Care*, 17(1), pp.30-39.

- Bebbington, J. and Unerman, J., 2018. Achieving the United Nations sustainable development goals. *Accounting, Auditing and Accountability Journal*.
- Becker, J.U., Theodosios, C. and Kulkarni, R., 2008. HIV/AIDS, conflict and security in Africa: rethinking relationships. *Journal of the International AIDS Society*, 11(1), p.3.
- Becker, N.G. and Marschner, I. C.1993. A method for estimating the age-specific relative risk of HIV infection from AIDS incident data. *Biometrika*, 80:165–
- Beggs, J.M. and Jernigan, I.E., 2001. Mandatory HIV/AIDS testing: an ethical issue. *International Journal of Value-Based Management*, 14(2), pp.131-146
- Beiske, B. 2007. Research methods: Uses and limitations of questionnaires, interviews and case studies, GRIN Verlag.
- Bell, J., 2014. *Doing Your Research Project: A guide for first-time researchers*. McGraw-Hill Education (UK).
- Benn, C., 2002. The future role of church related hospitals and health services in developing countries. Tübingen: German Institute for Medical Mission (DIFAEM).
- Berhan, Y. and Berhan, A., 2013. Meta-analysis on risky sexual behaviour of men: consistent findings from different parts of the world. *AIDS care*, 25(2), pp.151-159.
- Berhe T., Gemechu, H., A. de Waal. 2005. 'War and HIV prevalence: evidence from Tigray, Ethiopia'. *African Security Review*. 14 (3):107-14.
- Berkman, L.F. and Glass, T., 2000. Social integration, social networks, social support, and health. *Social epidemiology*, 1(6), pp.137-173.
- Berkman, L.F., Kawachi, I. and Glymour, M.M. 2014a. A Historical Framework for Social Epidemiology Social Determinants of Population health. In (eds.) Berkman, L.F., Kawachi, I. and Glymour, M.M. 2014b. *Social Epidemiology*. Oxford University Press. Pp 4-5.
- Berkman, L.F., Kawachi, I. and M.M. Glymour. 2014. A Historical Framework for Social Epidemiology Social Determinants of Population health. In (eds.) Berkman, L.F., Kawachi, I. and Glymour, M.M. 2014. *Social epidemiology*. Oxford University Press: 4-5.
- Berkman, L.F., Kawachi, I. and Theorell, T., 2014. Working conditions and health. In (eds.) Berkman, L.F., Kawachi, I. and Glymour, M.M. 2014. Oxford University Press: . 2, pp.153-181.
- Berliana, S.M., Utami, E.D., Efendi, F. and Kurniati, A., 2018. Premarital sex initiation and the time interval to first marriage among Indonesians. *Bulletin of Indonesian Economic Studies*, 54(2), pp.215-232.
- Best, S.G., 2007. Conflict and peace building in Plateau State, Nigeria. Spectrum books limited.
- Beyene, M.B. and Beyene, H.B., 2015. Predictors of late HIV diagnosis among adult people living with HIV/AIDS who undertake an initial CD 4 T cell evaluation, Northern Ethiopia: a case-control study. *PloS one*, 10(10), p.e0140004.
- Bhargava, R., 2004. Inclusion and Exclusion in South Asia: The Role of Religion (No. HDOCPA-2004-01). Human Development Report Office (HDRO), United Nations Development Programme (UNDP).
- Bhaskar, R. 1991. *Philosophy and the Idea of Freedom*. Oxford: Blackwell.
- Biague, A., Månsson, F., Dias, F., Nantote, Q., Costa, J., Andersson, S., Naucclér, A., Biberfeld, G., Fenyö, E.M. and Norrgren, H., 2010. High sexual risk taking and diverging

- trends of HIV-1 and HIV-2 in the military of Guinea Bissau. *The Journal of Infection in Developing Countries*, 4(05), pp.301-308.
- Biesta, G., 2010. Pragmatism and the philosophical foundations of mixed methods research. *Sage handbook of mixed methods in social and behavioural research*, 2, pp.95-118.
- Biglan, A., Metzler, C.W., Wirt, R., Ary, D., Noell, J., Ochs, L., French, C., and Hood, D. 1990. Social and behavioural factors associated with high-risk sexual behaviour among adolescents. *Journal of Behavioural Medicine*. 13 (3):245-261.
- Biney, E., Ewemooje, O.S. and Amoateng, A.Y., 2020. Predictors of sexual risk behaviour among unmarried persons aged 15-34 years in South Africa. *The Social Science Journal*, pp.1-16.
- Bingenheimer, J.B., 2007. Wealth, wealth indices and HIV risk in East Africa. *International Family Planning Perspectives*, 33(2), pp.83-85.
- Bingenheimer, J.B., 2010. Men's Multiple Sexual Partnerships in 15 Sub-Saharan African Countries: Sociodemographic Patterns and Implications. *Studies in family planning*, 41(1), pp.1-17.
- Biordi, D.L. and Nicholson, N.R., 2013. Social isolation. Chronic illness: Impact and intervention, pp.85-115.
- Bisson, M.A. and Levine, T.R., 2009. Negotiating a friend with benefits relationship. *Archives of sexual behaviour*, 38(1), pp.66-73.
- Blancou, P., Vartanian, J.P., Christopherson, C., Chenciner, N., Basilico, C., Kwok, S. and Wain-Hobson, S., 2001. Polio vaccine samples not linked to AIDS. *Nature*, 410(6832), p.1045.
- Blankenship, S.A. and Sewell, W.C., 2018. Predictors of perceived human immunodeficiency virus risk and discrimination among high-risk women. *American Journal of Obstetrics and Gynecology*, 219(6), pp.649-650.
- Blow, A.J. and Hartnett, K., 2005. Infidelity in committed relationships I: A methodological review. *Journal of marital and family therapy*, 31(2), pp.183-216.
- Bogart, L.M. and Bird, S.T., 2003. Exploring the relationship of conspiracy beliefs about HIV/AIDS to sexual behaviours and attitudes among African-American adults. *Journal of the National Medical Association*, 95(11), p.1057.
- Bogart, L.M. and Thorburn, S., 2005. Are HIV/AIDS conspiracy beliefs a barrier to HIV prevention among African Americans?. *JAIDS Journal of Acquired Immune Deficiency Syndromes*, 38(2), pp.213-218.
- Bogart, L.M., Skinner, D., Weinhardt, L.S., Glasman, L., Sitzler, C., Toefy, Y. and Kalichman, S.C., 2011. HIV/AIDS misconceptions may be associated with condom use among black South Africans: an exploratory analysis. *African Journal of AIDS Research*, 10(2), pp.181-187.
- Bogart, L.M., Wagner, G., Galvan, F.H. and Banks, D., 2010. Conspiracy beliefs about HIV are related to antiretroviral treatment nonadherence among African American men with HIV. *Journal of acquired immune deficiency syndromes (1999)*, 53(5), p.648.
- Bogart, Laura M., and Sheryl Thorburn. 2005. Are HIV/AIDS conspiracy beliefs a barrier to HIV prevention among African Americans?." *JAIDS Journal of Acquired Immune Deficiency Syndromes* 2 (38); 2: 213-218.
- Bohnert, A.S. and Latkin, C.A., 2009. HIV testing and conspiracy beliefs regarding the origins of HIV among African Americans. *AIDS patient care and STDs*, 23(9), pp.759-763

- Boily, M.C., Baggaley, R.F., Wang, L., Masse, B., White, R.G., Hayes, R.J. and Alary, M., 2009. Heterosexual risk of HIV-1 infection per sexual act: systematic review and meta-analysis of observational studies. *The Lancet infectious diseases*, 9(2), pp.118-129.
- Bolton, M., McKay, A. and Schneider, M., 2010. Relational influences on condom use discontinuation: A qualitative study of young adult women in dating relationships. *The Canadian Journal of Human Sexuality*, 19(3), p.91.
- Bongaarts, J., 2007. Late marriage and the HIV epidemic in sub-Saharan Africa. *Population studies*, 61(1), pp.73-83.
- Bourdieu, P., 1990. Social space and symbolic power. In *In Other Words*, Polity Press.
- Bourdieu, P., 2018. Social space and the genesis of appropriated physical space. *International Journal of Urban and Regional Research*, 42(1), pp.106-114.
- Bove, R. and Vaggia, C., 2009. Polygyny and women's health in sub-Saharan Africa. *Social science and medicine*, 68(1), pp.21-29.
- Boyi, A.A., 2014. Education and sustainable national development in Nigeria: challenges and way forward. *International Letters of Social and Humanistic Sciences*, (03), pp.65-72.
- Boyi, A.A., 2014. Education and sustainable national development in Nigeria: challenges and way forward. *International Letters of Social and Humanistic Sciences*, (03), pp.65-72.
- Braa, J. and Hedberg, C., 2002. The struggle for district-based health information systems in South Africa. *The information society*, 18(2), pp.113-127.
- Braa, J. and Muquinge, H., 2007. Building collaborative networks in Africa on health information systems and open source software development-experiences from the HISP/BEANISH Network. *IST Africa*, 3.
- Braa, J., Kanter, A.S., Lesh, N., Crichton, R., Jolliffe, B., Sæbø, J., Kossi, E. and Seebregts, C.J., 2010. Comprehensive yet scalable health information systems for low resource settings: a collaborative effort in Sierra Leone. In *AMIA Annual Symposium Proceedings (Vol. 2010, p. 372)*. American Medical Informatics Association.
- Braa, J., Monteiro, E. and Sahay, S., 2004. Networks of action: sustainable health information systems across developing countries. *MIS quarterly*, pp.337-362.
- Braa, K., Nielsen, P. and Titlestad, O., 2014. Innovation for Health in Developing Countries. In *Medical Technology—Meeting Tomorrow's Health Care Challenges* (p. 21)
- Brady, S.S., Tschann, J.M., Ellen, J.M. and Flores, E., 2009. Infidelity, trust, and condom use among Latino youth in dating relationships. *Sexually transmitted diseases*, 36(4), p.227.
- Brañas-Garza, P., Espín, A., and Neuman, S. 2013. Effects of Religiosity on Social Behaviour: Experimental Evidence from a Representative Sample of Spaniards (October 2013). CEPR Discussion Paper No. DP9709, Available at SSRN: <https://ssrn.com/abstract=2346246>
- Brandt, M.J., 2011. Sexism and gender inequality across 57 societies. *Psychological science*, 22(11), pp.1413-1418.
- Brass, J.N., 2010. *Surrogates for government? NGOs and the state in Kenya* (Doctoral dissertation, UC Berkeley).

- Breen, L., 2007. The researcher 'in the middle': Negotiating the insider/outsider dichotomy. *The Australian community psychologist*, 19(1), pp.163-174.
- Brenchley, J.M., Price, D.A. and Douek, D.C., 2006. HIV disease: fallout from a mucosal catastrophe?. *Nature immunology*, 7(3), pp.235-239.
- Brenner, B.G., Roger, M., Routy, J.P., Moisi, D., Ntemgwa, M., Matte, C., Baril, J.G., Thomas, R., Rouleau, D., Bruneau, J. and Leblanc, R., 2007. High rates of forward transmission events after acute/early HIV-1 infection. *The Journal of infectious diseases*, 195(7), pp.951-959.
- Bricker, P. 2014. Ontological commitment. In E. N. Zalta (Ed.), *The Stanford encyclopedia of philosophy*. Available from: <https://plato.stanford.edu/entries/ontological-commitment/>. [Retrieved on the 19/07/2020]
- Brockerhoff, M. and Biddlecom, A. 1998. Migration, Sexual Behaviour, and HIV Diffusion in Kenya 1998 No. 111 Population Council.
- Brody, S. and Weiss, P., 2011. Simultaneous penile–vaginal intercourse orgasm is associated with satisfaction (sexual, life, partnership, and mental health). *The journal of sexual medicine*, 8(3), pp.734-741.
- Bronfenbrenner U. 1995. Developmental ecology through space and time: A future perspective. In: Moen, P., Elder - Jr, G.H., Luscher, K. (eds). *Examining Lives in Context: Perspectives on the Ecology of Human Development*. Washington, D.C.
- Brouard, P. and Crewe, M., 2012. Sweetening the deal? Sugar daddies, sugar mummies, sugar babies and HIV in contemporary South Africa. *Agenda*, 26(4), pp.48-56.
- Brown, C., Conner, K.O., Copeland, V.C., Grote, N., Beach, S., Battista, D. and Reynolds III, C.F., 2010. Depression stigma, race, and treatment seeking behavior and attitudes. *Journal of community psychology*, 38(3), pp.350-368.
- Brown, J.D., L'Engle, K.L., Pardun, C.J., Guo, G., Kenneavy, K. and Jackson, C., 2006. Sexy media matter: exposure to sexual content in music, movies, television, and magazines predicts black and white adolescents' sexual behavior. *Pediatrics*, 117(4), pp.1018-1027.
- Brown, J.F., 2009. Faith-based mental health education: a service-learning opportunity for nursing students. *Journal of Psychiatric and Mental Health Nursing*, 16(6), pp.581-588
- Brown, L.R., 2000. *State of the World, 2001: A World watch Institute Report on Progress toward a Sustainable Society*. WW Norton and Company.
- Brown, T.J., Yen-Moore, A. and Tyring, S.K., 1999. An overview of sexually transmitted diseases. Part I. *Journal of the American Academy of Dermatology*, 41(4), pp.511-529.
- Bryant, C.M., Heath, J.C. and Carter, V.L., 2014. Assessing the impact of social media on the risky sexual behaviours of college students. 2014 NCUR.
- Bryman, A. and Bell, E. 2011. *Business Research Methods*, 3rd ed., Oxford University Press, Oxford
- Bryman, A., 2006a. Integrating quantitative and qualitative research: how is it done?. *Qualitative research*, 6(1), pp.97-113.
- Bryman, A., 2006b. Paradigm peace and the implications for quality. *International journal of social research methodology*, 9(2), pp.111-126.

- Bryman, A., 2007. Paradigm peace and the implications for quality. *International journal of social research methodology*, 9(2), pp.111-126.
- Bryman, A., 2016. *Social research methods*. Oxford university press.
- Bryman, A., Becker, S. and Sempik, J., 2008. Quality criteria for quantitative, qualitative and mixed methods research: A view from social policy. *International journal of social research methodology*, 11(4), pp.261-276.
- Bryman, P. 2006. *Policy Implementation: Improving Public Policy*. Van Schaaike, Pretoria
- Bubolz, M.M., 2001. Family as source, user, and builder of social capital. *The Journal of socio-economics*, 30(2), pp.129-131.
- Buckup, S. 2012. *Building Successful Partnerships: A Production Theory of Global Multi Stakeholder Collaboration*. Switzerland. Springer
- Burdette, A.M., Hill, T.D. and Myers, K., 2015. Understanding religious variations in sexuality and sexual health. In *Handbook of the sociology of sexualities* (pp. 349-370). Springer, Cham.
- Burke, R.J. and Christensen, L., 2014. *Educational research: Quantitative, qualitative, and mixed approaches*. Sage publications.
- Burns, E., 2016. Ethnographic Fieldwork and the Experience of Rejection from a New Religious Movement. *Fieldwork in Religion*. pp. 90-208.
- Buse, K., Hawkes, S. and Hildebrand, M., 2017. Abstinence in HIV prevention: science and sophistry—Authors' reply. *The Lancet Global Health*, 5(1), p.e31.
- Buyse, A., 1998. Safer sexual decision making in stable and casual relationships: A prototype approach. *Psychology and Health*, 13(1), pp.55-66.
- Cacioppo, J. T. and Cacioppo, S. 2014 'Social relationships and health: The toxic effects of perceived social isolation', *Social and Personality Psychology Compass*. doi: 10.1111/spc3.12087.
- Caldwell, J.C. 1999. "Reasons for Limited Sexual Behavioral Change in the Sub-Saharan AIDS Epidemic, and Possible Future Intervention Strategies". In *Resistances to Behavioral Change to Reduce HIV/AIDS Infections in Predominantly Heterosexual Epidemics in Third World countries*, Edited by: Caldwell, J.C., Caldwell, P., Anarfi, J., Awusabo-Asare, K., Ntozi, J., Orubuloye, I.O., Marck, J., Cosford, W., Colombo, R. and Hollings, E. 241–256. Canberra: Health Transition Centre, The Australian National University.
- Caldwell, J.C., 1993. Health transition: the cultural, social and behavioural determinants of health in the Third World. *Social science and medicine*, 36(2), pp.125-135.
- Callan, T., Nolan, B. and Whelan, C.T., 1993. Resources deprivation and the measurement of poverty. *Journal of Social Policy*, 22(2), pp.141-172.
- Campbell, C. and Gillies, P., 2001. Conceptualizing 'social capital' for health promotion in small local communities: a micro-qualitative study. *Journal of community and applied social psychology*, 11(5), pp.329-346.
- Campbell, C., Scott, K., Nhamo, M., Nyamukapa, C., Madanhire, C., Skovdal, M., Sherr, L. and Gregson, S., 2013. Social capital and HIV competent communities: the role of community groups in managing HIV/AIDS in rural Zimbabwe. *AIDS care*, 25(sup1), pp.S114-S122.
- Campbell, C., Williams, B. and Gilgen, D. 2002. 'Is social capital a useful conceptual tool for exploring community level influences on HIV infection? An exploratory case study

- from South Africa', *AIDS Care - Psychological and Socio-Medical Aspects of AIDS/HIV*, 14(1), pp. 41–54. doi: 10.1080/09540120220097928.
- Campbell, C., Wood, R. and Kelly, M., 1999. *Social capital and health*. Health Education Authority, London, UK. Available from: <http://eprints.lse.ac.uk/76113/> [Accessed 12/July, 2017]
- Campbell, D.T. and Stanley, J.C. 1963. Experimental and quasi-experimental designs for research on teaching In N. L. Gage (Ed.), *Handbook of research on teaching* . Chicago: Rand McNally
- Campbell, D.T. and Fiske, D.W., 1959. Convergent and discriminant validation by the multigrain-multimethod matrix. *Psychological bulletin*, 56(2), p.81.
- Campbell, D.T., and D.W. Fisk. 1959. Convergent and discriminant validation by the multi-trait – Multi-method matrix. *Psychological Bulletin* 56 (2): 81–105.
- Campos-Matos, I., Subramanian, S.V. and Kawachi, I., 2016. The ‘dark side’ of social capital: trust and self-rated health in European countries. *The European Journal of Public Health*, 26(1), pp.90-95.
- Capitano, J.P. and Herek, G.M., 1999. AIDS-related stigma and attitudes toward injecting drug users among Black and White Americans. *American Behavioural Scientist*, 42(7), pp.1148-1161.
- Caracelli, V.J. and Greene, J.C., 1997. Crafting mixed-method evaluation designs. *New directions for evaluation*, 74, pp.19-32.
- Carey, Lytle, and Cyr .1999. Implications of laboratory tests of condom integrity. *Sex Transmission Disease*, 26(4): 216-20.
- Carpenter, L.M., Kamali, A., Ruberantwari, A., Malamba, S.S. and Whitworth, J.A., 1999. Rates of HIV-1 transmission within marriage in rural Uganda in relation to the HIV sero-status of the partners. *Aids*, 13(9), pp.1083-1089.
- Carr, R.L. and Gramling, L.F., 2004. Stigma: a health barrier for women with HIV/AIDS. *Journal of the Association of Nurses in AIDS Care*, 15(5), pp.30-39.
- Cavazos-Rehg, P.A., Spitznagel, E.L., Bucholz, K.K., Nurnberger, J., Edenberg, H.J., Kramer, J.R., Kuperman, S., Hesselbrock, V. and Bierut, L.J., 2010. Predictors of sexual debut at age 16 or younger. *Archives of sexual behavior*, 39(3), pp.664-673.
- CDC - Centers for Disease Control and Prevention, 1992. 1993 revised classification system for HIV infection and expanded surveillance case definition for AIDS among adolescents and adults. *MMWR Recomm. Rep.*, 41, pp.1-19.
- CDC - Centers for Disease Control and Prevention. 1981. HIV and AIDS in United States. *MWR. Morbidity and mortality weekly report*, 12 (21), pp.430-434.
- CDC - Centers for Disease Control, 1981. Kaposi's sarcoma and Pneumocystis pneumonia among homosexual men-New York City and California *Morbidity and mortality weekly report*, 30, pp.305-308.
- CDC - Centers for Disease Control. 1982. Opportunistic infections and Kaposi's sarcoma among Haitians in the United States. *MMWR. Morbidity and mortality weekly report*, 31(26), pp.353-361.
- CDC - Centers for Disease Control. 1983. Immunodeficiency among female sexual partners of males with acquired immune deficiency syndrome (AIDS)-New York. *MMWR. Morbidity and mortality weekly report*, 31(52), pp.697-698.

- CDC - Centers for Disease Control. 2016. Laboratory testing for the diagnosis of HIV infection: updated recommendations. Available from: <https://stacks.cdc.gov/view/cdc/23447>[Retrieved 21/011/2018]
- CDC - Centre for Disease Control. 2014. What is HIV/AIDS? What are HIV and AIDS? Available from: <https://www.cdc.gov/hiv/basics/whatishiv.htm>: [Accessed on 13/07, 2018]
- Ch, Baka and Smith, G., 2011. Spiritual, religious and social capital exploring their dimensions and their relationship with faith based motivation and participation in UK civil society. In *BSA Sociology of Religion Group Conference*.
- Chamberlain, K. and Hodgetts, D., 2018. Collecting qualitative data with hard-to-reach groups. *Handbook of Qualitative Data Collection*. London: SAGE Publications Ltd. pp.668-685
- Chamrathirong, A. and Kaiser, P., 2012. The dynamics of condom use with regular and casual partners: analysis of the 2006 national sexual behaviour survey of Thailand. *PloS one*, 7(7), p.e42009.
- Chan, L., Hart, L.G. and Goodman, D.C., 2006. Geographic access to health care for rural Medicare beneficiaries. *The Journal of Rural Health*, 22(2), pp.140-146.
- Chanakira, E., O’Cathain, A., Goyder, E.C. and Freeman, J.V., 2014. Factors perceived to influence risky sexual behaviours among university students in the United Kingdom: a qualitative telephone interview study. *BMC public health*, 14(1), pp.1-7.
- Chandra, A., Copen, C.E. and Mosher, W.D., 2013. Sexual behavior, sexual attraction, and sexual identity in the United States: Data from the 2006–2010 National Survey of Family Growth. In *International handbook on the demography of sexuality* (pp. 45-66). Springer, Dordrecht.
- Charurat, M., Nasidi, A., Delaney, K., Saidu, A., Croxton, T., Mondal, P., Aliyu, G.G., Constantine, N., Abimiku, A.L., Carr, J.K. and Vertefeuille, J., 2012. Characterization of acute HIV-1 infection in high-risk Nigerian populations. *Journal of Infectious Diseases*, 205(8), pp.1239-
- Chatterji, M., Murray, N., London, D. and Anglewicz, P., 2005. The factors influencing transactional sex among young men and women in 12 sub-Saharan African countries. *Social biology*, 52(1-2), pp.56-72.
- Chatters, L.M., 2000. Religion and health: Public health research and practice. *Annual review of public health*, 21(1), pp.335-367.
- Chattu, V.K., 2014. Global Health and HIV/AIDS—A Critical Debate on Mandatory HIV Testing Policy. *J Hum Virol Retrovirol*, 1(2), p.00011.
- Chawla, N. and Sarkar, S., 2019. Defining “high-risk sexual behaviour” in the context of substance use. *Journal of Psychosexual Health*, 1(1), pp.26-31.
- Cherutich, P., Kaiser, R., Galbraith, J., Williamson, J., Shiraishi, R.W., Ngare, C., Mermin, J., Marum, E., Bunnell, R. and KAIS Study Group, 2012. Lack of knowledge of HIV status a major barrier to HIV prevention, care and treatment efforts in Kenya: results from a nationally representative study. *PloS one*, 7(5), p.e36797.
- Chigwedere, P. and Essex, M., 2010. AIDS denialism and public health practice. *AIDS and Behavior*, 14(2), pp.237-247.

- Chigwedere, P., Seage III, G.R., Gruskin, S., Lee, T.H. and Essex, M., 2008. Estimating the lost benefits of antiretroviral drug use in South Africa. *JAIDS Journal of Acquired Immune Deficiency Syndromes*, 49(4), pp.410-415.
- Chima, C.C., and N. Homedes. 2015. Impact of global health governance on country health systems: the case of HIV initiatives in Nigeria. *Journal of global Health*, 5(1). Available from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4416331/pdf/jogh-05-010407.pdf>. [Accessed 03 August, 2016].
- Chimbiri, A.M., 2007. The condom is an ‘intruder’s in marriage: evidence from rural Malawi. *Social science and medicine*, 64(5), pp.1102-1115.
- Choby, A.A. and Clark, A.M., 2014. Improving health: structure and agency in health interventions. *Nursing Philosophy*, 15(2), pp.89-101.
- Chuah, S.H., Gächter, S., Hoffmann, R. and Tan, J.H., 2016. Religion, discrimination and trust across three cultures. *European Economic Review*, 90, pp.280-301.
- Civic, D., 1999. The association between characteristics of dating relationships and condom use among heterosexual young adults. *AIDS education and prevention*, 11(4), p.343.
- Clandinin, D.J. and Connelly, F.M., 2000. *Narrative inquiry*. : 251-307. San Francisco: Jossey-Bass
- Clark, S. 2000. Mbeki defiant about South African HIV/AIDS strategy. *The Lancet*, 356, p.225.
- Clark, S. 2004. Early Marriage and HIV risks in Sub-Saharan Africa. *Studies in Family Planning*, 35(3): 149–160.
- Clark, S. 2010. Extra-marital sexual partnerships and male friendships in rural Malawi. *Demographic research*, 22, p.1.
- Clark, T. 2011. Gaining and maintaining access: Exploring the mechanisms that support and challenge the relationships between gatekeepers and researchers. *Qualitative Social Work*, 10, 485–502.
- Clement, Z., C., Pieniazek, D., Agwale, S.M., Robbins, K.E., Odama, L., Sani-Gwarzo, N., Gboun, M.S., Inyang, U.S., Folks, T.M., Wambebe, C. and Kalish, M.L., 2005. Nigerian HIV type 2 subtype A and B from heterotypic HIV type 1 and HIV type 2 or monotypic HIV type 2 infections. *AIDS Research and Human Retroviruses*, 21(1), pp.17-27.
- Cloete, F., De Coning, C., Wissink, H. and Rabie, B. *Improving Public Policy for Good Governance*, 4th Edition. 2018. Van Schaik, Publishers: Pretoria
- Coates, T.J., Grinstead, O.A., Gregorich, S.E., Sweat, M.D., Kamenga, M.C., Sangiwa, G., Balmer, D. and Furlonge, C., 2008. Efficacy of voluntary HIV-1 counselling and testing in individuals and couples in Kenya Tanzania and Trinidad: a randomised trial. *Lancet*, 356(9224), pp.103
- Cockerham, W.C., Hamby, B.W. and Oates, G.R., 2017. The social determinants of chronic disease. *American journal of preventive medicine*, 52(1), pp.S5-S12.
- Coffin, J., Haase, A., Levy, J.A., Montagnier, L., Oroszlan, S., Teich, N., Temin, H., Toyoshima, K., Varmus, H. and Vogt, P., 1986. What to call the AIDS virus? *Nature*, 321(6065), pp.10-10.
- Cohen J. 2000. South Africa, AIDS researchers decry Mbeki’s views on HIV. *Science*. 2000; 288:590–591.

- Cohen, D. and Reid, E., 1999. The vulnerability of women: is this a useful construct for policy and programming?. *Vivre et penser le sida en Afrique*, Paris, Karthala-Codesria-IRD, pp.377-
- Cohen, S., 2004. Social relationships and health. *American psychologist*, 59(8), p.676.
- Cole, P.D. 2015. Sex and consent age in Nigeria. *The Guardian*. Monday, 2nd March, 2015. Available from: <https://guardian.ng/opinion/columnists/cole-sex-and-consent-age-in-nigeria/> [Accessed on the 21/08/2019]
- Coma, J.C., 2013. When the group encourages extramarital sex: Difficulties in HIV/AIDS prevention in rural Malawi. *Demographic Research*, 28, pp.849-880.
- Conley, T.D., Matsick, J.L., Moors, A.C., Ziegler, A. and Rubin, J.D., 2015. Re-examining the effectiveness of monogamy as an STI-preventive strategy. *Preventive medicine*, 78, pp.23-
- Conroy, A.A., McKenna, S.A., Comfort, M.L., Darbes, L.A., Tan, J.Y. and Mkandawire, J., 2018. Marital infidelity, food insecurity, and couple instability: A web of challenges for dyadic coordination around antiretroviral therapy. *Social Science and Medicine*, 214, pp.110-117.
- Cooper, C., Tandy, A.R., Balamurali, T.B. and Livingston, G., 2010. A systematic review and meta-analysis of ethnic differences in use of dementia treatment, care, and research. *The American Journal of Geriatric Psychiatry*, 18(3), pp.193-203.
- Copas, A.J., Wellings, K., Erens, B., Mercer, C.H., McManus, S., Fenton, K.A., Korovessis, C., Macdowall, W., Nanchahal, K. and Johnson, A.M., 2002. The accuracy of reported sensitive sexual behaviour in Britain: exploring the extent of change 1990–2000. *Sexually Transmitted Infections*, 78(1), pp.26-30.
- Corbett, A.M., Dickson-Gómez, J., Hilario, H. and Weeks, M.R., 2009. A little thing called love: Condom use in high-risk primary heterosexual relationships. *Perspectives on sexual and reproductive health*, 41(4), pp.218-224.
- Corbin, J. and Strauss, A., 2014. *Basics of qualitative research: Techniques and procedures for developing grounded theory*. Sage publications.
- Corbin, W.R., Scott, C.J. and Treat, T.A., 2016. Sociosexual attitudes, sociosexual behaviours, and alcohol use. *Journal of studies on alcohol and drugs*, 77(4), pp.629-637.
- Corley, M.D. and Schneider, J.P., 2002. Disclosing secrets: Guidelines for therapists working with sex addicts and co-addicts. *Sexual Addiction and Compulsivity: The Journal of Treatment and Prevention*, 9(1), pp.43-67.
- Cornish, F. and Gillespie, A., 2009. A pragmatist approach to the problem of knowledge in health psychology. *Journal of health psychology*, 14(6), pp.800-809.
- Corno, L. and De Paula, Á. 2019. Risky Sexual Behaviours: Biological Markers and Self-reported Data. *Economica*, 86(342), pp.229-261.
- Corsi, D.J., Neuman, M., Finlay, J.E. and Subramanian, S.V., 2012. Demographic and health surveys: a profile. *International journal of epidemiology*, 41(6), pp.1602-1613.
- Cortez, Rafael; Saadat, Seemeen; Marinda, Edmore; Odutolu, Oluwole. 2015. *Adolescent Fertility and Sexual Health in Nigeria*. Health, Nutrition and Population Discussion Paper;. World Bank, Washington, DC. © World Bank. <https://openknowledge.worldbank.org/handle/10986/24041> License: CC BY 3.0 IGO

- Coulibaly, B.S., 2020. Foresight Africa: Top priorities for the continent 2020 to 2030. Available from: https://media.africaportal.org/documents/ForesightAfrica2020_2030.pdf [Accessed on the 21/05/2020]
- Coulibaly, B.S..2019. Foresight Africa: Top priorities for the continent in 2019. Available from: https://media.africaportal.org/documents/Foresight_Africa_2019.pdf [Accessed on the 21/05/2020]
- Coulibaly, B.S..2019. Foresight Africa: Top priorities for the continent in 2019. Available from: https://media.africaportal.org/documents/Foresight_Africa_2019.pdf [Accessed on the 21/05/2020]
- Courtemanche, Charles, Joseph Garuccio, Anh Le, Joshua Pinkston, and Aaron Yelowitz. "Strong Social Distancing Measures In The United States Reduced The COVID-19 Growth Rate: Study evaluates the impact of social distancing measures on the growth rate of confirmed COVID-19 cases across the United States." *Health Affairs* 39, no. 7 (2020): 1237-1246.
- Crankshaw, T.L., Matthews, L.T., Giddy, J., Kaida, A., Ware, N.C., Smit, J.A. and Bangsberg, D.R., 2012. A conceptual framework for understanding HIV risk behaviour in the context of supporting fertility goals among HIV-serodiscordant couples. *Reproductive health matters*, 20(39), pp.50-60.
- Creswell, J.W. 2014. *Qualitative inquiry and research design: Choosing among five approaches*. Sage publications.
- Creswell, J.W. and Clark, V.L.P., 2018. *Designing and conducting mixed methods research*. Sage publications.
- Creswell, J.W. and Plano Clark, V.L. 2011. *Designing and Conducting Mixed Methods Research*, 2nd edition, Sage, Thousand Oaks, CA.
- Creswell, J.W. and Poth, C.N., 2018. *Qualitative inquiry and research design: Choosing among five approaches*. Sage publications.
- Creswell, J.W. and Tashakkori, A., 2007. Differing Perspectives on Mixed Methods Research. *Journal of Mixed Methods Research*, 1(4), pp.303-308.
- Creswell, J.W., 2009. Mapping the field of mixed methods research. *Journal of Mixed Methods Research*, 3(2), pp.95-108
- Creswell, J.W., Fetters, M.D. and Ivankova, N.V., 2004. Designing a mixed methods study in primary care. *The Annals of Family Medicine*, 2(1), pp.7-12.
- Croner, C.M., Sperling, J. and Broome, F.R., 1996. Geographic information systems (GIS): new perspectives in understanding human health and environmental relationships. *Statistics in medicine*, 15(18), pp.1961-1977.
- Crotty, M. 1989. *The foundations of social research*. London: Sage.
- Crowe, L.C. and George, W.H. 1989. Alcohol and human sexuality: Review and integration. *Psychological Bulletin* .105 (3):374-386
- Cummings, T., Auerswald, C.L. and Ott, M.A., 2014. Factors influencing abstinence, anticipation, and delay of sex among adolescent boys in high–sexually transmitted infection prevalence communities. *Journal of adolescent health*, 54(5), pp.593-598.
- Cunningham, S.D., Kerrigan, D.L., McNeely, C.A. and Ellen, J.M., 2011. The role of structure versus individual agency in churches’ responses to HIV/AIDS: A case study of Baltimore city churches. *Journal of religion and health*, 50(2), pp.407-421.

- Curtis, S. and Rees Jones, I., 1998. Is there a place for geography in the analysis of health inequality?. *Sociology of health and illness*, 20(5), pp.645-672.
- Cutchin, M.P., 2007. The need for the “new health geography” in epidemiologic studies of environment and health. *Health and place*, 13(3), pp.725-742.
- Cutler, D.M. and Lleras-Muney, A., 2006. *Education and health: evaluating theories and evidence* (No. w12352). National bureau of economic research.
- D’arca, M., Ayouba, A.; Esteban, A.; Learn, G.H.; Bouéa, V.; Liegeois, F.; Etienne, L.; Tagge, N.; Leendertz, F.H.; Boesch, C.; Madindaf, N.F.; Robbins, M.M.; Grayi, M.; Cournila, A.; Oomsj, M.; Letkoj, M.; Simonj, V.A.; Sharp, P.M.; Hahn, B.H.; Delaporte, E.; Ngolen, E. M. and Peeters, M. (2015) Origin of the HIV-1 group O epidemic in western lowland gorillas. *Proceedings of the National Academy of Sciences*: March 2015: Available from: <http://www.pnas.org/content/112/11/E1343.full.pdf> [Accessed on the 24th January, 2018].
- D'Alessandro, C. and Léautier, F., 2016. *Cities and Spaces of Leadership: A Geographical Perspective*. Springer.
- Daly, C. 2001. *Prevention of trafficking and the care and support of trafficked persons*. Kathmandu, Nepal, and New Delhi, Asia Foundation and Population Council, February 2001.
- Danforth, K., Granich, R., Wiedeman, D., Baxi, S. and Padian, N., 2017. Global mortality and morbidity of HIV/AIDS.
- Danfulani, U.H.D. and Fwatshak, S.U., 2002. Briefing: The September 2001 Events in Jos, Nigeria. *African affairs*, pp.243-255.
- Daniel, O.J., Adejumo, O.A., Oritogun, K.S., Jaiyesimi, E.O. and Ladi-Akinyemi, T.W., 2017. The spatial distribution of HIV prevalence rates in Nigeria. *Br J Med Res*, 21, p.7.
- Davis, K.C., Neilson, E.C., Wegner, R., Stappenbeck, C.A., George, W.H. and Norris, J., 2018. Women’s sexual violence victimization and sexual health: Implications for risk reduction. In *Sexual Assault Risk Reduction and Resistance* (pp. 379-406). Academic Press.
- Davis, K.C., Schraufnagel, T.J., Kajumulo, K.F., Gilmore, A.K., Norris, J. and George, W.H., 2014. A qualitative examination of men’s condom use attitudes and resistance: “It’s just part of the game”. *Archives of sexual behaviour*, 43(3), pp.631-643.
- De Boni, R., Veloso, V.G. and Grinsztejn, B., 2014. Epidemiology of HIV in Latin America and the Caribbean. *Current Opinion in HIV and AIDS*, 9(2), pp.192-198.
- de Castro, F., Rojas-Martínez, R., Villalobos-Hernández, A., Allen-Leigh, B., Breverman-Bronstein, A., Billings, D.L. and Uribe-Zúñiga, P., 2018. Sexual and reproductive health outcomes are positively associated with comprehensive sexual education exposure in Mexican high-school students. *PloS one*, 13(3), p.e0193780.
- De Cock, K.M., Fowler, M.G., Mercier, E., De Vincenzi, I., Saba, J., Hoff, E., Alnwick, De Walque, D. and Kline, R., 2012. The association between remarriage and HIV infection in 13 sub-Saharan African countries. *Studies in Family Planning*, 43(1), pp.1-10.
- De Walque, D., Nakiyingi-Miir, J.S., Busingye, J. and Whitworth, J.A., 2005. Changing association between schooling levels and HIV-1 infection over 11 years in a rural

- population cohort in south-west Uganda. *Tropical medicine and international health*, 10(10), pp.993-1001.
- de Wit, J.B., Aggleton, P., Myers, T. and Crewe, M., 2011. The rapidly changing paradigm of HIV prevention: time to strengthen social and behavioural approaches. *Health Education Research*, 26, (3), Pages 381–392.
- Decker, C. F. 2016. Sexually transmitted diseases: An overview. *Disease-a-Month*, 8(62), pp. 258-
- Deeks, S.G., Overbaugh, J., Phillips, A. and Buchbinder, S., 2015. HIV infection. *Nature reviews Disease primers*, 1(1), pp.1-22.
- Dellar, R.C., Dlamini, S. and Karim, Q.A., 2015. Adolescent girls and young women: key populations for HIV epidemic control. *Journal of the International AIDS Society*, 18, p.19408.
- Denison, J.A., O'Reilly, K.R., Schmid, G.P., Kennedy, C.E. and Sweat, M.D., 2008. HIV voluntary counselling and testing and behavioural risk reduction in developing countries: a meta-analysis, 1990–2005. *AIDS and Behavior*, 12(3), pp.363-373.
- Denscombe, M. 2008. Communities of practice: A research paradigm for the mixed methods approach. *Journal of Mixed Methods Research*, 2, 274 <https://doi.org/10.1177/1558689808316807>
- Denzin, N.K. and Lincoln, Y.S., 2005. *The landscape of qualitative research (Vol. 1)*. Sage.
- DiClemente, R.J., Wingood, G.M., Crosby, R.A., Sionean, C., Cobb, B.K., Harrington, K., Davies, S.L., Hook III, E.W. and Oh, M.K., 2002. Sexual risk behaviours associated with having older sex partners: a study of black adolescent females. *Sexually transmitted diseases*, 29(1), pp.20-24.
- Diez-Roux, A.V., 2000. Multilevel analysis in public health research. *Annual review of public health*, 21(1), pp.171-192.
- Dinkelman, T., Lam, D. and Leibbrandt, M., 2007. Household and community income, economic shocks and risky sexual behaviour of young adults: evidence from the Cape Area Panel Study 2002 and 2005. *AIDS (London, England)*, 21(Suppl 7), p.S49
- Dixon-Woods, M., Agarwal, S., Young, B., Jones, D. and Sutton, A., 2004. *Integrative approaches to qualitative and quantitative evidence*. London: Health Development Agency, 181.
- Djukpen, R. O. 2012. Mapping the HIV/AIDS epidemic in Nigeria using exploratory spatial data analysis. *GeoJournal*; 77 (4): 555-569. Available from:<http://download.springer.com /static/pdf/306/art> [Accessed on 27th January, 2016].
- Djukpen, R., 2013. *The geography of HIV/AIDS and an assessment of risk factor perspectives in Nigeria: the case of Benin City and Makurdi* (Doctoral dissertation, University of Illinois at Urbana-Champaign)
- Dodd, P.J., Garnett, G.P. and Hallett, T.B., 2010. Examining the promise of HIV elimination by 'test and treat' in hyper-endemic settings. *AIDS (London, England)*, 24(5), p.729.
- Dodds, F., Donoghue, A.D. and Roesch, J.L., 2016. *Negotiating the sustainable development goals: a transformational agenda for an insecure world*. Taylor and Francis.
- Dodds, F., Donoghue, A.D. and Roesch, J.L., 2016. *Negotiating the sustainable development goals: a transformational agenda for an insecure world*. Taylor and Francis.

- Dodoo, N.D., Atiglo, D.Y., Biney, A.A., Alhassan, N., Peterson, M.B. and Dodoo, F.N.A., 2019. Does financial autonomy imply reproductive and sexual autonomy? Evidence from urban poor women in Accra, Ghana. *African Studies*, pp.1-19.
- Dolcini, M.M., Gandelman, A.A., Vogan, S.A., Kong, C., Leak, T.N., King, A.J., DeSantis, L. and O'Leary, A., 2010. Translating HIV interventions into practice: community-based organizations' experiences with the diffusion of effective behavioural interventions (DEBIs). *Social Science and Medicine*, 71(10), pp.1839-1846.
- Dollar, D. and Gatti, R., 1999. Gender inequality, income, and growth: are good times good for women? (Vol. 1). Washington, DC: Development Research Group. The World Bank.
- Dongurum, C.K., and Osagbemi, M. O. 2010. Contraceptive Knowledge and Use among Adolescents: Case Study of Selected Rural Communities in Plateau State. *Journal of Environmental Sciences* 14 (2): 9 - 23.
- Dongurum, C.K., Marcus, N.D. and Osagbemi, M. O. 2009. Sexual Behaviour of Adolescents in Qua'an-Pan Local Government Area, Plateau State. *Nigerian Journal of Social Research*, 1 (5): 80 - 92.
- Donovan, J.E. and Jessor, R. 1985. Structure of problem behaviour in adolescence and young adulthood. *Journal of Consulting and Clinical Psychology*. 53(6):890-904.
- Doosur, A., Arome, A. S., 2013. Curbing the cultural practices of wife inheritance and polygamy through information dissemination in Benue state. *IOSR Journal of Humanities and Social Science* 13 (1), 50–54.
- Doupe, A., 2005. Partnerships between churches and people living with HIV/AIDS organizations. Geneva, Switzerland: World Council of Churches.
- Doyle, Aoife M., Sue Napierala Mavedzenge, Mary L. Plummer, and David A. Ross. "The sexual behaviour of adolescents in sub-Saharan Africa: patterns and trends from national surveys." *Tropical Medicine and International Health* 17, no. 7 (2012): 796-807.
- Du Loû, A.D. and Coleman, H., 2005. The Couple and HIV/AIDS in Sub-Saharan Africa. *Population*, 60(3), pp.179-198.
- Dunkle, K.L., Jewkes, R.K., Nduna, M., Levin, J., Jama, N., Khuzwayo, N., Koss, M.P. and Duvvury, N., 2006. Perpetration of partner violence and HIV risk behaviour among young men in the rural Eastern Cape, South Africa. *Aids*, 20(16), pp.2107-2114.
- Durowade, Kabir Adekunle, Oluwole Adeyemi Babatunde, Lukman Omotayo Omokanye, Olusegun Elijah Elegbede, Lawrence Majekodunmi Ayodele, Kayode Razaq Adewoye, Stella Adetokunbo et al. "Early sexual debut: prevalence and risk factors among secondary school students in Ido-ekiti, Ekiti state, South-West Nigeria." *African health sciences* 17, no. 3 (2017): 614-622.
- Earnshaw, V.A. and Chaudoir, S.R., 2009. From conceptualizing to measuring HIV stigma: a review of HIV stigma mechanism measures. *AIDS and Behaviour*, 13(6), p.1160.
- Eberhardt, M.S., Freid, V.M., Harper, S., Ingram, D.D., Makuc, D.M., Pamuk, E. and Prager, K., 2001. Health, United States, 2001, with urban and rural health chartbook.
- Edelman, L.F., Bresnen, M., Newell, S., Scarborough, H. and Swan, J., 2002, April. The darker side of social capital. In 3rd European Conference on Organizational Knowledge, Learning and Capabilities, Athens, Greece.

- Ejima, I.A.A. and Odaibo, A.B., 2010. Urinary schistosomiasis in the Niger-Benue basin of Kogi State, Nigeria. *International Journal of Tropical Medicine*, 5(3), pp.73-80.
- Ellen, J.M., Cahn, S., Eyre, S.L. and Boyer, C.B., 1996. Types of adolescent sexual relationships and associated perceptions about condom use. *Journal of Adolescent Health*, 18(6), pp.417-421.
- Elliott, V., 2018. *The research interview: reflective practice and reflexivity in research processes*. Palgrave,
- Ellison, C. G. and Levin, J. S. 1998. The Religion-Health Connection: Evidence, Theory, and Future Directions', *Health Education {and } Behaviour*, 25(6), pp. 700–720. doi:10.1097/QAI.0b013e31826dfb41. 10.1177/109019819802500603.
- Ellison, C.G., 1995. Race, religious involvement and depressive symptomatology in a south-eastern US community. *Social Science and Medicine*, 40(11), pp.1561-1572.
- Eluwa, G.I., Adebajo, S.B., Eluwa, T., Ogbanufe, O., Ilesanmi, O. and Nzelu, C., 2019. Rising HIV prevalence among men who have sex with men in Nigeria: a trend analysis. *BMC public health*, 19(1), pp.1-10.
- Encyclopædia Britannica. 2010. Philosophy.
- ENR - Enhancing Nigeria's HIV and AIDS Response Programme. 2015. "HIV and sexual behaviours of out-of-school young persons in Nigeria." Abuja: EN
- Envuladu, E.A., Agbo, H.A., Lassa, S., Kigbu, J.H. and Zoakah, A.I., 2013. Factors determining the choice of a place of delivery among pregnant women in Russia village of Jos North, Nigeria: achieving the MDGs 4 and 5. *International Journal of Medicine and Biomedical Research*, 2(1), pp.23-27.
- Envuladu, E.A., Agbo, H.A., Ohize, V.A. and Zoakah, A.I., 2013. Social factors associated with teenage sexual behaviour: A risk factor for STI/HIV among female adolescents in a rural Community in Plateau State, Nigeria.
- Envuladu, E.A., Anke, V.D.K., Zwanikken, P. and Zoakah, A.I., 2017a. Sexual and reproductive health challenges of adolescent males and females in some communities of plateau state Nigeria. *Int J Psychology Behavioural Science*, 7(2), pp.55-60.
- Envuladu, E.A., Van de Kwaak, A., Zwanikken, P. and Zoakah, A.I., 2017b. Exploring the factors influencing adolescent sexual behaviour in plateau state Nigeria. *American Journal of Medicine and Medical Sciences*, 7(1), pp.1-6.
- Erim, D.O., Offiong, H.E., Kim, C., Bello, F.A., Moulton, J., Wheeler, S.B. and Thirumurthy, H., 2018. The spill over effect of midwife attrition from the Nigerian midwives service scheme. *BMC health services research*, 18(1), p.295.
- Evans, B.C., Coon, D.W. and Ume, E., 2011. Use of theoretical frameworks as a pragmatic guide for mixed methods studies: a methodological necessity?. *Journal of mixed methods research*, 5(4), pp.276-292.
- Evans, C., Jana, S. and Lambert, H., 2010. What makes a structural intervention? Reducing vulnerability to HIV in community settings, with particular reference to sex work. *Global public health*, 5(5), pp.449-461.
- Evans, C.R., 2015. Innovative approaches to investigating social determinants of health-social networks, environmental effects and intersectionality (Doctoral dissertation). Retrieved from: file:///C:/Users/GEOG-U~1/AppData/Local/Temp/EVANS-DISSERTATION-2015.pdf [23/06/2020]

- Evans, C.R., Williams, D.R., Onnela, J.P. and Subramanian, S.V., 2018. A multilevel approach to modelling health inequalities at the intersection of multiple social identities. *Social Science and Medicine*, 203, pp.64-73.
- Evelyn, U.I. and Osafu, O. 1999. Sexual behaviour and perception of AIDS among adolescent girls in Benin City, Nigeria. *African journal of reproductive health*, 3(1), pp.39-44.
- Eze, G.U., Obiebi, I.P. and Akpofure, H.E.. 2018. Sexual behaviour and patterns of contraceptive use among students of tertiary institutions in Southern Nigeria. *Journal of Community Medicine and Primary Health Care*, 30(1), pp.109-121.
- Ezugwu, F.O., Obi, S.N. and Onah, H.E., 2002. The knowledge, attitude and practice of child adoption among infertile Nigerian women. *Journal of Obstetrics and Gynaecology*, 22(2), pp.211-216.,
- Fagbamigbe, A.F., Lawal, A.M. and Idemudia, E.S., 2017. Modelling self-assessed vulnerability to HIV and its associated factors in a HIV-burdened country. *SAHARA-J: Journal of Social Aspects of HIV/AIDS*, 14(1), pp.140-152.
- Fatusi, A.O. and Jimoh, A. 2006. The Role Behaviour Change Communication and Mass media. In: Adeyi, O., P.J. Kanki, O. Adutolu and J.A. Idoko, 2006 (ed.) *AIDS in Nigeria: A Nation on the Threshold*. Harvard Centre for Population and Development Studies, Cambridge.162-
- Faust, L., Yaya, S. and Ekholuenetale, M., 2017. Wealth inequality as a predictor of HIV-related knowledge in Nigeria. *BMJ Global Health*, 2(4), p.e000461.
- Fawole, A.O., Ogunkan, D.V. and Adegoke, G.S., 2011. Sexual behaviour and perception of HIV/AIDS in Nigerian tertiary institutions: University of Ilorin, a case study. *Global journal of human social science*, 11(1), p.1.
- Feeny, S., 2020. Transitioning from the MDGs to the SDGs: Lessons Learnt?. In *Moving from the Millennium to the Sustainable development Goals* (pp. 343-351). Palgrave Macmillan, Singapore.
- Feeny, S., 2020. Transitioning from the MDGs to the SDGs: Lessons Learnt?. In *Moving from the Millennium to the Sustainable development Goals* (pp. 343-351). Palgrave Macmillan, Singapore.
- Fehr, E. and Gächter, S. 2011 'Fairness and retaliation: The economics of reciprocity', in *Advances in Behavioural Economics*. doi: 10.2139/ssrn.229149.
- Feilzer, M. Y. 2010. Doing mixed methods research pragmatically: Implications for the rediscovery of pragmatism as a research paradigm. *Journal of mixed methods research*, 4(1), pp.6-16.
- Feldacker, C., Emch, M. and Ennett, S., 2010. The who and where of HIV in rural Malawi: Exploring the effects of person and place on individual HIV status. *Health and place*, 16(5), pp.996-1006.
- Fenner, P., 2011. Place, matter and meaning: Extending the relationship in psychological therapies. *Health and place*, 17(3), pp.851-857.
- Fenstermaker, S., West, C. and Zimmerman, D.H., 2002. Gender inequality: New conceptual terrain. *Doing gender, doing difference: Inequality, power, and institutional change*, pp.25-39.
- Fenton, K.A., Johnson, A.M., McManus, S. and Erens, B., 2001. Measuring sexual behaviour: methodological challenges in survey research. *Sexually transmitted infections*, 77(2), pp.84-92.

- Fenwick, A., D. Molyneux, and Nantulya, V. 2005. Achieving the millennium development goals. *The Lancet* 365 (9464): 1029-1030.
- Fergus, S. and Zimmerman, M.A., 2005. Adolescent resilience: A framework for understanding healthy development in the face of risk. *Annu. Rev. Public Health*, 26, pp.399-419.
- Ferlander, S.2007 'The importance of different forms of social capital for health', *Acta Sociological*. doi: 10.1177/0001699307077654.
- Feyisetan, B. and Pebley, A.R. 1989 .Premarital Sexuality in Urban Nigeria. *Studies in Family Planning*, 20(6):343–354,
- Feyissa, G.T., Abebe, L., Girma, E. and Woldie, M., 2012. Stigma and discrimination against people living with HIV by healthcare providers, Southwest Ethiopia. *BMC Public Health*, 12(1), pp.1-12.
- FHI - Family Health International. 2000. Behavioural Surveillance Surveys; Guidelines for repeated behavioural surveys in populations at risk of HIV. Arlington: Family Health International
- Figueroa, J.P., 2014. Review of HIV in the Caribbean: significant progress and outstanding challenges. *Current HIV/AIDS Reports*, 11(2), pp.158-167.
- Fincham, F.D. and May, R.W., 2017. Infidelity in romantic relationships. *Current Opinion in Psychology*, 13, pp.70-74.
- Finlay, L., 2002. Negotiating the swamp: the opportunity and challenge of reflexivity in research practice. *Qualitative research*, 2(2), pp.209-230.
- Finlayson, C. and Palmvang, M., 2016. The struggle to empower trade union members: insights from Zambia. *Development in Practice*, 26(8), pp.972-983.
- Fischl, M.A., Richman, D.D., Grieco, M.H., Gottlieb, M.S., Volberding, P.A., Laskin, O.L., Leedom, J.M., Groopman, J.E., Mildvan, D., Schooley, R.T. and Jackson, G.G., 1987. The efficacy of azidothymidine (AZT) in the treatment of patients with AIDS and AIDS-related complex. *New England Journal of Medicine*, 317(4), pp.185-191.
- Fisher, T.D., 2007. Sex of experimenter and social norm effects on reports of sexual behaviour in young men and women. *Archives of Sexual Behaviour*, 36(1), pp.89-100.
- Fleming, D.T. and Wasserheit, J.N., 1999. From epidemiological synergy to public health policy and practice: the contribution of other sexually transmitted diseases to sexual transmission of HIV infection. *Sexually transmitted infections*, 75(1), pp.3-17.
- Fleming, P.J., DiClemente, R.J. and Barrington, C., 2016. Masculinity and HIV: Dimensions of masculine norms that contribute to men's HIV-related sexual behaviours. *AIDS and behaviour*, 20(4), pp.788-798.
- Flood, M., 2003. Lust, trust and latex: Why young heterosexual men do not use condoms. *Culture, Health and Sexuality*, 5(4), pp.353-369.
- FMoH - Federal Ministry of Health 1997. 1995/96 Sentinel Sero-Prevalence Surveillance Report. Abuja National AIDS/STI Control Programme. June, 1997. Abuja – Nigeria
- FMoH - Federal Ministry of Health, Nigeria. 2019. Nigeria HIV/AIDS Indicator and Impact Survey (NAIIS) 2018 Technical Report. Federal Republic of Nigeria, Abuja, Nigeria. October 2019.Availabel from: <https://naca.gov.ng/nigeria-hiv-aids-indicator-and-impact-survey-naiis-2018-technical-report/> [Retrieved on the 20/01/2021]
- FMoH - Federal Ministry of Health. 1995. 1995/1994 Sentinel Sero-Prevalence Surveillance Report. National AIDS/STI Control Programme. April, 1995. Abuja – Nigeria.

- FMoH - Federal Ministry of Health. 1996. National HIV/AIDS and Reproductive Health Survey 1995/1996. National AIDS/STI Control Programme. Abuja – Nigeria.
- FMoH - Federal Ministry of Health. 1999. A Technical Report on the HIV/Syphilis Sentinel Sero-Prevalence Survey in Nigeria Technical Report. National AIDS/STI Control Programme. October, 1999. Abuja – Nigeria
- FMoH - Federal Ministry of Health. 2000. National Policy on HIV/AIDS. October 2000
- FMoH - Federal Ministry of Health. 2001. A Technical Report on the 2001 National HIV/Syphilis Sentinels Survey among Pregnant Women Attending Ante-Natal Clinics in Nigeria. Abuja: National AIDS/STI Control Programme. December, 2001. Abuja – Nigeria
- FMoH - Federal Ministry of Health. 2003. National HIV/AIDS and Reproductive Health Survey, 2003. National AIDS/STI Control Programme. Abuja – Nigeria.
- FMoH - Federal Ministry of Health. 2004. A Technical Report on the 2003 National HIV/Syphilis Sentinels Survey among Pregnant Women Attending Ante-Natal Clinics in Nigeria. Abuja: National AIDS/STI Control Programme. December, 2004. Abuja – Nigeria
- FMoH - Federal Ministry of Health. 2008. National HIV and AIDS and Reproductive Health Survey, 2007 (NARHS Plus), Federal Ministry of Health Abuja, Nigeria.
- FMoH - Federal Ministry of Health. 2009. The National Strategic Health Development Plan Framework (2009-2015) http://www.internationalhealthpartnership.net/fileadmin/uploads/ihp/Documents/Country_Pages/Nigeria/Nigeria%20National%20Strategic%20Health%20Development%20Plan%20Framework%202009-2015.pdf [Accessed 24th January, 2016]
- FMoH - Federal Ministry of Health. 2010. Technical Report: 2010 National Sero-Surveillance Sentinel Survey. National AIDS/STI Control programme. October, 2010. Abuja – Nigeria.
- FMoH - Federal Ministry of Health. 2013. Technical Report: National HIV/AIDS and reproductive Health Survey (NARHS 2012 Plus II). National AIDS/STI Control Programme. November, 2013. Abuja – Nigeria.
- FMoH - Federal Ministry of Health. 2014. National Operational Plan for the Elimination of Mother to Child Transmission (eMTCT) of HIV in Nigeria 2015–2016. Available from: <http://www.emtct-iatt.org/wp-content/uploads/2014/11/National-Operational-Plan-for-EMTCT-Nigeria-Nov-2014.pdf> [retrieved on 27th January, 2016].
- Folayan, M.O., Adebajo, S., Adeyemi, A. and Ogungbemi, K.M., 2015. Differences in sexual practices, sexual behaviour and HIV risk profile between adolescents and young persons in rural and urban Nigeria. *PloS one*, 10(7), p.e0129106.
- Fonner, V. a. et al. 2014 ‘Social cohesion, social participation, and HIV related risk among female sex workers in Swaziland’, *PLoS ONE*, 9(1). doi: 10.1371/journal.pone.0087527.
- Forbes, A. and Wainwright, S.P., 2001 on the methodological, theoretical and philosophical context of health inequalities research: a critique. *Social science and medicine*, 53(6), pp.801-816.
- Ford, C.L. and Harawa, N.T., 2010. A new conceptualization of ethnicity for social epidemiologic and health equity research. *Social science and medicine*, 71(2), pp.251-258.

- Ford, C.L., Wallace, S.P., Newman, P.A., Lee, S.J. and Cunningham, W.E., 2013. Belief in AIDS-related conspiracy theories and mistrust in the government: relationship with HIV testing among at-risk older adults. *The Gerontologist*, 53(6), pp.973-984.
- Ford, K., Wirawan, D.N., Sumantera, G.M., Sawitri, A.A.S. and Stahre, M., 2004. Voluntary HIV testing, disclosure, and stigma among injection drug users in Bali, Indonesia. *AIDS Education and prevention*, 16(6), pp.487-498.
- Fortenberry, J.D., 2019. Trust, Sexual Trust, and Sexual Health: An Interrogative Review. *The Journal of Sex Research*, 56(4-5), pp.425-439.
- Foucault, M., 1991. *The history of sexuality: An introduction, volume I*. Trans. Robert Hurley. New York: Vintage, 95.
- Fowler Jr, F.J., 2014. *Survey research methods*. Sage publications.
- Fox, A.M., 2010. The social determinants of HIV serostatus in sub-Saharan Africa: an inverse relationship between poverty and HIV?. *Public Health Reports*, 125(4_suppl), pp.16-24.
- Fox, A.M., 2012. The social determinants of HIV serostatus in sub-Saharan Africa: an inverse relationship between poverty and HIV?. *Public Health Reports*, 125(4_suppl), pp.16-24.
- Fox, A.M., Goldberg, A.B., Gore, R.J. and Bärnighausen, T., 2011. Conceptual and methodological challenges to measuring political commitment to respond to HIV. *Journal of the International AIDS society*, 14, pp.S5-S5.
- Frambach, J.M., van der Vleuten, C.P. and Durning, S.J., 2013. AM last page: Quality criteria in qualitative and quantitative research. *Academic Medicine*, 88(4), p.552.
- Frankel, A.S., 2012. Predictors of adolescent sexual intentions and behaviour: Attitudes, parenting, and neighbourhood risk.
- Frankel, A.S., 2012. Predictors of adolescent sexual intentions and behaviour: Attitudes, parenting, and neighbourhood risk.
- Frazier, E.L., Sutton, M.Y., Tie, Y., McNaghten, A.D., Blair, J.M. and Skarbinski, J., 2016. Screening for cervical Cancer and sexually transmitted diseases among HIV-Infected women. *Journal of Women's Health*, 25(2), pp.124-132.
- Freeman, E.E., Weiss, H.A., Glynn, J.R., Cross, P.L., Whitworth, J.A., and Hayes, R.J. 2006. Herpes simplex virus 2 infection increases HIV acquisition in men and women: Systematic review and meta-analysis of longitudinal studies. *AIDS*. 20(1):73-8. 44
- Frumence, G., Emmelin, M., Eriksson, M., Kwesigabo, G., Killewo, J., Moyo, S. and Nystrom, L., 2014. Access to social capital and risk of HIV infection in Bukoba urban district, Kagera region, Tanzania. *Archives of Public Health*, 72(1), pp.1-11., *Archives of Public Health*, 72(1), pp. 1–11. doi: 10.1186/2049-3258-72-38.
- Frumence, G., Killewo, J., Kwesigabo, G., Nyström, L., Eriksson, M. and Emmelin, M., 2010. Social capital and the decline in HIV transmission—A case study in three villages in the Kagera region of Tanzania. *SAHARA-J: Journal of Social Aspects of HIV/AIDS*, 7(3).
- Fuller, C.W., Junge, A., Dorasami, C., DeCelles, J. and Dvorak, J., 2011. ‘11 for Health’, a football-based health education programme for children: a two-cohort study in Mauritius and Zimbabwe. *British journal of sports medicine*, 45(8), pp.612-618.

- Fwatshak, S.U., 2006. A Comparative analysis of the 19th and 21st century religious conflicts on the Jos Plateau, Central Nigeria. *Swedish musicological themes*, 94(3), pp.259-280.
- Gabler Burkey, S. 2002. *People First: A Guide to Self-Reliant Participatory Rural Development*. ZED Books: London
- Gallagher, S. and Tierney, W., 2013. Religiousness/religiosity. *Encyclopaedia of behavioural medicine*, pp.1653-1654.
- Galvin, S.R. and Cohen, M.S., 2004. The role of sexually transmitted diseases in HIV transmission. *Nature Reviews Microbiology*, 2(1), pp.33-42
- Gao, F., Bailes, E., Robertson, D.L., Chen, Y., Rodenburg, C.M., Michael, S.F., Cummins, L.B., Arthur, L.O., Peters, M., Shaw, G.M. and Sharp, P.M., 1984. Origin of HIV-1 in the chimpanzee *Pan Troglodytes*. *Nature*, 397(6718), p.436.
- García, P.J., Bayer, A. and Cárcamo, C.P., 2014. The changing face of HIV in Latin America and the Caribbean. *Current HIV/AIDS Reports*, 11(2), pp.146-157.
- Gargiulo, M. and Benassi, M., 1999. The dark side of social capital. In *Corporate social capital and liability* (pp. 298-322). Springer, Boston, MA.
- Gauthier, R.F., 2018. World Development Report 2018 «Learning to Realize Education's Promise. Overview. Banque mondiale, 2018, 52 p. xi –xii
- Genberg, B.L., Hlavka, Z., Konda, K.A., Maman, S., Chariyalertsak, S., Chingono, A., Mbwambo, J., Modiba, P., Van Rooyen, H. and Celentano, D.D., 2009. A comparison of HIV/AIDS-related stigma in four countries: Negative attitudes and perceived acts of discrimination towards people living with HIV/AIDS. *Social science and medicine*, 68(12), pp.2279-2287
- George, A.L., Bennett, A., Lynn-Jones, S.M. and Miller, S.E., 2005. *Case studies and theory development in the social sciences*. mit Press. P.17
- Gesesew, H.A., Gebremedhin, A.T., Demissie, T.D., Kerie, M.W., Sudhakar, M. and Mwanri, L., 2017. Significant association between perceived HIV related stigma and late presentation for HIV/AIDS care in low and middle-income countries: A systematic review and meta-analysis. *PloS one*, 12(3).
- Gesler, W.M., 1992. *The cultural geography of health care*. University of Pittsburgh Pre.
- Ghebremichael, M., Larsen, U. and Paintsil, E., 2009. Association of age at first sex with HIV-1, HSV-2 and other sexual transmitted infections among women in northern Tanzania. *Sexually transmitted diseases*, 36(9), p.570.
- Ghimire, L., Smith, W.C.S., van Teijlingen, E.R., Dahal, R. and Luitel, N.P., 2011. Reasons for non-use of condoms and self-efficacy among female sex workers: a qualitative study in Nepal. *BMC women's health*, 11(1), p.42.
- Ghinai, I., C. Willott, I. Dadari, and H. Larson. 2013. “Listening to the Rumours: What the Northern Nigeria Polio Vaccine Boycott Can tell us Ten Years on.” *Global Public Health* 8 (10): 1138–1150.
- Giannou, F.K., Tsiara, C.G., Nikolopoulos, G.K., Talias, M., Benetou, V., Kantzanou, M., Bonovas, S. and Hatzakis, A., 2016. Condom effectiveness in reducing heterosexual HIV transmission: a systematic review and meta-analysis of studies on HIV serodiscordant couples. *Expert review of pharmaco-economics and outcomes research*, 16(4), pp.489-499.

- Giddens, A. 1986a. *Constitution of society: Outline of the theory of structuration*, University of California Press; Reprint edition.
- Giddens, A., 1979. *Central problems in social theory: Action, structure, and contradiction in social analysis* (Vol. 241). University of California Press.
- Giddens, A., 1986b. *The constitution of society*. Berkeley.
- Gilbert, L.A. and Walker, S.J., 1999. Dominant discourse in heterosexual relationships. In *Handbook of interpersonal commitment and relationship stability* (pp. 393-406). Springer, Boston, MA.
- Gillespie, S., Kadiyala, S. and Greener, R., 2007. Is poverty or wealth driving HIV transmission? *Aids*, 21, pp.S5-S16.
- Gilliard, N., 2012. Peacekeepers or Perpetrators? An analysis of Sexual Exploitation and Abuse (SEA) by UN personnel in the Democratic Republic of Congo. *Mapping Politics*, 3.
- Gilliat-Ray, S., 2005. Closed Worlds: (Not) Accessing Deobandi'dar ul-uloom'in Britain. *Fieldwork in religion*, 1(1), pp.7-33.
- Glymour, M.M., Avendano, M. and Kawachi, I., 2014. Socioeconomic status and health. *Social epidemiology*, 2, pp.17-63.
- Gobind, J. and Ukpere, W.I., 2014. The use of posters in disseminating HIV/AIDS awareness information within higher education institutions. *Mediterranean Journal of Social Sciences*, 5(20), p.739.
- Goertzel, T., 1994. Belief in conspiracy theories. *Political psychology*, pp.731-742.
- Goffman, E., 1963. *Stigma: Notes on the management of spoiled identity*. Simon and Schuster.
- Goggin, K., Malcarne, V.L., Murray, T.S., Metcalf, K.A. and Wallston, K.A., 2007. Do religious and control cognitions predict risky behaviour? II. Development and validation of the Sexual Risk behaviour related God Locus of Control Scale for adolescents (SexGLOC-A). *Cognitive Therapy and Research*, 31(1), pp.123-139.
- Gomez-Rodriguez, M., Leskovec, J., and Krause, A. 2012. Inferring Networks of Diffusion and Influence. *ACM Transmission Knowledge Discover. Data* 5, 4, Article 21: 37 Available from: DOI 10.1145/2086737.2086741 <http://doi.acm.org/10.1145/2086737.2086741> [Accessed 8th December, 2015].
- Gomwalk, N.E., Nimzing, L., Mawak, J.D., Ladep, N.G., Dapiap, S.B., Damshak, D., Kim, E., Barau, C., Jinung, J.K., Rumtong, B.M. and Agabi, Y.A., 2012. Sero-epidemiology of human immunodeficiency virus (HIV) in Plateau State, Nigeria. *The Journal of Infection in Developing Countries*, 6(12), pp.860-869.
- Gong, E., 2014. HIV testing and risky sexual behaviour. *The Economic Journal*, 125(582), pp.32-60.
- Goodson, P., Suther, S., Pruitt, B.E. and Wilson, K., 2003. Defining abstinence: views of directors, instructors, and participants in abstinence-only-until-marriage programs in Texas. *Journal of school health*, 73(3), pp.91-96.
- Gorbach, P.M., Sopheab, H., Phalla, T., Leng, H.B., Mills, S., Bennett, A. and Holmes, K.K., 2000. Sexual bridging by Cambodian men: potential importance for general population spread of STD and HIV epidemics. *Sexually transmitted diseases*, 27(6), pp.320-326.
- Gould, P. 1993. *The Slow Plague: A Geography of the AIDS Pandemic*. Blackwell, 61- 64.
- Graeff, P., 2009. Social capital: the dark side. *Handbook of social capital*, pp.143-161.

- Granich, R., Gupta, S., Hersh, B., Williams, B., Montaner, J., Young, B. and Zuniga, J.M., 2015. Trends in AIDS deaths, new infections and ART coverage in the top 30 countries with the highest AIDS mortality burden; 1990–2013. *PloS one*, 10(7), p.e0131353.
- Gray, D.E., 2013. *Doing research in the real world*. Sage.
- Gray, P.B. and McIntyre, M.H., 2017. Development of Human Sociosexual Behaviour. *The Arc of Life: Evolution and Health across the Life Course*, p.41.
- Gray, P.B., 2004. HIV and Islam: is HIV prevalence lower among Muslims? *Social science and medicine*, 58(9), pp.1751-1756.
- Gray, R.H., Wawer, M.J., Brookmeyer, R., Sewankambo, N.K., Serwadda, D., Wabwire-mangen, F., Lutalo, T., Li, X., Van- Cott, T., Quinn, T.C, and Rakai, J. 2001: Probability of HIV-1 transmission per coital act in monogamous, heterosexual, HIV-1-discordant couples in Rakai, Uganda. *Lancet*, 357(9263):1152.
- Gray, S., Shwom, R. and Jordan, R., 2012. Understanding factors that influence stakeholder trust of natural resource science and institutions. *Environmental management*, 49(3), pp.663-674.
- Green, E.C. 2015. The Role of Faith-Based Organisation in HIV/AIDS Mitigation
- Green, E.C. and Witte, K., 2006. Can fear arousal in public health campaigns contribute to the decline of HIV prevalence?. *Journal of health communication*, 11(3), pp.245-259.
- Green, J. and Thorogood, N., 2018. *Qualitative methods for health research*. Sage.
- Greenest, J.C., Caracelli, V.J. and Graham, W.F., 1989. Toward a conceptual framework for mixed-method evaluation designs. *Educational evaluation and policy analysis*, 11(3), pp.255-274.
- Gregson, S., Gonese, E., Hallett, T.B., Taruberekera, N., Hargrove, J.W., Lopman, B., Corbett, E.L., Dorrington, R., Dube, S., Dehne, K. and Mugurungi, O., 2010. HIV decline in Zimbabwe due to reductions in risky sex? Evidence from a comprehensive epidemiological review. *International journal of epidemiology*, 39(5), pp.1311-1323.
- Gregson, S., Mushati, P., Grusin, H., Nhamo, M., Schumacher, C., Skovdal, M., Nyamukapa, C. and Campbell, C., 2011. Social capital and women's reduced vulnerability to HIV infection in rural Zimbabwe. *Population and development review*, 37(2), pp.333-359.
- Gregson, S., Nyamukapa, C.A., Garnett, G.P., Mason, P.R., Zhuwau, T., Caraël, M., Chandiwana, S.K. and Anderson, R.M., 2002. Sexual mixing patterns and sex-differentials in teenage exposure to HIV infection in rural Zimbabwe. *The Lancet*, 359(9321), pp.1896-1903.
- Gregson, S., Terceira, N., Mushati, P., Nyamukapa, C. and Campbell, C., 2004. Community group participation: Can it help young women to avoid HIV? An exploratory study of social capital and school education in rural Zimbabwe. *Social science and medicine*, 58(11), pp.2119-2132.
- Grello, C.M., Welsh, D.P. and Harper, M.S., 2006. No strings attached: The nature of casual sex in college students. *Journal of sex research*, 43(3), pp.255-267.
- Grossman, C.I. and Stangl, A.L., 2013. Global action to reduce HIV stigma and discrimination. *Journal of the International AIDS Society*, 16, p.18881.
- Guba, E.G. and Lincoln, Y.S., 2005. Competing paradigms in qualitative research. *Handbook of qualitative research*, 2(163-194), p.105.

- Guetterman, T.C. and Fetters, M.D., 2018. Two methodological approaches to the integration of mixed methods and case study designs: a systematic review. *American Behavioural Scientist*, 62(7), pp.900-918.
- Guion, L.A., Diehl, D.C. and McDonald, D., 2011. Triangulation: Establishing the validity of qualitative studies. *EDIS*, 2011(8), pp.3-3.
- Gupta G.R, Parkhurst J.O, Ogden J.A, Aggleton P, Mahal A. 2008. Structural approaches to HIV prevention. *Lancet*. 2000, 372 (9640): 764-775. 10.1016/S0140-6736(08)60887-9.
- Gupta, G.R., 2000. Gender, sexuality, and HIV/AIDS: The what, the why, and the how. *Can HIV AIDS Policy Law Rev*, 5(4), pp.86-93.
- Gupta, G.R., 2002. How men's power over women fuels the HIV epidemic: It limits women's ability to control sexual interactions. *Biomedical Journal*; 324(7331):183–184.
- Gupta, S., Anderson, R.M. and May, R.M., 1989. Networks of sexual contacts: implications for the pattern of spread of HIV. *AIDS (London, England)*, 3(12):807-817.
- Gyar, S.D., Reuben, C.R. and Haruna, M.S., 2014. Study on the Distribution of HIV/AIDS Infections among Age Groups Attending General Hospital Toto, Central Nigeria. *Int J AIDS Res*, 1(1), pp.7-10.
- Gyimah, S.O., Kodzi, I., Emina, J., Cofie, N. and Ezeh, A., 2013. Religion, religiosity and premarital sexual attitudes of young people in the informal settlements of Nairobi, Kenya. *Journal of biosocial science*, 45(1), pp.13-29.
- Gyimah, S.O., Tenkorang, E.Y., Takyi, B.K., Adjei, J. and Fosu, G., 2010. Religion, HIV/AIDS and sexual risk-taking among men in Ghana. *Journal of Biosocial science*, 42(4), p.531.
- Gyimah, Stephen Obeng, Eric Y. Tenkorang, Baffour K. Takyi, Jones Adjei, and Gabriel Fosu. 2010. Religion, HIV/AIDS and sexual risk-taking among men in Ghana." *Journal of Biosocial science* 42, no. 4: 531.
- Haacker, M. 2016. *The economics of the global response to HIV/AIDS*. Oxford University Press.
- Hackett, C., 2014. Seven things to consider when measuring religious identity. *Religion*, 44(3), pp.396-413.
- Hackett, C., Grim, B., Stonawski, M., Skirbekk, V., Potančoková, M. and Abel, G., 2012. The global religious landscape. Washington, DC: Pew Research Centre.
- Haggett, P. 2000. The geographical structure of epidemics. Oxford University Press. pp10-29
- Haggett, P., 1994. Geographical aspects of the emergence of infectious diseases. *Geografiska Annaler: Series B, Human Geography*, 76(2), pp.91-104.
- Haghdoost, A. and Karamouzian, M., 2012. Zero new HIV infections, zero discrimination, and zero AIDS-related deaths: feasible goals or ambitious visions on the occasion of the world AIDS day. *International journal of preventive medicine*, 3(12), p.819.
- Hahn, B.H., Shaw, G.M., De, K.M. and Sharp, P.M., 2000. AIDS as a zoonosis: scientific and public health implications. *Science*, 287(5453), pp.607-614.
- Hald, G.M. and Mulya, T.W., 2013. Pornography consumption and non-marital sexual behaviour in a sample of young Indonesian university students. *Culture, Health and Sexuality*, 15(8), pp.981-996.

- Hale, T.M., Cotten, S.R., Drentea, P. and Goldner, M., 2010. Rural-urban differences in general and health-related internet use. *American Behavioural Scientist*, 53(9), pp.1304-1325.
- Hall, S.A., Kaufman, J.S. and Ricketts, T.C., 2006. Defining urban and rural areas in US epidemiologic studies. *Journal of urban health*, 83(2), pp.162-175.
- Hallett, T.B., Aberle-Grasse, J., Bello, G., Boulos, L.M., Cayemittes, M.P.A., Cheluget, B., Chipeta, J., Dorrington, R., Dube, S., Ekra, A.K. and Garcia-Calleja, J.M., 2006. Declines in HIV prevalence can be associated with changing sexual behaviour in Uganda, urban Kenya, Zimbabwe, and urban Haiti. *Sexually transmitted infections*, 82(suppl 1), pp.i1-i8.
- Halperin, D.T. and Epstein, H., 2004. Concurrent sexual partnerships help to explain Africa's high HIV prevalence: implications for prevention. *The Lancet*, 364(9428), pp.4-6.
- Halperin, D.T., de Moya, E.A., Pérez-Then, E., Pappas, G. and Calleja, J.M.G., 2009. Understanding the HIV epidemic in the Dominican Republic: a prevention success story in the Caribbean? *JAIDS Journal of Acquired Immune Deficiency Syndromes*, 51, pp.S52-S59.
- Halperin, D.T., 2009. Combination HIV prevention must be based on evidence. *The Lancet*, 373(9663), pp.544-545.
- Halperin, D.T., Mugurungi, O., Hallett, T.B., Muchini, B., Campbell, B., Magure, T., Benedikt, C. and Gregson, S., 2011. A surprising prevention success: why did the HIV epidemic decline in Zimbabwe?. *PLoS Med*, 8(2), p.e1000414.
- Hamelink, C.J., 1997. New information and communication technologies, social development and cultural change (Vol. 86). Geneva: United Nations Research Institute for Social Development.
- Hammersley, M. and Gomm, R., 2008. Assessing the radical critique of interviews. *Questioning qualitative inquiry: Critical essays*, pp.89-100.
- Hargreaves, J.R. and Glynn, J.R., 2002. Educational attainment and HIV-1 infection in developing countries: a systematic review. *Tropical Medicine and International Health*, 7(6), pp.489-498.
- Harkness, E.L., Mullan, B. and Blaszczynski, A., 2015. Association between pornography use and sexual risk behaviors in adult consumers: a systematic review. *Cyberpsychology, Behavior, and Social Networking*, 18(2), pp.59-71.
- Harrell, M.C. and Bradley, M.A., 2009. *Data collection methods. Semi-structured interviews and focus groups*. Rand National Defence Research Inst santa monica ca.
- Harris, A.C., 2010. Sex, stigma, and the Holy Ghost: The Black church and the construction of AIDS in New York City. *Journal of African American Studies*, 14(1), pp.21-43.
- Harrison, F.V., 2008. *Outsider within: reworking anthropology in the global age*. University of Illinois Press.
- Harrison, H., Birks, M., Franklin, R. and Mills, J., 2017, January. Case study research: Foundations and methodological orientations. In *Forum Qualitative Sozialforschung/Forum: Qualitative Social Research* (Vol. 18, No. 1).<http://nbn-resolving.de/urn:nbn:de:0114-fqs1701195>
- Hassan, Z.I., Tolulope O. Afolaranmi, Yetunde O. Tagurum, Danjuma A. Bello, Jonathan C. Daboar, Chundung A. Miner, Ayuba I. Zoakah. 2014. Effect of health education on the uptake of HIV counselling and testing among long distance drivers in Jos North

- Local Government Areas of Plateau State. *Journal of Medicine in the Tropics*;16 (2): pp 97-103.
- Hatch, J.A., 2002. *Doing qualitative research in education settings*. Suny Press.
- Hatzenbuehler, M.L., Phelan, J.C. and Link, B.G., 2013. Stigma as a fundamental cause of population health inequalities. *American journal of public health*, 103(5), pp.813-821.
- Hawe, P. and Shiell, A.2000. Social capital and health promotion: a review, *Social Science andamp; Medicine*, 51, pp. 871–85.
- Hayes, M. V., and Dunn, J. R. 1998. Population health in Canada: A systematic review. Ottawa: Canadian Policy Research Networks (CPRN).
- Heckman, T.G., Somlai, A.M., Peters, J., Walker, J., Otto-Salaj, L., Galdabini, C.A. and Kelly, J.A., 1998. Barriers to care among persons living with HIV/AIDS in urban and rural areas. *AIDS care*, 10(3), pp.365-375.
- Heilman, M.E., 2001. Description and prescription: How gender stereotypes prevent women's ascent up the organizational ladder. *Journal of social issues*, 57(4), pp.657-674.
- Heller, J., 2015. Rumors and realities: Making sense of HIV/AIDS conspiracy narratives and contemporary legends. *American Journal of Public Health*, 105(1), pp.e43-e50.
- Helleringer, S. and Kohler, H.P., 2007. Sexual network structure and the spread of HIV in Africa: evidence from Likoma Island, Malawi. *Aids*, 21(17), pp.2323-2332.
- Hemelaar, J., 2012. The origin and diversity of the HIV-1 pandemic. *Trends in molecular medicine*, 18(3), pp.182-192.
- Hemelaar, J., Elangovan, R., Yun, J., Dickson-Tetteh, L., Fleminger, I., Kirtley, S., Williams, B., Gouws-Williams, E., Ghys, P.D., Alash'le G, A. and Agwale, S., 2019. Global and regional molecular epidemiology of HIV-1, 1990–2015: a systematic review, global survey, and trend analysis. *The Lancet infectious diseases*, 19(2), p.150.
- Henderson, E.R., Subramaniam, D.S. and Chen, J., 2018. Rural-urban differences in human immunodeficiency virus testing among US adults: findings from the behavioural risk factor surveillance system. *Sexually transmitted diseases*, 45(12), pp.808-812.
- Hepburn, A., 2002. Increasing primary education access for children in AIDS-affected areas: HIV/Aids and education. *Perspectives in education*, 20(1), pp.87-98.
- Herek, G. M., and Capitano, J. P. 1999. Conspiracies, contagion, and compassion: Trust and public reactions to AIDS. *AIDS Education and Prevention*, 6(4), 365–375
- Herek, G.M., 2002. Thinking about AIDS and stigma: A psychologist's perspective. *The Journal of Law, Medicine and Ethics*, 30(4), pp.594-607.
- Herek, G.M., Capitano, J.P. and Widaman, K.F., 2002. HIV-related stigma and knowledge in the United States: prevalence and trends, 1991–1999. *American journal of public health*, 92(3), pp.371-377.
- Hernandez, K. M., Mahoney, A., and Pargament, K. I. 2014. Sexuality and religion. In D. L. Tolman, L. M. Diamond, J. A. Bauermeister, W. H. George, J. G. Pfaus, and L. M. Ward (Eds.), *APA handbooks in psychology. APA handbook of sexuality and psychology*, Vol. 2. Contextual approaches (p. 425–447). American Psychological Association. <https://doi.org/10.1037/14194-013>
- Hershey, M., 2013. Explaining the non-governmental organization (NGO) boom: the case of HIV/AIDS NGOs in Kenya. *Journal of Eastern African Studies*, 7(4), pp.671-690.

- Hershow, R.B., Gannett, K., Merrill, J., Kaufman, E.B., Barkley, C., DeCelles, J. and Harrison, A., 2015. Using soccer to build confidence and increase HCT uptake among adolescent girls: a mixed-methods study of an HIV prevention programme in South Africa. *Sport in society*, 18(8), pp.1009-1022.
- Hibbert, M., Wolton, A., Crenna-Jennings, W., Benton, L., Kirwan, P., Lut, I., Okala, S., Ross, M., Furegato, M., Nambiar, K. and Douglas, N., 2018. Experiences of stigma and discrimination in social and healthcare settings among trans people living with HIV in the UK. *AIDS care*, 30(7), pp.836-843.
- Higazi, A., 2011. The Jos crisis: A recurrent Nigerian tragedy. Friedrich-ebert-stiftung.
- Higgins, J.A. and Wang, Y., 2015. The role of young adults' pleasure attitudes in shaping condom use. *American Journal of Public Health*, 105(7), pp.1329-1332.
- Hogg, R., Nkala, B., Dietrich, J., Collins, A., Closson, K., Cui, Z., Kanters, S., Chia, J., Barhafuma, B., Palmer, A. and Kaida, A., 2017. Conspiracy beliefs and knowledge about HIV origins among adolescents in Soweto, South Africa. *PloS one*, 12(2), p.e0165087.
- Holland, J., Ramazanoglu, C., Scott, S., Sharpe, S. and Thomson, R., 2003. Between embarrassment and trust: young women and the diversity of condom use. In *AIDS: Responses, interventions and care* (pp. 132-152). Routledge.
- Hollingsworth, T.D., Anderson, R.M. and Fraser, C., 2008. HIV-1 transmission, by stage of infection. *The Journal of infectious diseases*, 198(5), pp.687-693.
- Hollos, M., 2003. Profiles of infertility in southern Nigeria: women's voices from Amakiri. *African journal of reproductive health*, pp.46-56.
- Holloway, I. and Todres, L., 2003. The status of method: flexibility, consistency and coherence. *Qualitative research*, 3(3), pp.345-357.
- Holmes, K.K., Levine, R. and Weaver, M., 2004. Effectiveness of condoms in preventing sexually transmitted infections. *Bulletin of the World Health Organization*, 82, pp.454-461.
- Holt-Jensen, A. 1981. *Geography: Its History and Concepts*. Harper and Raw, New York. 24-26
- Honjo, K., 2004. Social Epidemiology: Definition, History, and Research Examples. , (September), pp.193–199.
- Hood, K.B., Hall, C.J., Owens, B.D., Patev, A.J. and Belgrave, F.Z., 1999. HIV Testing Behaviours among Black Rural Women: The Moderating Role of Conspiracy Beliefs and Partner Status Disclosure. *Ethnicity and disease*, 30(2), pp.251-260.
- Horowitz, A.D. and Spicer, L., 2013. "Having sex" as a graded and hierarchical construct: A comparison of sexual definitions among heterosexual and lesbian emerging adults in the UK. *Journal of Sex Research*, 50(2), pp.139-150.
- Horowitz, L.G., 1996. *Emerging Viruses: AIDS and Ebola--Nature, Accident, or Intentional?* Rockport, MA: Tetrahedron.
- Horton, R., 2000. African AIDS beyond Mbeki: tripping into anarchy. *Lancet (London, England)*, 356(9241), pp.1541-1542.
- Howe, L.D., Hargreaves, J.R., Gabrysch, S. and Huttly, S.R., 2009. Is the wealth index a proxy for consumption expenditure? A systematic review. *Journal of Epidemiology and Community Health*, 63(11), pp.871-877.

- Huber, M., Knottnerus, J.A., Green, L., van der Horst, H., Jadad, A.R., Kromhout, D., Leonard, B., Lorig, K., Loureiro, M.I., van der Meer, J.W. and Schnabel, P., 2011. How should we define health? *Biomedical Journal*, 343.
- Huberman, A.M., 1994. *Qualitative data analysis: An expanded sourcebook*. sage.
- Huebner, D.M., Kegeles, S.M., Rebchook, G.M., Peterson, J.L., Neilands, T.B., Johnson, W.D. and Eke, A.N., 2014. Social oppression, psychological vulnerability, and unprotected intercourse among young Black men who have sex with men. *Health Psychology*, 33(12), p.1568.
- Huijts, T. and Kraaykamp, G., 2011. Marital status, nation marital status composition, and self-assessed health: a multilevel test of four hypotheses in 29 European countries. *European Societies*, 13(2), pp.279-305.
- Hulme, D., 2010. The millennium development goals (MDGs): A short history of the world's biggest promise. Manchester, Brooks World Poverty Institute. Working Paper. Available at: <http://www.bwpi.manchester.ac.uk/resources/Working-Papers/bwpi-wp-10009.pdf>. Accessed on: 18/05/2016.
- Hunter, M., 2005. Cultural politics and masculinities: Multiple-partners in historical perspective in KwaZulu-Natal. *Culture, health and sexuality*, 7(3), pp.209-223.
- Hussein, A., 2009. The use of triangulation in social sciences research: Can qualitative and quantitative methods be combined. *Journal of comparative social work*, 1(8), pp.1-12
- Hutchinson, P.L. and Mahlalela, X., 2006. Utilization of voluntary counselling and testing services in the Eastern Cape, South Africa. *AIDS care*, 18(5), pp.446-455.
- Hyde, J.S. and Oliver, M.B., 2000. Gender differences in sexuality: Results from meta-analysis. In C. B. Tavis and J. W. White (Eds.), *Sexuality, society, and feminism*, pp.57-77. Washington, DC: American
- Hymes, K.B. et al 1981 'Kaposi's sarcoma in homosexual men: A report of eight cases' *Lancet* 2(8247):598-600
- Hyypä, M.T., 2010. *Healthy ties: Social capital, population health and survival*. Springer Science and Business Media. Page
- Ibiloye, O., Decroo, T., Eyona, N., Eze, P. and Agada, P., 2018. Characteristics and early clinical outcomes of key populations attending comprehensive community-based HIV care: Experiences from Nasarawa State, Nigeria. *Plos one*, 13(12), p.e0209477.
- Ibrahim, A. and Bwadi, B.E., 2012. Condom use among teenagers and young adults in Nasarawa State Nigeria. *Pakistan Journal of Social Sciences*, 9(5), pp.211-216.
- Igbokwe, U.L., Ogbonna, C.S., Ezegbe, B.N., Nnadi, E.M. and Eseadi, C., 2020. Viewpoint on family life and HIV education curriculum in Nigerian secondary schools. *Journal of International Medical Research*, 48(1), p.0300060519844663.
- Irimdu, T. O, Gontul, T. K, and Eziashi, A. C. 2013. Weather Conditions as Indices of Tourists Preference for the Jos Plateau of Nigeria. *Journal of Research in Tourism*. Vol. 4. Pp 52 –
- Ikengah-Metuh, E., 1994. Two Decades of Religious Conflict in Nigeria: A Recipe for Peace. *Bulletin of Ecumenical Theology*, 6(1), pp.69-93.
- Iliyasu, Z., Owen, J., Aliyu, M.H. and Simkhada, P. 2020. I prefer not to have a child than have a HIV-positive child”: a Mixed Methods Study of Fertility Behaviour of Men Living

- with HIV in Northern Nigeria. *International Journal of Behavioural Medicine*, 27(1), pp.87-99.
- Imade, G.E., A.S. Sagay, J. Musa, A.N. Ocheke, D.S. Adeniyi, M. Idighri, R. Powl, A. Sendeh, J.P. Ogwuche, M. Elujoba, and C.O. Egbodo. 2014. Declining rate of infection with maternal human immunodeficiency virus at delivery units in North-Central Nigeria. *African Journal of Reproductive Health* 17 (4):138-145.
- Imaledo, J.A., Peter-Kio, O.B. and Asuquo, E.O., 2012. Pattern of risky sexual behaviour and associated factors among undergraduate students of the University of Port Harcourt, Rivers State, Nigeria. *Pan African Medical Journal*, 12(1).
- Inyang, M.P. and Inyang, O.P., 2013. Nigerian secondary school adolescents' perspective on abstinence-only sexual education as an effective tool for promotion of sexual health. *F1000Research*, 2.
- Iqbal, Z. and Zorn, C., 2010. Violent conflict and the spread of HIV/AIDS in Africa. *The Journal of Politics*, 72(1), pp.149-162.
- Isichei, C.O., Isichei, M.W., Njab, J.E., Rotimi, J.I., Oyebode, T.A., Anyaka, C.U., Enwerem, K.E., Affi, A.I., Imoh, L.C., Abu, A.O. and Asorose, S.A., 2015. Baseline Laboratory Profile of HIV Positive Patients on Antiretroviral Therapy in Jos North Central Nigeria: Implications for Prevention, Treatment, Care and Support. *World Journal of AIDS*, 5(04), p.328.
- Isiugo-Abanihe, U.C. 1994. Extramarital relations and perceptions of HIV/AIDS in Nigeria. *Health Transition Review*, 4:111-125, 1994.
- Islam, M.K., Merlo, J., Kawachi, I., Lindström, M. and Gerdtham, U.G., 2006. Social capital and health: does egalitarianism matter? A literature review. *International journal for equity in health*, 5(1), pp.1-28.
- Itari, A.R., Habibu, S., Muhammad, M.Y.M. 2018. An assessment of human poverty health outcomes nexus in rural communities of Nasarawa state, Nigeria. *Dutse International Journal of Social and Economics Research*, 1(1), 177-190.
- Itiola, A.J. and Agu, K.A., 2018. Country ownership and sustainability of Nigeria's HIV/AIDS Supply Chain System: qualitative perceptions of progress, challenges and prospects. *Journal of pharmaceutical policy and practice*, 11(1), pp.1-18.
- Ivankova, N.V., Creswell, J.W. and Stick, S.L., 2006. Using mixed-methods sequential explanatory design: From theory to practice. *Field methods*, 18(1), pp.3-20.
- Jacoby, A., 1994. Felt versus enacted stigma: A concept revisited: Evidence from a study of people with epilepsy in remission. *Social science and medicine*, 38(2), pp.269-274.
- James, A.T., Ayobami, A.O. and Adeagbo, A., 2019. Raising Employability Bar and Building Entrepreneurial Capacity in Youth: A Case Study of National Social Investment Programme in Nigeria. *Covenant Journal of Entrepreneurship*, 3(2).
- Jamieson, L., 1999. Intimacy transformed? A critical look at the pure relationship'. *Sociology*, 33(3), pp.477-494.
- Jarin, J., Biswas, R., Gosh, M. and Gomez-Lobo, V., 2015. Cervical Immaturity as a Marker for Increased Risk for STIs. *Journal of Paediatric and Adolescent Gynaecology*, 28(2), p.e36.
- Jarrett, S.B., Udell, W., Sutherland, S., McFarland, W., Scott, M. and Skyers, N., 2018. Age at sexual initiation and sexual and health risk behaviors among Jamaican adolescents and young adults. *AIDS and Behavior*, 22(1), pp.57-64.

- Jayachandran, S., 2015. The roots of gender inequality in developing countries. *Economics*, 7(1), pp.63-88.
- Jeanfreau, M.M. and Mong, M., 2019. Barriers to Marital Infidelity. *Marriage and Family Review*, 55(1), pp.23-37.
- Jegede, A. S. 2007. "What Led to the Nigerian Boycott of the Polio Vaccination Campaign?" *PLoS Medicine* 4 (3): e73
- Jemmott III, J.B., Jemmott, L.S. and Fong, G.T., 1998. Abstinence and safer sex HIV risk-reduction interventions for African American adolescents: a randomized controlled trial. *Jama*, 279(19), pp.1529-1536.
- Jemmott, J.B., Jemmott, L.S. and Fong, G.T., 2010. Efficacy of a theory-based abstinence-only intervention over 24 months: A randomized controlled trial with young adolescents. *Archives of paediatrics and adolescent medicine*, 164(2), pp.152-159.
- Jenkins, C. 1999. HIV/AIDS and culture: implications for policy. In Rao, V. and Walton, M. (Eds.), *Culture and Public Action*. Stanford, CA, Stanford University Press. pp. 260–280
- Jesson, J., Matheson, L. and Lacey, F.M., 2011. Doing your literature review: Traditional and systematic techniques.
- Jin, F., Jansson, J., Law, M., Prestage, G.P., Zablotska, I., Imrie, J.C., Kippax, S.C., Kaldor, J.M., Grulich, A.E. and Wilson, D.P., 2010. Per-contact probability of HIV transmission in homosexual men in Sydney in the era of HAART. *AIDS (London, England)*, 24(6), p.907.
- John, C., Okolo, S.N. and Isichei, C., 2012. Nonconsensual sexual relationship and prevalence of HIV infection in adolescent in Jos, Nigeria. *Nigerian medical journal: journal of the Nigeria Medical Association*, 53(4), p.210.
- John, C., Okolo, S.N. and Isichei, C., 2012. Non-consensual sexual relationship and prevalence of HIV infection in adolescent in Jos, Nigeria. *Nigerian medical journal: journal of the Nigeria Medical Association*, 53(4), p.210.
- John, C., Okolo, S.N. and Isichei, C., 2014. Sexual risk behaviour and HIV infection among adolescents in secondary schools in Jos, Nigeria. *Nigerian Journal of Paediatrics*, 41(2), pp.86-89.
- Johnson, A.M., Mercer, C.H., Erens, B., Copas, A.J., McManus, S., Wellings, K., Fenton, K.A., Korovessis, C., Macdowall, W., Nanchahal, K. and Purdon, S., 2001. Sexual behaviour in Britain: partnerships, practices, and HIV risk behaviours. *The Lancet*, 358(9296), pp.1835-1842.
- Johnson, D. and Krüger, O., 2004. The good of wrath: Supernatural punishment and the evolution of cooperation. *Political theology*, 5(2), pp.159-176.
- Johnson, L.F. and Lewis, D.A., 2008. The effect of genital tract infections on HIV-1 shedding in the genital tract: a systematic review and meta-analysis. *Sexually transmitted diseases*, 35(11), pp.946-959.
- Johnson, R.B. and Christensen, L., 2019. *Educational research: Quantitative, qualitative, and mixed approaches*. Sage publications.
- Johnson, R.B. and Onwuegbuzie, A.J., 2004. Mixed methods research: A research paradigm whose time has come. *Educational researcher*, 33(7), pp.14-26.
- Johnson, R.B., Onwuegbuzie, A.J. and Turner, L.A., 2007. Toward a definition of mixed methods research. *Journal of mixed methods research*, 1(2), pp.112-133

- Jolley, D. and Douglas, K.M., 2014. The effects of anti-vaccine conspiracy theories on vaccination intentions. *PloS one*, 9(2), p.e89177.
- Jones, K. and Moon, G. 1993. 'Medical geography: taking space seriously', *Progress in Human Geography*, 17(4), pp. 515–524. doi: 10.1177/030913259301700405.
- Jones, K. and Moon, G., 1987. *Health, disease and society: an introduction to medical geography continued*. Routledge and Kegan Paul Ltd.
- Jongsthapongpanth, A. and Bagchi-Sen, S., 2010. Spatial and sex differences in AIDS mortality in Chiang Rai, Thailand. *Health and place*, 16(6), pp.1084-1093.
- Julnes, G., 1995, November. Context-confirmatory methods for supporting disciplined induction in post-positivist inquiry. In *annual meeting of the American Evaluation Association, Vancouver, British Columbia, Canada*.
- Kabeer, N., 2000. Social exclusion, poverty and discrimination towards an analytical framework. *IDS bulletin*, 31(4), pp.83-97
- Kaestle, C.E., Halpern, C.T., Miller, W.C. and Ford, C.A., 2005. Young age at first sexual intercourse and sexually transmitted infections in adolescents and young adults. *American journal of epidemiology*, 161(8), pp.774-780.
- Kaiser Family Foundation. 2016. State health facts Kaiser Family Foundation. (2016 HIV Diagnoses, Adults and Adolescents, by Transmission Category. Available from: <https://www.kff.org/hivaids/state-indicator/estimated-numbers-of-hiv-diagnoses-adults-and-adolescents-by-transmission-category> [Accessed on 14/08/2019]
- Kalam, P.T., 2010. Transmission of HIV through Sex. In (ed) by Thomas, G. Introduction to HIV/AIDS Vol. 1 Indira Gandhi National Open University. Pp. 94-108
- Kalambuka, A. 2009. Kenya: Don't Discount Conspiracy Theories on Origin of Aids. (1 December 2009 Daily Nation. Nairobi. Available from: <https://allafrica.com/stories/200912011055.html> [Retrieved on the 13/09/2018].
- Kalibala, S., Oweya, E. and Phiri, L., 2016. Relationship between Socio Demographic Characteristics and HIV Indicators among Women in Kenya, Tanzania, Uganda, Rwanda, Zambia and Malawi Based on DHS Data. *International Journal of Women's Health Wellness*, 2, p.024.
- Kalichman, S.C. and Simbayi, L.C., 2003. HIV testing attitudes, AIDS stigma, and voluntary HIV counselling and testing in a black township in Cape Town, South Africa. *Sexually transmitted infections*, 79(6), pp.442-447.
- Kalichman, S.C., 2009. *Denying AIDS: Conspiracy theories, pseudoscience, and human tragedy*. Springer Science and Business Media.
- Kalichman, S.C., Eaton, L. and Cherry, C., 2010. "There is no proof that HIV causes AIDS": AIDS denialism beliefs among people living with HIV/AIDS. *Journal of behavioural medicine*, 33(6), pp.432-440.
- Kalipeni, E., Craddock, S., Oppong, J.R. and Ghosh, J. 2004. *HIV and AIDS in Africa: beyond epidemiology*. Blackwell Publishing.
- Kamali, A., Carpenter, L.M., Whitworth, J.A.G., Pool, R., Ruberantwari, A. and Ojwiya, A., 2000. Seven-year trends in HIV-1 infection rates, and changes in sexual behaviour, among adults in rural Uganda. *Aids*, 14(4), pp.427-434.
- Kanji, P.J. and adeji, O. 2006. Introduction. In: Adeyi, O., P.J. Kanki, O. Adutolu and J.A. Idoko, 2006 (ed.) *AIDS in Nigeria: A Nation on the Threshold*. Harvard Center for Population and Development Studies, Cambridge. pp. 319-334

- Kaplan, D.L., Jones, E.J., Olson, E.C. and Yunzal-Butler, C.B., 2013. Early age of first sex and health risk in an urban adolescent population. *Journal of School Health*, 83(5), pp.350-356.
- Kastbom, Å.A., Sydsjö, G., Bladh, M., Priebe, G. and Svedin, C.G., 2015. Sexual debut before the age of 14 leads to poorer psychosocial health and risky behaviour in later life. *Acta Paediatrica*, 104(1), pp.91-100.
- Kaufman, M.R., Cornish, F., Zimmerman, R.S. and Johnson, B.T., 2014. Health behavior change models for HIV prevention and AIDS care: practical recommendations for a multi-level approach. *Journal of acquired immune deficiency syndromes (1999)*, 66(Suppl 3), p.S250.
- Kaul, R., Prodger, J., Joag, V., Shannon, B., Yegorov, S., Galiwango, R. and McKinnon, L., 2011. Inflammation and HIV transmission in sub-Saharan Africa. *Current HIV/AIDS Reports*, 12(2), pp.216-222.
- Kayeyi, N., Fylkesnes, K., Michelo, C., Makasa, M. and Sandøy, I., 2012. Decline in HIV prevalence among young women in Zambia: national-level estimates of trends mask geographical and socio-demographic differences. *PloS one*, 7(4), p.e33652.
- Kearns, R. and Moon, G., 2002. From medical to health geography: novelty, place and theory after a decade of change. *Progress in Human Geography*, 26(5), pp.605-625.
- Kearns, R.A. and Gesler, W.M. eds., 1998. Putting Health into Place: Landscape, Identity, and Well-being. Syracuse University Press.
- Kefting, L., 1991. Rigor in qualitative research: The assessment of trustworthiness. *American journal of occupational therapy*, 45(3), pp.214-222.
- Kelle, U., 2006. Combining qualitative and quantitative methods in research practice: purposes and advantages. *Qualitative research in psychology*, 3(4), pp.293-311.
- Kelly, R.J., Gray, R.H., Sewankambo, N.K., Serwadda, D., Wabwire-Mangen, F., Lutalo, T. and Wawer, M.J., 2003. Age differences in sexual partners and risk of HIV-1 infection in rural Uganda. *JAIDS Journal of Acquired Immune Deficiency Syndromes*, 32(4), pp.446-451.
- Kennedy, J., 2016. Why have the majority of recent polio cases occurred in countries affected by Islamist militancy? A historical comparative analysis of the political determinants of polio in Nigeria, Somalia, Pakistan, Afghanistan and Syria. *Medicine, Conflict and Survival*, 32(4), pp.295-316.
- Khan, N. and Hendrin, M., 2010. Using football for HIV/AIDS prevention in Africa. Football for an HIV-free Generation. Coxswain Social Investment Plus (CSI p). https://www.sportanddev.org/sites/default/files/downloads/f4_hiv_report.pdf
- Khan, R. and Bilal, A., 2019. Knowledge about HIV and Discriminatory Attitudes toward People Living with HIV in Pakistan. *Pakistan Journal of Public Health*, 9(1), pp.37-41.
- Khan, S., 2020. Examining HIV/AIDS-Related Stigma at Play: Power, Structure, and Implications for HIV Interventions. *Health communication*, 35(12), pp.1509-1519.
- Kharsany, A.B. and Karim, Q.A., 2016. HIV infection and AIDS in sub-Saharan Africa: status, challenges and opportunities. *The open AIDS journal*, 10, p.34.
- Khaw, A.J., P. Salama, B. Burkholder, T.J. Dondero. 2000. HIV risk and prevention in emergency affected populations: a review. *Disasters* 24 (3): 181-97.

- Kiadaliri, A.A., Najafi, B. and Haghparast-Bidgoli, H., 2011. Geographic distribution of need and access to health care in rural population: an ecological study in Iran. *International journal for equity in health*, 10(1), p.39.
- Kim, H.H.S., 2014. The association between social capital measures and self-reported health among Muslim majority nations. *International journal of public health*, 59(5), pp.749-75
- Kippax, S. and Stephenson, N., 2012. Beyond the distinction between biomedical and social dimensions of HIV prevention through the lens of a social public health. *American journal of public health*, 102(5), pp.789-799
- Kippax, S., 2012. Effective HIV prevention: the indispensable role of social science. *Journal of the International AIDS Society*, 15(2), p.17357.
- Kippax, S., Stephenson, N., Parker, R.G. and Aggleton, P., 2013. Between individual agency and structure in HIV prevention: understanding the middle ground of social practice. *American journal of public health*, 103(8), pp.1367-1375.
- Kirby, D., 2008. Changes in sexual behaviour leading to the decline in the prevalence of HIV in Uganda: confirmation from multiple sources of evidence. *Sexually transmitted infections*, 84(Suppl 2), pp.ii35-ii41. Kirby, D., 2008. Changes in sexual behaviour leading to the decline in the prevalence of HIV in Uganda: confirmation from multiple sources of evidence. *Sexually transmitted infections*, 84(Suppl 2), pp.ii35-ii41.
- Kisely, S. and Kendall, E., 2011. Critically appraising qualitative research: A guide for clinicians more familiar with quantitative techniques. *Australasian Psychiatry*, 19(4), pp.364-367.
- Kishimoto, Y., Suzuki, E., Iwase, T., Doi, H. and Takao, S., 2013. Group involvement and self-rated health among the Japanese elderly: an examination of bonding and bridging social capital. *BMC public health*, 13(1), p.1189.
- Kitchin, R. and Tate, N., 2013. *Conducting research in human geography: theory, methodology and practice*. Routledge.
- Klonoff, E.A. and Landrine, H., 1999. Do blacks believe that HIV/AIDS is a government conspiracy against them?. *Preventive Medicine*, 28(5), pp.451-457.
- Kluge SF, et al. 2014 Nef proteins of epidemic HIV-1 group O strains antagonize human tetherin. *Cell Host Microbe* 16(5):639–650.
- Knoke, D., 1999. Organizational networks and corporate social capital. In *Corporate social capital and liability* (pp. 17-42). Springer, Boston, MA.
- Koenig, H.G. and Al Shohaib, S., 2012. Religiosity and behavioural health in Muslims. In *Health and Well-Being in Islamic Societies* (pp. 217-241). Springer, Cham.
- Korber, B., Muldoon, M., Theiler, J., Gao, F., Gupta, R., Lapedes, A., Hahn, B.H., Wolinsky, S. and Bhattacharya, T., 2000. Timing the ancestor of the HIV-1 pandemic strains. *Science*, 288(5472), pp.1789-1796.
- Kordoutis, P.S., Loumakou, M. and Sarafidou, J.O., 2000. Heterosexual relationship characteristics, condom use and safe sex practices. *AIDS care*, 12(6), pp.767-782.
- Kosow, H. and Gaßner, R., 2008. *Methods of future and scenario analysis: overview, assessment, and selection criteria* (Vol. 39, p. 133). DEU.
- kpeazu A, Momah-Haruna A, Madu Mari B, Thompson LH, Ogungbemi K, et al. (2014) An Appraisal of Female Sex Work in Nigeria - Implications for Designing and Scaling

- Up HIV Prevention Programmes. PLoS ONE 9(8): e103619. doi:10.1371/journal.pone.0103619
- Krause, J., 2011. A deadly cycle: ethno-religious conflict in Jos, Plateau State, Nigeria. Geneva declaration.
- Kuate-Defo, B., 2004. Young people's relationships with sugar daddies and sugar mummies: what do we know and what do we need to know?. *African journal of reproductive health*, pp.13-37.
- Kucirka, L.M., Sarathy, H., Govindan, P., Wolf, J.H., Ellison, T.A., Hart, L.J., Montgomery, R.A., Ros, R.L. and Segev, D.L., 2011. Risk of window period HIV infection in high infectious risk donors: systematic review and meta-analysis. *American Journal of Transplantation*, 11(6), pp.1176-1187.
- Kuhn, T. S. (1962). *The structure of scientific revolutions*. Chicago, IL: University of Chicago Press.
- Kumar, P.C., McNeely, J. and Latkin, C.A., 2016. 'It's not what you know but who you know': Role of social capital in predicting risky injection drug use behaviour in a sample of people who inject drugs in Baltimore City. *Journal of Substance use*, 21(6), pp.620-626.
- Kumari, A. and Nair, R.J., 2012. Predictors of high risk sexual behaviour among men in India. *The Journal of Family Welfare*. 2012; 58(2): 25-34.
- Laah, J.G. and Ayiwulu, E., 2010. Socio-demographic characteristics of patients diagnosed with HIV/AIDS in Nasarawa Eggon. *Asian J Med Sci*, 2(3), pp.114-120.
- Labrecque, L.T. and Whisman, M.A., 2017. Attitudes toward and prevalence of extramarital sex and descriptions of extramarital partners in the 21st century. *Journal of Family Psychology*, 31(7), p.952.
- Lammers, J., van Wijnbergen, S.J. and Willebrands, D., 2013. Condom use, risk perception, and HIV knowledge: a comparison across sexes in Nigeria. *HIV/AIDS (Auckland, NZ)*, 5, p.283.
- Lamprey, E., 2017. *Marital Status and Health Outcomes in a Developing Country: Exploring the Contextual Effects of Marriage, Gender, Children, and Lineal Ties on Subjective Health in Ghana* (Doctoral dissertation, University of Akron).
- Lara, L.A. and Abdo, C.H., 2016. Age at time of initial sexual intercourse and health of adolescent girls. *Journal of Paediatric and Adolescent Genecology*, 29(5), pp.417-423.
- Last, M., 2007. Muslims and Christians in Nigeria: an economy of political panic. *The Round Table*, 96(392), pp.605-616.
- Laurier, E., 2010. Participant observation. *Key methods in geography*, 133.
- Lawal, A.O., 2010. Gender, religiosity and self-esteem as predictors of sexual attitudes of students in a Nigerian tertiary institution. *Gender and Behaviour*, 8(1), pp.2638-2648.
- Lawson, E., Gardezi, F., Calzavara, L., Husbands, W., Myers, T. and Tharao, W.E., 2017. HIV/AIDS stigma, denial, fear and discrimination: experiences and responses of people from African and Caribbean communities in Toronto. Toronto: University of Toronto; 2006.
- Lawson, E., Gardezi, F., Calzavara, L., Husbands, W., Myers, T. and Tharao, W.E., 2000. *HIV/AIDS stigma, denial, fear and discrimination: Experiences and responses of people from African and Caribbean communities in Toronto*. African and Caribbean

- Council on HIV/AIDS in Ontario (AACHO); HIV Social Behavioural and Epidemiological Studies Unit, Dept. of Public Health Sciences, Faculty of Medicine, Univ. of Toronto.
- Lawson, Erica, Fauzia Gardezi, Liviana Calzavara, Winston Husbands, Ted Myers, and Wangari Esther Tharao. *HIV/AIDS stigma, denial, fear and discrimination: Experiences and responses of people from African and Caribbean communities in Toronto*. African and Caribbean Council on HIV/AIDS in Ontario (AACHO); HIV Social Behavioural and Epidemiological Studies Unit, Dept. of Public Health Sciences, Faculty of Medicine, Univ. of Toronto, 2000.
- Leavy, P., 2017. Research design: Quantitative, qualitative, mixed methods, arts-based, and community-based participatory research approaches.
- Lemer, J.L., Blodgett Salafia, E.H. and Benson, K.E., 2013. The relationship between college women's sexual attitudes and sexual activity: The mediating role of body image. *International Journal of Sexual Health*, 25(2), pp.104-114.
- Lemey, P., Pybus, O.G., Wang, B., Sakseena, N.K., Salemi, M. and Vandamme, A.M., 2003. Tracing the origin and history of the HIV-2 epidemic. *Proceedings of the National Academy of Sciences*, 100(11), pp.6588-6592.
- Lengen, C. and Kistemann, T., 2012. Sense of place and place identity: Review of neuroscientific evidence. *Health and place*, 18(5), pp.1162-1171.
- Leon, J., Baker, D.P., Salinas, D. and Henck, A., 2017. Is education a risk factor or social vaccine against HIV/AIDS in Sub-Saharan Africa? The effect of schooling across public health periods. *Journal of Population Research*, 34(4), pp.347-372.
- Lesage, D. 2000. Predominance of Subtype A and G HIV Type 1 in Nigeria with Geographical Differences in their Distribution. *AIDS Research and Human Retroviruses*, 16 (4): 315-325. Available from: <https://www.researchgate.net/publication/12600229>[Accessed on the 24th January, 2016].
- Letamo, G., 2003. Prevalence of, and factors associated with, HIV/AIDS-related stigma and discriminatory attitudes in Botswana. *Journal of Health, Population and Nutrition*, pp.347-
- Levy, K. and Schneier, B., 2020. Privacy threats in intimate relationships. *Journal of Cybersecurity*, 6(1), p.tyaa006.
- Levy, Y. and Ellis, T.J., 2006. A systems approach to conduct an effective literature review in support of information systems research.
- Lewis, M.A., Granato, H., Blayney, J.A., Lostutter, T.W. and Kilmer, J.R., 2012. Predictors of hooking up sexual behaviors and emotional reactions among US college students. *Archives of sexual behavior*, 41(5), pp.1219-1229.
- Liamputtong, P., 2015. Stigma, discrimination and living with HIV/AIDS. *Netherlands: Springer*.
- Lieber, E. and Weisner, T.S., 2010. Meeting the practical challenges of mixed methods research. *SAGE Handbook of Mixed Methods in Social and Behavioural Research* (2nd ed., pp. 559–580). Thousand Oaks, CA: SAGE.
- Lieberman, L., Golden, S.D. and Earp, J.A.L., 2013. Structural approaches to health promotion: What do we need to know about policy and environmental change?. *Health Education and Behavior*, 40(5), pp.520-525.

- Liebowitz, J., 2004. Faith-based organisations and HIV/AIDS in Uganda and KwaZulu-Natal. Health Economics and HIV/AIDS Research Division (HEARD), University of KwaZulu-Natal, Durban.
- Lieshout-Krikke, R.W., Zaaijer, H.L. and van de Laar, T.J., 2015. Predonation screening of candidate donors and prevention of window period donations. *Transfusion*, 55(2), pp.373-378.
- Lincoln, Y.S., Lynham, S.A. and Guba, E.G., 2011. Paradigmatic controversies, contradictions, and emerging confluences, revisited. *The Sage handbook of qualitative research*, 4, pp.97-128.
- Lindsey, L.L., 2013. Gender roles. Pearson.
- Link, B.G. and Phelan, J.C., 2001. Conceptualizing stigma. *Annual review of Sociology*, 27(1), pp.363-385.
- Lisa F. Berkman and Ichiro Kawachi. 2014. A Historical Framework for Social Epidemiology: Social Determinants of Population Health In: Berkman, L.F., Kawachi, I. and Glymour, M.M. (eds.), 2014. *Social epidemiology*. Oxford University Press. PP 1-16
- Liu, A.Q. and Besser, T., 2003. Social capital and participation in community improvement activities by elderly residents in small towns and rural communities. *Rural sociology*, 68(3), pp.343-365.
- Liu, H., Hu, Z., Li, X., Stanton, B., Naar-King, S. and Yang, H., 2006. Understanding interrelationships among HIV-related stigma, concern about HIV infection, and intent to disclose HIV serostatus: a pretest–protest study in a rural area of eastern China. *AIDS Patient Care and STDs*, 20(2), pp.133-142
- Lloyd, J., Papworth, E., Grant, L., Beyrer, C. and Baral, S., 2014. Systematic review and meta-analysis of HIV prevalence among men in militaries in low income and middle income countries. *Sexually transmitted infections*, 90(5), pp.382-387.
- Lopes, H., 2011. Background paper Militarized Masculinity in Peacekeeping Operations: An Obstacle to Gender Mainstreaming. *Peacebuilding and Conflict Prevention Consultation Series*.
- Lorber, J. and Farrell, S.A. eds., 1991. The social construction of gender (pp. 309-321). Newbury Park, CA: Sage.
- Lorber, J. 2001. "Gender inequality." Los Angeles, CA: Roxbury.
- Lorence, T., Petticrew, M., Welch, V. and Tugwell, P., 2013. What types of interventions generate inequalities? Evidence from systematic reviews. *J Epidemiology Community Health*, 67(2), pp.190-193.
- Losch, A., 2009. On the origins of critical realism. *Theology and Science*, 7(1), pp.85-106
- Louie, K.S., De Sanjose, S. and Mayaud, P., 2009. Epidemiology and prevention of human papillomavirus and cervical cancer in sub-Saharan Africa: a comprehensive review. *Tropical Medicine and International Health*, 14(10), pp.1287-1302.
- Lowe, S., Mudzviti, T., Mandiriri, A., Shamu, T., Mudhokwani, P., Chimbetete, C., Luethy, R. and Pascoe, M., 2019. Sexually transmitted infections, the silent partner in HIV-infected women in Zimbabwe. *Southern African journal of HIV medicine*, 20(1).
- Lucas, A.M. and Wilson, N.L., 2019. Schooling, Wealth, Risky Sexual Behaviour, and HIV/AIDS in Sub-Saharan Africa. *The Journal of Development Studies*, 55(10), pp.2177-2192.

- Lugalla, J., Emmelin, M., Mutembei, A., Sima, M., Kwesigabo, G., Killewo, J. and Dahlgren, L., 2004. Social, cultural and sexual behavioral determinants of observed decline in HIV infection trends: lessons from the Kagera Region, Tanzania. *Social science and medicine*, 59(1), pp.185-198.
- Lundborg, P., 2005. Social capital and substance use among Swedish adolescents—an explorative study. *Social science and medicine*, 61(6), pp.1151-1158.
- Lurie, M.N. and Rosenthal, S., 2010. Concurrent partnerships as a driver of the HIV epidemic in sub-Saharan Africa? The evidence is limited. *AIDS and Behaviour*, 14(1), pp.17-24.
- Lurie, M.N., Williams, B.G., Zuma, K., Mkaya-Mwamburi, D., Garnett, G.P., Sturm, A.W., Sweat, M.D., Gittelsohn, J. and Karim, S.S.A., 2003. The impact of migration on HIV-1 transmission in South Africa: a study of migrant and no migrant men and their partners. *Sexually transmitted diseases*, 30(2), pp.149-156.
- Lwelamira, J., Safari, J. and Masanyiwa, Z., 2015. Prevalence and determinants of risky sexual behaviour among youth in Chamwino District, Central Tanzania. *J Rural Plan Assoc*, 17(1), pp.61-74.
- Ma, Q., Ono-Kihara, M., Cong, L., Xu, G., Pan, X., Zamani, S., Ravari, S.M., Zhang, D., Homma, T. and Kihara, M., 2009. Early initiation of sexual activity: a risk factor for sexually transmitted diseases, HIV infection, and unwanted pregnancy among university students in China. *BMC Public health*, 9(1), pp.1-8.
- Maarouf, H., 2019. Pragmatism as a supportive paradigm for the mixed research approach: Conceptualizing the ontological, epistemological, and axiological stances of pragmatism. *International Business Research*, 12(9), pp.1-12.
- Mabuchi, S., Sesan, T. and Bennett, S.C., 2018. Pathways to high and low performance: factors differentiating primary care facilities under performance-based financing in Nigeria. *Health policy and planning*, 33(1), pp.41-58.
- Macaluso, M., Demand, M.J., Artz, L.M. and Hook III, E.W., 2000. Partner type and condom use. *Aids*, 14(5), pp.537-546.
- Macdonald, D.S. 1996. Notes on the socio-economic and cultural factors influencing the transmission of HIV in Botswana. *Social Science and Medicine*. 42(9): 1325–1333.
- MacDonald, G. and Leary, M. R.2005. Why does social exclusion hurt? The relationship between social and physical pain, *Psychological Bulletin*. doi: 10.1037/0033-2909.131.2.202.
- MacPhail, C., Williams, B.G. and Campbell, C., 2002. Relative risk of HIV infection among young men and women in a South African township. *International journal of STD and AIDS*, 13(5), pp.331-342.
- Magaji, F.A., Ocheke, A.N., Pam, V.C., Afolaramin, T., Musa, J., Sagay, A.S. and Zoakah, A.I., 2018. Trends in prevalence of HIV infection: a 4-year review of the general population in Plateau State, Nigeria. *Jos Journal of Medicine*, 12(2), pp.1-8.
- Maganja, R.K., Maman, S., Groves, A. and Mbwambo, J.K., 2007. Skinning the goat and pulling the load: transactional sex among youth in Dar es Salaam, Tanzania. *AIDS care*, 19(8), pp.974-981.
- Mah, T.L. and Halperin, D.T., 2010. Concurrent sexual partnerships and the HIV epidemics in Africa: evidence to move forward. *AIDS and Behaviour*, 14(1), pp.11-16.

- Mahajan, A.P., Sayles, J.N., Patel, V.A., Remien, R.H., Ortiz, D., Szekeres, G. and Coates, T.J., 2008. Stigma in the HIV/AIDS epidemic: a review of the literature and recommendations for the way forward. *AIDS (London, England)*, 22(Suppl 2), p.S67.
- Mahy, M., M. Nzima, M.K. Ogungbemi, D.A. Ogbang, M.C. Morka, and J. Stover. 2014. Redefining the HIV epidemic in Nigeria: from national to state level. *AIDS (London, England)* 28(4):S461. Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4247268/> [Accessed on 17/05/2016].
- Maleka, E.N., 2017. Monitoring and evaluation of sport-based HIV/AIDS awareness programmes: Strengthening outcome indicators. *SAHARA-J: Journal of Social Aspects of HIV/AIDS*, 14(1), pp.1-21.
- Mall, S., Middelkoop, K., Mark, D., Wood, R. and Bekker, L.G., 2013. Changing patterns in HIV/AIDS stigma and uptake of voluntary counselling and testing services: the results of two consecutive community surveys conducted in the Western Cape, South Africa. *AIDS care*, 25(2), pp.194-201.
- Malmendier, U., te Velde, V. L. and Weber, R. A. 2014. Rethinking Reciprocity, *Annual Review of Economics*. doi: 10.1146/annurev-economics-080213-041312.
- Manjok, E., 2009. Smesny A. Essien EJ. Stigma and discrimination about HIV in Nigeria. *African Journal of Reproductive Health*, 13, pp.21-35.
- Mann, J.M. 1989 'AIDS: A worldwide pandemic' in *Current Topics in AIDS Volume 2*, edited by Gottlieb, M.S. et al. John Wiley and Sons
- Mantell, J.E., Correale, J., Adams-Skinner, J. and Stein, Z.A., 2011. Conflicts between conservative Christian institutions and secular groups in sub-Saharan Africa: Ideological discourses on sexualities, reproduction and HIV/AIDS. *Global public health*, 6(sup2), pp.S192-S209.
- March, C., Smyth, I.A. and Mukhopadhyay, M., 1999. *A guide to gender-analysis frameworks*. Oxfam.
- Marks, S., 2002. An epidemic waiting to happen? The spread of HIV/AIDS in South Africa in social and historical perspective. *African Studies*, 61(1), pp.13-26.
- Marrazzo, J.M., Dombrowski, J.C. and Mayer, K.H., 2018. Sexually transmitted infections in the era of antiretroviral-based HIV prevention: Priorities for discovery research, implementation science, and community involvement. *PLoS medicine*, 15(1), p.e1002485
- Marshall, C. 2009. *Designing qualitative research*. Sage publications.
- Marshall, C. and Rossman, G.B., 2016. *Designing qualitative research*. Sage publications.
- Marsicano, E., Dray-Spira, R., Lert, F., Aubriere, C., Spire, B., Hamelin, C. and ANRS-Vespa2 Study Group, 2014. Multiple discriminations experienced by people living with HIV in France: results from the ANRS-Vespa2 study. *AIDS care*, 26(sup1), pp.S97-S106.
- Marsicano, E., Dray-Spira, R., Lert, F., Aubriere, C., Spire, B., Hamelin, C. and ANRS-Vespa2 Study Group, 2014. Multiple discriminations experienced by people living with HIV in France: results from the ANRS-Vespa2 study. *AIDS care*, 26(sup1), pp.S97-S106.
- Martins, J.G., de Paiva, H.N., Paiva, P.C.P., Ferreira, R.C., Pordeus, I.A., Zarzar, P.M. and Kawachi, I., 2017. New evidence about the “dark side” of social cohesion in promoting binge drinking among adolescents. *PLoS one*, 12(6), p.e0178652.

- Martins, J.G., de Paiva, H.N., Paiva, P.C.P., Ferreira, R.C., Pordeus, I.A., Zarzar, P.M. and Kawachi, I., 2017. New evidence about the “dark side” of social cohesion in promoting binge drinking among adolescents. *PloS one*, 12(6), p.e0178652.
- Masanjala, W., 2007. The poverty-HIV/AIDS nexus in Africa: a livelihood approach. *Social science and medicine*, 64(5), pp.1032-1041.
- Mash, R. and Mash, R., 2013. Faith-based organisations and HIV prevention in Africa: A review. *African Journal of Primary Health Care and Family Medicine*, 5(1), pp.1-6
- Masland T, King P. 2000. Flirting with strange ideas. Mbeki reaches out to a controversial AIDS researcher. *Newsweek*. 135(16):36.
- Mason, J., 2017. *Qualitative researching*. Sage.
- Mathew, R.M., Shugaba, A.I. and Ogala, W.N., 2006. Parents-adolescents Communication and HIV/AIDS in Jos North Local Government Area, Plateau State, Nigeria. *Journal of Medical Sciences*, 6(4), pp.537-545.
- Mathieson, J., Popay, J., Enoch, E., Escorel, S., Hernandez, M., Johnston, H. and Rispel, L., 2008. Social Exclusion Meaning, measurement and experience and links to health inequalities. A review of literature. WHO Social Exclusion Knowledge Network Background Paper, 1, p.91.
- Matsumoto, D. 1996. *Culture and Psychology*. CA: Brooks/Cole, Pacific Grove. P16.
- Matthews, K.A., Croft, J.B., Liu, Y., Lu, H., Kanny, D., Wheaton, A.G., Cunningham, T.J., Khan, L.K., Caraballo, R.S., Holt, J.B. and Eke, P.I., 2017. Health-related behaviours by urban-rural county classification—United States, 2013. *MMWR Surveillance Summaries*, 66(5),
- Mattocks, K.M., Gibert, C., Fiellin, D., Fiellin, L.E., Jamison, A., Brown, A. and Justice, A.C., 2017. Mistrust and endorsement of human immunodeficiency virus conspiracy theories among human immunodeficiency virus–infected African American veterans. *Military medicine*, 182(11-12), pp.e2073-e2079.
- Maughan-Brown, B. and Meredith Evans, G.G., 2016. Sexual behaviour of men and women within age-disparate partnerships in South Africa: implications for young women's HIV risk. *PLoS One*, 11(8).
- Maxwell, J.A., 2012. *Qualitative research design: An interactive approach* (Vol. 41). Sage publications.
- Mbiti, J. S. 1989. *African Religions and Philosophy*. Heinemann Educational Book Incorporated, 2nd ed: 138–143, 198
- McGovern, T., Baumont, M., Fowler, R., Parisi, V., Haerizadeh, S., Williams, E. and Garbers, S., 2019. Association between plural legal systems and sexual and reproductive health outcomes for women and girls in Nigeria: A state-level ecological study. *PloS one*, 14(10), p.e0223455.
- McHugh, M.L., 2013. The chi-square test of independence. *Biochemia medica*, 23(2), pp.143-149.
- McInnes, C. 2011. HIV, AIDS and conflict in Africa: why isn't it (even) worse? *Review of International Studies* 37(2): 485-509.
- MDG Africa Steering Group, 2008. *Achieving the millennium development goals in Africa*. New York, United Nations.
- MEASURE / DHS, M., 2013. *Demographic and health surveys*. Calverton: *Measure DHS*.

- MEASURE / DHS. 2015. Demographic and Health Surveys. Calverton: ICF International; 2012.
- Media Centre, 2018. Factsheet: Sexual abuse in British churches. Available from: <https://religionmediacentre.org.uk/factsheets/sex-abuse-in-christian-churches-in-the-uk/> [Accessed 23/09/2019]
- Meiberg, A.E., Bos, A.E., Onya, H.E. and Schaalma, H.P., 2008. Fear of stigmatization as barrier to voluntary HIV counselling and testing in South Africa. *East Afr J Public Health*, 5(2), pp.49-
- Meit, M., Knudson, A., Gilbert, T., Yu, A.T.C., Tanenbaum, E., Ormson, E. and Popat, S., 2014. The 2014 update of the rural-urban chartbook. Bethesda, MD: Rural Health Reform Policy Research Center.
- Mekonnen, D.R., 2010. Mandatory Premarital HIV Testing as a Challenge to Human Rights. *Interdisciplinary Journal Humuman Rights. L.*, 5, p.1.
- Mercer, C.H., 2010. Measuring sexual behaviour and risk. Accessed online at http://survey.net.ac.uk/sqb/topics/healthbehaviour/sqb_sex_mercer.pdf.
- Meribole, E.C., Makinde, O.A., Oyemakinde, A., Oyediran, K.A., Atobatele, A., Fadeyibi, F.A., Azeez, A., Ogbokor, D., Adebayo, O., Adebayo, W. and Abatta, E., 2018. The Nigerian health information system policy review of 2014: the need, content, expectations and progress. *Health Information and Libraries Journal*, 35(4), pp.285-297.
- Merrigan, M., Azeez, A., Afolabi, B., Chabikuli, O.N., Onyekwena, O., Eluwa, G., Aiyenigba, B., Kawu, I., Ogungbemi, K. and Hamelmann, C., 2011. HIV prevalence and risk behaviours among men having sex with men in Nigeria. *Sexually transmitted infections*, 87(1), pp.65-70.
- Mertens, D.M. and Hesse-Biber, S., 2012. Triangulation and mixed methods research: Provocative positions.
- Mertens, D.M., 2010. Philosophy in mixed methods teaching: The transformative paradigm as illustration. *International Journal of Multiple Research Approaches*, 4(1), pp.9-18.
- Mertens, D.M., 2013. *Research and evaluation in education and psychology: Integrating diversity with quantitative, qualitative, and mixed methods*. Sage publications.
- Mhlongo, S., Dietrich, J., Otwombe, K.N., Robertson, G., Coates, T.J. and Gray, G., 2013. Factors associated with not testing for HIV and consistent condom use among men in Soweto, South Africa. *PLoS One*, 8(5), p.e62637
- Michael, T.O. and Scent, G.A., 2017. Correlates of Contraceptive Use and the Desire for less Children in Nigeria. *The Nigerian Journal of Sociology and Anthropology*, 15(2), pp.101-116.
- Michie, S., Van Stralen, M.M. and West, R., 2011. The behaviour change wheel: a new method for characterising and designing behaviour change interventions. *Implementation science*, 6(1), pp.1-12..
- Milan, S., Ethier, K., Lewis, J., Kershaw, T., Niccolai, L. and Ickovics, J., 2006. Reproductive health of urban adolescents: Differences in the behaviors, cognitions, and social context of African-American and Puerto Rican females. *Journal of youth and adolescence*, 35(6), pp.959-967.
- Miles, M.B., Huberman, A.M. and Saldana, J., 2014. *Qualitative Data Analysis: A Methods Sourcebook*. SAGE Publications Ltd (CA).

- Miles, S.H., 2003. HIV in insurgency forces in sub-Saharan Africa—a personal view of policies. *International journal of STD and AIDS* 14(3):174-178.
- Mills E.J, Singh S., Nelson B.D, Nachega J.B. 2006. The impact of conflict on HIV/AIDS in sub-Saharan Africa. *International Journal of STD and AIDS*, 17: pp 713-717.
- Mirzaei, M., Ahmadi, K., Saadat, S.H. and Ramezani, M.A., 2016. Instruments of high risk sexual behaviour assessment: A systematic review. *Materia socio-medica*, 28(1), p.46.
- Mitchell, A. and Education, A.E., 2018, July. A review of mixed methods, pragmatism, and abduction techniques. In *Proceedings of the European Conference on Research Methods for Business and Management Studies* (pp. 269-277).
- Mitchell, K., Wellings, K., Elam, G., Erens, B., Fenton, K. and Johnson, A., 2007. How can we facilitate reliable reporting in surveys of sexual behaviour? Evidence from qualitative research. *Culture, Health and Sexuality*, 9(5), pp.519-531.
- Mitsunaga, T.M., Powell, A.M., Heard, N.J. and Larsen, U.M., 2005. Extramarital sex among Nigerian men: polygyny and other risk factors. *JAIDS Journal of Acquired Immune Deficiency Syndromes*, 39(4), pp.478-488.
- Mkandawire-Valhmu, L., Wendland, C., Stevens, P.E., Kako, P.M., Dressel, A. and Kibicho, J., 2013. Marriage as a risk factor for HIV: Learning from the experiences of HIV-infected women in Malawi. *Global Public Health*, 8(2), pp.187-201.
- Mock, N.B., Duale, S., Brown, L.F., Mathys, E., O'Maonaigh, H.C., Abul-Husn, N.K. and Elliott, S., 2004. Conflict and HIV: A framework for risk assessment to prevent HIV in conflict-affected settings in Africa. *Emerging themes in epidemiology*, 1(1), p.6.
- Mohammed, A.S .2005.The Impact of conflict on the economy: The case of Plateau State of Nigeria. Available from:<http://www.odi.org/sites/odi.org.uk/files/odi-assets/events-documents/122.pdf> [accessed on the 18th March, 2016].
- Mohammed, U. 2018. Fear grips Nasarawa monarchs over sect that promotes fornication, adultery. *The Punch, Metro Plus*. July 20, 2018. Available at: <https://punchng.com/fear-grips-nasarawa-monarchs-over-sect-that-promotes-fornication-adultery/>
- Mokwena, K. and Morabe, M., 2016. Sexual abstinence: What is the understanding and views of secondary school learners in a semi-rural area of North West Province, South Africa?. *Sahara-J: Journal of Social Aspects of HIV/AIDS*, 13(1), pp.81-87.
- Molina A. J., and Cameron, R. (2010). The application of mixed methods in organizational research: A literature review. *Electronic Journal of Business Research Methods*, 8, 95–105.
- Molobela, T.T., 2019. The assessment of the 7C protocols for policy Implementation in improving service delivery in South African municipalities. *International Conference on Public Administration and Development Alternative (IPADA)*.
- Monjok, E., Smesny, A. and Essien, E.J., 2009. HIV/AIDS-related stigma and discrimination in Nigeria: review of research studies and future directions for prevention strategies. *African journal of reproductive health*, 13(3).
- Moon, G. 2009. Health geography. In, Kitchin, Rob and Thrift, Nigel (eds.) *International Encyclopaedia of Human Geography*. Oxford, UK. Elsevier, pp. 35-55. (doi:10.1016/B978-008044910-4.00338-2).

- Moon, G., 1993. Conceptions of space and community in British health policy. *Social Science and Medicine*, 30(1), pp.165-171.
- Moreau, C., Trussell, J. and Bajos, N., 2013. Religiosity, religious affiliation, and patterns of sexual activity and contraceptive use in France. *The European Journal of Contraception and Reproductive Health Care*, 18(3), pp.168-180
- Morgan, D.L., 2007. Paradigms lost and pragmatism regained: Methodological implications of combining qualitative and quantitative methods. *Journal of mixed methods research*, 1(1), pp.48-76.
- Morgan, D.L., 2014a. Pragmatism as a paradigm for mixed methods research. Integrating qualitative and quantitative methods: A pragmatic approach. Thousand Oaks, CA: Sage.
- Morgan, D.L., 2014b. Pragmatism as a paradigm for social research. *Qualitative inquiry*, 20(8), pp.1045-1053.
- Morolake, O., Stephens, D. and Welbourn, A., 2009. Greater involvement of people living with HIV in health care. *Journal of the International AIDS Society*, 12(1), pp.1-7.
- Morrison-Beedy, D., Xia, Y. and Passmore, D., 2013a. Sexual risk factors for partner age discordance in adolescent girls and their male partners. *Journal of clinical nursing*, 22(23-24), pp.3289-3299.
- Morse, J.M., 1991. Approaches to qualitative-quantitative methodological triangulation. *Nursing research*, 40(2), pp.120-123.
- Moscicki, A. Ma, Y., Holland, C. and Vermund, S.H. 2001. Cervical ectopy in adolescent girls with and without human immunodeficiency virus infection. *Journal of Infectious Diseases*, vol. 183, No. 6 (March 2001):865-870.
- Rushton, J. P. and Bogaert, A. F. 1989. Population differences in susceptibility to AIDS: an evolutionary analysis. *Social Science Medicine* 28, 1211, 1989.
- Mpundu, M., 1999. Ignorance, denial, fear, and violence: stigmatisation and discrimination in African communities-Zambia. *SEA-AIDS*.
- Mtenga, S.M., Pfeiffer, C., Tanner, M., Geubbels, E. and Merten, S., 2018. Linking gender, extramarital affairs, and HIV: a mixed methods study on contextual determinants of extramarital affairs in rural Tanzania. *AIDS research and therapy*, 15(1), p.12.
- Muchini, B., Benedikt, C., Gregson, S., Gomo, E., Mate, R., Mugurungi, O., Magure, T., Campbell, B., Dehne, K. and Halperin, D., 2011. Local perceptions of the forms, timing and causes of behavior change in response to the AIDS epidemic in Zimbabwe. *AIDS and Behavior*, 15(2), pp.487-498.
- Mufune, P., 2015. Poverty and HIV/AIDS in Africa: Specifying the connections. *Social Theory and Health*, 13(1), pp.1-29.
- Muijs, D., 2012. Surveys and sampling. *Research methods in educational leadership and management*, 10 pp.140-154
- Mullinax, M., Sanders, S., Dennis, B., Higgins, J., Fortenberry, J.D. and Reece, M., 2017. How condom discontinuation occurs: interviews with emerging adult women. *The Journal of Sex Research*, 54(4-5), pp.642-650.
- Munsch, C.L., 2015. Her support, his support: Money, masculinity, and marital infidelity. *American Sociological Review*, 80(3), pp.469-495.
- Musa, S.A.U., Akpo, E.O., Babarinde, P., Zakka, A. and Seed, S. 2012. Life skills Development Strategy for HIV/AIDS Prevention among Young People in Northern

- Nigeria Schools: An Experience of Fcs–Nigeria. Conference: Pan Africa Christian AIDS Network Lessons Learned Conference, May 2012.
- Musa, W., Ibrahim, A.Z.B. and Zan, Z.B.M., 2019. Government Intervention Programs Linking with Poverty Alleviation: An Empirical Investigation, the Case of Nigeria. *Asian Research Journal of Arts and Social Sciences*, pp.1-10.
- Musante, K. and DeWalt, B.R., 2010. *Participant observation: A guide for fieldworkers*. Rowman Altamira.
- Musick, M.A., 1996. Religion and subjective health among black and white elders. *Journal of Health and Social behaviour*, pp.221-237.
- Muula, A.S., 2010a. HIV prevalence and associated behavioural factors in Lesotho, Kenya, Malawi, and Uganda. *Croatian medical journal*, 51(3), p.271.
- Muula, A.S., 2010b. Marriage, not religion, is associated with HIV infection among women in rural Malawi. *AIDS and Behavior*, 14(1), pp.125-131
- Nabukenya, A.M., Nambuusi, A. and Matovu, J.K., 2020. Risk factors for HIV infection among married couples in Rakai, Uganda: a cross-sectional study. *BMC infectious diseases*, 20(1), pp.1-8.
- Nabukenya, A.M., Nambuusi, A. and Matovu, J.K., 2020. Risk factors for HIV infection among married couples in Rakai, Uganda: a cross-sectional study. *BMC infectious diseases*, 20(1), pp.1-8.
- NACA - National AIDS Control Agency .2010. National HIV/AIDS Strategic Plan 2010-2015. Available from: http://www.nationalplanningcycles.org/sites/default/files/country_docs/Nigeria/hiv_plan_nigeria.pdf [Accessed 24th January, 2016].
- NACA - National AIDS Control Agency 2015 Global AIDS response: Country Progress Report. Federal Ministry of Health, September, 2014. Abuja - Nigeria. P 13 - 26.
- NACA - National AIDS Control Agency. 2014. National HIV/AIDS Prevention Plan 2014 - 2015. Available from: <http://sbccvch.naca.gov.ng/sites/default/files/National%20HIV%20PrevPlan%202014-2015%281%29.pdf> [Accessed 24th January, 2016]
- NACA - National AIDS Control Agency. 2015. Plateau State HIV and AIDS Epidemiology and Impact. 19th November, 2015. Available from: http://naca.gov.ng/test/sites/default/files/Plateau%20state%20profile%20ppt_0.pdf [Accessed 25th May, 2016]
- NACA - National AIDS Control Agency. 2017. Removing Legal and Human Rights Barriers to HIV and AIDS Response in Nigeria (2017-2022). . National HIV/AIDS Prevention Plan 2017-2022. Available from: [ewhin.com/publications/Removing Legal and Human Right Barriers to HIV and AIDS.pdf](http://ewhin.com/publications/Removing-Legal-and-Human-Right-Barriers-to-HIV-and-AIDS.pdf) [Retrieved on the 13/07/2020]
- NACA- National Agency for the Control of AIDS. 2016. Stigma and Discrimination Reduction in the National HIV/AIDS Response. Available from: <https://naca.gov.ng/national-hivaids-stigma-reduction-strategy-2/> [Accessed 20/01/2020]
- Nachega, J.B., Morroni, C., Zuniga, J.M., Sherer, R., Beyrer, C., Solomon, S., Schechter, M. and Rockstroh, J., 2012. HIV-related stigma, isolation, discrimination, and serostatus disclosure: a global survey of 2035 HIV-infected adults. *Journal of the International Association of Physicians in AIDS Care*, 11(3), pp.172-178.

- Najera R., Herrera, M. I., and de Andres, R. 1988. Human Immunodeficiency Virus and Related Retroviruses. *Western Journal of Medicine*, 147: 702-708. Available from: <http://www.researchgate.net/publication/20327692>. [Accessed on 26th January, 2016].
- Nalugoda, F., Guwatudde, D., Bwaninka, J.B., Makumbi, F.E., Lutalo, T., Kagaayi, J., Sewankambo, N.K., Kigozi, G., Serwadda, D.M., Kong, X. and Wawer, M.J., 2014. Marriage and the risk of incident HIV infection in Rakai, Uganda. *Journal of acquired immune deficiency syndromes (1999)*, 65(1), p.91.
- Nalugoda, F., Guwatudde, D., Bwaninka, J.B., Makumbi, F.E., Lutalo, T., Kagaayi, J., Sewankambo, N.K., Kigozi, G., Serwadda, D.M., Kong, X. and Wawer, M.J., 2014. Marriage and the risk of incident HIV infection in Rakai, Uganda. *Journal of acquired immune deficiency syndromes (1999)*, 65(1), p.91.
- Narayan, D. and Cassidy, M.F., 2001. A dimensional approach to measuring social capital: development and validation of a social capital inventory. *Current sociology*, 49(2), pp.59-102.
- Narayan, D., 2002. Bonds and bridges: social capital and poverty. *Social capital and economic development: well-being in developing countries*. Northampton, MA: Edward Elgar, pp.58-81.
- NASACA - Nasarawa State Agency for the Control of AIDS .2015. Mapping And Characterization Of Key Populations: evidence for Prevention Programme Planning and Implementation in Nasarawa State, Nigeria. A Publication of Nasarawa State AIDS Control Agency (NASACA).
- Nasarawa State Ministry of Health-(NSMoH). 2010. State Strategic Health Development Plan - 2010 – 2015. Nasarawa State Government, Nigeria. Available from: [http://www.mamaye.org.ng/sites/default/files/evidence / Nasarawa%20SSHDP%2005.01.11.pdf](http://www.mamaye.org.ng/sites/default/files/evidence/Nasarawa%20SSHDP%2005.01.11.pdf) [Accessed on the 7th June 2016]
- Nasidi, A. and Harry, T.O. 2006. The epidemiology of HIV/AIDS in Nigeria. In: Olusoji Adeyi Phyllis J. Kanki Oluwole Odutolu John A. Idoko (eds) *AIDS in Nigeria: a nation on the threshold*. Cambridge (Massachusetts): Harvard Centre for Population and Development Studies, pp.17-36.
- Nasidi, Mohammed. I., A., Chikwem, J.O., Williams, E.E., Harry, T.O., Okafor, G.O., Ajose-Coker, O.O., Ademiluyi, S.A., Tukei, P. and De Cock, K.M., 1988. HIV infection in Nigeria. *AIDS (London, England)*, 2(1), pp.61-62. (1988). 61–62
- National Bureau of Statistics (NBS) and United Nations Children’s Fund (UNICEF). 2017. Multiple Indicator Cluster Survey 2016-17, Survey Findings Report. Abuja, Nigeria: National Bureau of Statistics and United Nations Children’s Fund.
- National Bureau of Statistics .2014. 2013 Statistical Report on Women and Men in Nigeria. December, 2014. Abuja – Nigeria.
- National Geographic Channel. 2014. Face 2 Face Africa: Scarification Documentary. June 2014. Available from: <https://face2faceafrica.com/article/body-scarification-in-african-tribes#.VsXT37fcti4>
- National Primary Healthcare Development Agency (NPHCDA) .2017. Department of PHC Systems Development. <https://www.nphcda.ng/department-of-phc-systems-development>

- National Research Council and Committee on Population, 2005. *Growing up global: The changing transitions to adulthood in developing countries*. National Academies Press.
- Nattrass, N., 2008. AIDS and the scientific governance of medicine in post-apartheid South Africa. *African affairs*, 107(427), pp.157-176.
- Nattrass, N., 2012. How bad ideas gain social traction. *The Lancet*, 380(9839), pp.332-333.
- Nattrass, N., 2012. *The AIDS conspiracy: Science fights back*. Columbia University Press.
- Nazziwa, J., Faria, N.R., Chaplin, B., Rawizza, H., Kanki, P., Dakum, P., Abimiku, A.L., Charurat, M., Ndembu, N. and Esbjörnsson, J., 2020. Characterisation of HIV-1 molecular epidemiology in Nigeria: Origin, diversity, demography and geographic spread. *Scientific reports*, 10(1), pp.1-10.
- NEMA . 2014. 35,000 IDPs from Adamawa and Taraba taking Refuge in Plateau State. Monday, 24th November, 2014. Available from <http://nema.gov.ng/35000-idps-from-adamawa-and-taraba-taking-refuge-in-plateau-state/> [on the 31st March, 2016]
- Newman, K., Fisher, S., Mayhew, S. and Stephenson, J., 2014. Population, sexual and reproductive health, rights and sustainable development: forging a common agenda. *Reproductive Health Matters*, 22(43), pp.53-64.
- Ngugi, E.N., Roth, E., Mastin, T., Nderitu, M.G. and Yasmin, S., 2012. Female sex workers in Africa: epidemiology overview, data gaps, ways forward. *SAHARA-J: Journal of Social Aspects of HIV/AIDS*, 9(3), pp.148-153.
- Niens, L. and Lowery, D. 2009. Gendered epidemiology: sexual equality and the prevalence of HIV/AIDS in Sub-Saharan Africa. *Social Science Quarterly*, 90:1134–1144.
- Nigeria MDGs Report. 2010. Nigeria and the MDGS: better than you might expect and likely to speed up. Nigeria MDG+10 Showcase No. 1.
- Noar, S.M. and Kennedy, M.G., 2009. HIV/AIDS prevention messages. *AMA Journal of Ethics*, 11(12), pp.980-987.
- Noar, S.M., Cole, C. and Carlyle, K., 2006. Condom use measurement in 56 studies of sexual risk behaviour: review and recommendations. *Archives of sexual behaviour*, 35(3), pp.327-345.
- Noble, H. and Smith, J., 2015. Issues of validity and reliability in qualitative research. *Evidence-based nursing*, 18(2), pp.34-35.
- Noroozi, M., Taleghani, F., Merghati-Khoei, E.S., Tavakoli, M. and Gholami, A., 2014. Premarital sexual relationships: Explanation of the actions and functions of family. *Iranian journal of nursing and midwifery research*, 19(4), p.424.
- Nour, N.M., 2006. Health consequences of child marriage in Africa. *Emerging infectious diseases*, 12(11), p.1644
- Nowak, N.T., Weisfeld, G.E., Imamoğlu, O., Weisfeld, C.C., Butovskaya, M. and Shen, J., 2014. Attractiveness and spousal infidelity as predictors of sexual fulfillment without the marriage partner in couples from five cultures. *Human Ethology Bulletin*, 29(1), pp.18-38.
- NPC - National Population Commission [Nigeria] and ICF - International. Nigeria Demographic and Health Survey .2003.Abuja, Nigeria, and Rockville, Maryland, USA: NPC and ICF International. 20036.
- NPC - National Population Commission [Nigeria] and ICF - International. 2006. 2006 Population Census. National Population Commission (NPC), Abuja, Nigeria

- NPC - National Population Commission [Nigeria] and ICF - International. 2008. Nigerian Demographic Health Survey 2008. National Population Commission (NPC) and ICF International. Abuja, Nigeria.
- NPC - National Population Commission [Nigeria] and ICF - International. 2014. Nigerian Demographic Health Survey 2013. National Population Commission (NPC) and ICF International. Abuja, Nigeria. p 13, 38 – 43.
- Numeh, D. and Ejike, F., 2004. The role of NGOs in HIV/AIDS prevention in Nigeria. *Dialectical anthropology*, 28(3-4), pp.339-352.
- Nwokedi, V.C. and Itelima, J.U., 2003. Evaluation of Public Awareness and Attitude to Acquired Immune Deficiency Syndrome (Aids) in Kabong Village ward of Jos North Local Government Area of Plateau State, Nigeria.
- Nwokocha, E., Isiugo-Abanihe, I., Omololu, F., Isiugo-Abanihe, U. and Udegbe, B. 2015. Implementation of family life and HIV/AIDS education in Nigerian schools: a qualitative study on scope, delivery and challenges. *African journal of reproductive health*, 19(2), pp.63-78.
- Nzarga, F.D., 2016. Impediments to the domestication of Nigeria Child Rights Act by the states. *Research on Humanities and Social Sciences*, 6(9), pp.123-130.
- Oakes, J.M. and Kaufman, J.S. eds., 2017. *Methods in social epidemiology*. John Wiley and Sons.
- Obi S.N. 2006. Extramarital sexual activity among infertile women in southeast Nigeria. *Journal of Obstetrics and Gynecology, India*, 56:72–75,
- Obi, R.K., C.C. Okangba, F.C. Nwanebu, U.U. Ndubuisi, I.C. Mgbemene, and W. Braide. 2010. Relationship between HIV/AIDS and poverty: A case study of two cities in Abia State, Nigeria. *Nigerian Journal of Parasitology* 31(2).
- Obianuju, O.S., Obiajulu, A.N. and Ella, F.A., 2013. Science education for sustainable development in Nigeria: challenges and prospects. *Academic Journal of interdisciplinary studies*, 2(6), pp.159-159.
- Obidoa, C. A. and Cromley, R. G. 2012. A Geographical Analysis of HIV/AIDS Infection in Nigeria, 1991–2001. *Journal of Social, Behavioural, and Health Sciences* 6 (1s1): 13–29.
- Obidoa, C., 2005. Factors associated with HIV/AIDS sexual risk in unmarried women aged 15-24 in Nigeria. UCHC Graduate School Masters Theses. Paper 80. University of Connecticut. https://opencommons.uconn.edu/cgi/viewcontent.cgi?article=1079&context=uchcgs_masters Available from. [Accessed 04/2016]
- Obinna, C., 2005. Story that Touches the Heart: Why Prostitution rate is rising. *Vanguard (Saturday, December 31, 2005)*.
- Odigbo, B., Ogbu, S.U. and Ekemezie, L.I., 2017. Effect of Mass Media and Africa Traditional Media on HIV/Aids Prevention Social Marketing Campaigns in Nigeria. *International Review of Management and Business Research*, 6(2), p.462.
- Odimegwu, C., 2005. Influence of religion on adolescent sexual attitudes and behaviour among Nigerian university students: affiliation or commitment? *African journal of reproductive health*, pp.125-140.
- Odimegwu, C., Adedini, S.A. and Ononokpono, D.N., 2013. HIV/AIDS stigma and utilization of voluntary counselling and testing in Nigeria. *BMC Public Health*, 13(1), pp.1-14.

- Odimegwu, C.O., Akinyemi, J.O. and Alabi, O.O., 2017. HIV-stigma in Nigeria: review of research studies, policies, and Programmes. *AIDS research and treatment*, 2017
- Odumosu, O., Olaniyi, R. and Alonge, S., 2009. Mapping the activities of faith-based organizations in development in Nigeria.
- Odutolu, O., Ahonsi, B.A., Gboun, M. and Jolayemi, O.M., 2006. AIDS in Nigeria: A nation on the threshold'. Chapter 11: The National Response to HIV/AIDS. *Harvard Center for Population and Development Studies. Reuters Limited (2006, 14th March)'Nigeria opens, 41.*
- Ogbe, A.E., A.S. Sagay, G.E. Imade, J., Pam, V.C. Musa, D. Egah, V. Onwuliri, and R. Short. 2014. Declining Prevalence of HIV and other Sexually Transmitted Infections among Female Sex Workers in Jos, North-Central Nigeria. *African Journal of Medicine and Medical Sciences* 43(Suppl 1): p.5-13.
- Ogbo, F.A., Mogaji, A., Ogeleka, P., Agho, K.E., Idoko, J., Tule, T.Z. and Page, A., 2017. Assessment of provider-initiated HIV screening in Nigeria with sub-Saharan African comparison. *BMC health services research*, 17(1), pp.1-8.
- Ogbogu, I. and Idogho, O., 2006. The role of civil society organizations in HIV/AIDS control. *AIDS in Nigeria: a nation on the threshold*, 295, p.308.
- Ogbu, A. 2005. Nigeria: Dariye's LG Tops Aids Infection Chart. This Day Online Newspaper, 29th October 2005. Available from: <http://allafrica.com/stories/200510310498.html> [Accessed 27th January, 2016]
- Ogunbodede, E.O., 2004. HIV/AIDS situation in Africa. *International Dental Journal* . 54(6 Suppl 1), pp.352-60.
- Okafor, U.O., Crutzen, R., Aduak, Y., Adebajo, S. and Van den Borne, H.W., 2017. Behavioural interventions promoting condom use among female sex workers in sub-Saharan Africa: a systematic review. *African Journal of AIDS Research*, 16(3), pp.257-268.
- Okonkwo, U.U., 2019. Not Every Extramarital Sex Is Adultery: An Ethno-Historical Survey of the Igbo of South-eastern Nigeria. *Trames: A Journal of the Humanities and Social Sciences*, 23(1), pp.41-50.
- Okulate, G.T., Jones, O.B.E. and Olorunda, M.B., 2008. Condom use and other HIV risk issues among Nigerian soldiers: challenges for identifying peer educators. *AIDS care*, 20(8), pp.911-916.
- Oladeji, D. and Ayangunna, J.A., 2017. Media Influence as Predictors of Adolescent's Sexual Risky Behaviour in Nigeria. *MOJ Womens Health*, 5(1), p.00112.
- Oladejo, O. and Fayemi, M.M., 2011. Perceptions about sexual abstinence and knowledge of HIV/AIDS prevention among in-school adolescents in a western Nigerian city. *BMC public health*, 11(1), pp.1-10.
- Oladosu, R.O. and Ludin, A.N.B.M., 2018. Ethnic Distribution Structure in Violence-Induced Segregated Urban Environments. *International Journal of Applied Environmental Sciences*, 13(8), pp.717-730.
- Olaore, I.B. and Olaore, A.Y., 2014. Is HIV/AIDS a consequence or divine judgment? Implications for faith-based social services. A Nigerian faith-based university's study. *Sahara-J: Journal of Social Aspects of Hiv/Aids*, 11(1), pp.20-25.

- Olatunji, T., Adebayo, R. and Alhaji, M., 2019. Unprotected Sex among Sexually Active Unmarried Young Adults: A Pariah or Pre-emptive Incidence. *Journal of Diseases*, 6(2), pp.61-80.
- Olise, F.P., 2010. Information and communication technologies (ICTs) and sustainable development in Africa: Mainstreaming the millennium development goals (MDGs) into Nigeria's development agenda. *Journal of Social Sciences*, 24(3), pp.155-167.
- Olivier, J. and Wodon, Q., 2015. Religion, reproductive health, and sexual behaviour in Ghana: why statistics from large surveys don't tell the whole story. *The Review of Faith and International Affairs*, 13(2), pp.64-73.
- Olsen, W., 2004. Triangulation in social research: qualitative and quantitative methods can really be mixed. *Developments in sociology*, 20, pp.103-118.
- Olson, D.V., 2019. The Influence of Your Neighbours' Religions on You, Your Attitudes and Behaviours, and Your Community. *Sociology of Religion*, 80(2), pp.147-167.
- Oluduro, O., 1985. 25 years of highway mess. *Sunday Times*, p.20.
- Olukayode O. 1985. "When AIDS Debate Takes Over", *Daily Times*, Friday, December 13, , p.3.
- Ajayi, F. 1988. "AIDS: The Real Issues", *Daily Times*, Monday, April 11, 1988, p. 11, for similar positions.
- Ondimu, K.N., 2009. Labour migration and risky sexual behaviour: tea plantation workers in Kericho District, Kenya. In *Mobility, s, sexuality and AIDS* (pp. 170-183). Routledge.
- Onoja, A.M., J.A. Orkuma, A.I. Nwannadi, A.O. Ejele, and O.J. Egesie. 2015. Sero-epidemiology of Some Transfusion Transmissible Viral Infections in Jos, North-Central Nigeria. *Journal of Blood Lymphocytes* 5(142): 2
- Onovo, A., Kalaiwo, A., Katbi, M., Ogorry, O., Jaquet, A. and Keiser, O., 2020. Geographical Disparities in HIV Prevalence among Men Who Have Sex with Men and People Who Inject Drugs in Nigeria. *Available at SSRN 3517411*
- Onwe, O. J. 2014. Economic Management of Ethno-Religious Crises in Nigeria : A Strategic Model', *Singaporean Journal of Business, Economics and Management Studies*. doi: 10.12816/0006804.
- Onwuegbuzie, A.J. and Johnson, R.B. 2006. The validity issue in mixed research', *Research in the Schools*, Vol. 13, No. 1, pp.48-63.
- Onwuegbuzie, A.J. and Leech, N.L., 2005. On becoming a pragmatic researcher: The importance of combining quantitative and qualitative research methodologies. *International journal of social research methodology*, 8(5), pp.375-387.
- Oosterom, M. and Sha, D.P., 2019. Commissions of Inquiry in Plateau State, Nigeria. Institute of Development Studies Working Paper Volume 2019 No 531. Available from: https://opendocs.ids.ac.uk/opendocs/bitstream/handle/20.500.12413/14640/WP531_online.pdf?sequence=1and isAllowed=y [Retrieved 11/12/2020/]
- Orb, A., Eisenhauer, L. and Wynaden, D., 2001. Ethics in qualitative research. *Journal of nursing scholarship*, 33(1), pp.93-96.
- Orisaremi TC. 2013. Socio-cultural and economic determinants of poor utilization of health facilities for child delivery among the Tarok in North-central Nigeria. *African Journal of Medicine and Health Sciences* 12 (2): 60-67.

- Orisaremi, T.C., 2016. Gender, sexual health seeking behavior, and HIV/AIDS among Tarok Women in North-Central Nigeria. *Health care for women international*, 37(6), pp.687-704.
- Orji, N., 2011. Faith-based aid to people affected by conflict in Jos, Nigeria: An analysis of the role of Christian and Muslim organizations. *Journal of Refugee studies*, 24(3), pp.473-492.
- Orubuloye, I.O., 1990. *Experimental Research on Sexual Networking in the Ekiri District of Nigeria*. Australian National University, National Centre for Epidemiology and Population Health, Health Transition Centre.
- Orubuloye, I.O., Caldwell, J.C. and Caldwell, P., 1991. Sexual networking in the Ekiti District of Nigeria. *Studies in family planning*, 22(2), pp.61-73.
- Orubuloye, O., Caldwell, J.C. and Caldwell, P., 1997. Men's sexual behaviour in urban and rural southwest Nigeria: its cultural, social and attitudinal context. *Health Transition Review*, 7, pp.315-328.
- Osagbemi, M.O. and Adepetu, A.A., 2001. Gender differences in the reasons for participation in spouse sharing among the Okun in Nigeria. *African journal of reproductive health*, 5(2), pp.36-55.
- Osagbemi, M.O. and Jegede, A.S., 2001. Spouse Sharing Practice and Reproductive Health Promotion among the Okun People of Nigeria. *African Population Studies*, 16(2).
- Osagbemi, M.O., Adepetu, A.A., Nyong, A.O. and Jegede, A.S., 2007a. Spouse-sharing and experiences with sexually transmitted diseases among the Okun of Nigeria. *African population studies*, 22(2).
- Osagbemi, M.O., Joseph, B., Adepetu, A.A., Nyong, A.O. and Jegede, A.S., 2007b. Culture and HIV/AIDS in Africa: promoting reproductive health in light of spouse-sharing practice among the Okun people, Nigeria. *World health and population*, 9(2), pp.14-25.
- Osaretin, I. and Akov, E., 2013. Ethno-religious conflict and peace building in Nigeria: The case of Jos, Plateau State. *Academic Journal of Interdisciplinary Studies*, 2(1), pp.349-349.
- Osorio, A., Lopez-del Burgo, C., Ruiz-Canela, M., Carlos, S. and de Irala, J., 2015. Safe-sex belief and sexual risk behaviours among adolescents from three developing countries: a cross-sectional study. *BMJ open*, 5(4)
- Osuafor, G.N., Maputle, S., Ayiga, N. and Mturi, A.J., 2018. Condom use among married and cohabiting women and its implications for HIV infection in Mahikeng, South Africa. *Journal of Population Research*, 35(1), pp.41-65.c
- Osuafor, Godswill N., and Natal Ayiga. 2016. Risky sexual behaviour among married and cohabiting women and its implication for sexually transmitted infections in Mahikeng, South Africa." *Sexuality and Culture* 20, (4): 805-823.
- Otuka, C., 2011. Relationship between Poverty and Child Labour in Nasarawa State, Nigeria. *African Journal for the Psychological Study of Social Issues*, 14(2).
- Owolabi, A.T., Onayade, A.A., Ogunlola, I.O., Ogunniyi, S.O. and Kuti, O., 2005. Sexual behaviour of secondary school adolescents in Ilesa, Nigeria: implications for the spread of STIs including HIV/AIDS. *Journal of obstetrics and gynaecology*, 25(2), pp.174-178.

- Oyediran, K.A., Feyisetan, O.I. and Akpan, T., 2011. Predictors of condom-use among young never-married males in Nigeria. *Journal of health, population, and nutrition*, 29(3), p.273.
- Paden, J., 2015. Religion and Conflict in Nigeria. February Accessed June. Washington DC, USA US Institute of Peace, p.359.
- Pahucki, J., 2008. *Theology of Anticipation: A Constructive Study of CS Peirce*.
- Painter, J.E., Wingood, G.M., DiClemente, R.J., DePadilla, L.M. and Simpson-Robinson, L., 2012. College graduation reduces vulnerability to STIs/HIV among African-American young adult women. *Women's Health Issues*, 22(3), pp.e303-e310.
- Painter, T. M. 2005. Voluntary counselling and testing for couples: A high-leverage intervention for HIV/AIDS prevention in sub-Saharan Africa. *Social Science and Medicine*, 53, 1397–1411.
- Palinkas, L. A., Horwitz, S. M., Chamberlain, P., Hurlburt, M. S., and Landsverk, J. 2011. Mixed methods design in mental health services research: A review. *Psychiatric Services*, 62, 255–263.
- Palinkas, L.A., Horwitz, S.M., Green, C.A., Wisdom, J.P., Duan, N. and Hoagwood, K. 2015. Purposeful sampling for qualitative data collection and analysis in mixed method implementation research. *Administration and policy in mental health and mental health services research*, 42(5), pp.533-544.
- Pallant, J., 2016. *SPSS survival manual: descriptive statistic*.
- Palmer, D.A. and Wong, M., 2013. Clarifying the concept of spiritual capital. In *Conference on the Social Scientific Study of Religion, Chinese University of Hong Kong* (pp. 10-13).
- Pargament, K.I., 2001. *The psychology of religion and coping: Theory, research, practice*. Guilford press.
- Parikh, S.A., 2007. The political economy of marriage and HIV: the ABC approach, “safe” infidelity, and managing moral risk in Uganda. *American journal of public health*, 97(7), pp.1198-1208.
- Parker, R. and Aggleton, P., 2003. HIV and AIDS-related stigma and discrimination: a conceptual framework and implications for action. *Social science and medicine*, 57(1), pp.13-24.
- Parker, R., Easton, D. and Klein, C., 2000. Structural Barriers and Facilitators in HIV Prevention: A Review of International Research. *AIDS*, 14. S22-S32.
- Patel, P. and Tripodi, P., 2007. Peacekeepers, HIV and the role of masculinity in military behaviour. *International Peacekeeping*, 14(5), pp.584-598.
- Patel, P., Borkowf, C.B., Brooks, J.T., Lasry, A., Lansky, A. and Mermin, J. 2014. Estimating per-act HIV transmission risk: a systematic review. *AIDS (London, England)*, 28(10), p.1509.
- Pateman, T., 2011. Rural and urban areas: comparing lives using rural/urban classifications. *Regional trends*, 43(1), pp.11-86.
- Pathela, P., Blank, S., Sell, R.L. and Schillinger, J.A., 2006. The importance of both sexual behaviour and identity. *American Journal of Public Health*, 96(5), pp.765-765
- Patton, M.Q., 1990. *Qualitative evaluation and research methods*. SAGE Publications, inc.

- Pawelz, J., 2017, November. Researching gangs: How to reach hard-to-reach populations and negotiate tricky issues in the field. In *Forum Qualitative Sozialforschung/Forum: Qualitative Social Research* (Vol. 19, No. 1).
- Pearce, O. T., 1999. She will not be listened to in public: Perceptions among the Yoruba of infertility and childlessness in women. *Reproductive Health Matters*, 7(13), pp.69-79.
- Pearson, J., Muller, C. and Frisco, M.L., 2006. Parental involvement, family structure, and adolescent sexual decision-making. *Sociological Perspectives*, 49(1), pp.67-90.
- Peeters, M., Esu-Williams, E., Vergne, L., Montavon, C., Mulanga-Kabeya, C., Harry, T., Ibironke, A., Lesage, D., Patrel, D. and Delaporte, E., 2000. Predominance of subtype A and G HIV type 1 in Nigeria, with geographical differences in their distribution. *AIDS research and human retroviruses*, 16(4), pp.315-325.
- Peeters, M.; Gueye, A.; Mboup, S.; Bibollet-Ruche, F.; Ekaza, E.; Mulanga, C.; Ouedrago, R.; Gandji, R.; Mpele, P.; Dibanga, G.; Koumare, B. Saidou, M.; Esu-Williams, E.; Lombart, J.; Badombena, W.; Luo, N. Haesevelde, M. V.; and Delaporte, E. 1997. Geographical distribution of HIV-1 group O viruses in Africa. *AIDS* 11(4):493–498. Available from <http://journals.lww.com/aidsonline/pages/articleviewer.aspx?year=1997&issue=04000&article=00013&dtype=fulltext> [Accessed on the 24th January, 2016].
- Perrin, K.K. and DeJoy, S.B., 2003. Abstinence-only education: How we got here and where we're going. *Journal of public health policy*, 24(3), pp.445-459.
- Peter, J. and Valkenburg, P.M., 2011. The influence of sexually explicit internet material on sexual risk behavior: A comparison of adolescents and adults. *Journal of health communication*, 16(7), pp.750-765.
- Peterson, Z.D. and Muehlenhard, C.L., 2007. What is sex and why does it matter? A motivational approach to exploring individuals' definitions of sex. *Journal of Sex Research*, 44(3), pp.256-268.
- Pettifor, A.E., Van der Straten, A., Dunbar, M.S., Shiboski, S.C. and Padian, N.S., 2004. Early age of first sex: a risk factor for HIV infection among women in Zimbabwe. *AIDS (London, England)*, 18(10), pp.1435-1442.
- Pharr, J.R., Enejoh, V., O Mavegam, B., Olutola, A., Karick, H. and E Ezeanolue, E., 2018. A cross-sectional study of the role of HIV/AIDS knowledge in risky sexual behaviors of adolescents in Nigeria. *International Journal of High Risk Behaviors and Addiction*, 6(4).
- Pilcher, C.D., Tien, H.C., Eron, J.J., Vernazza, P.L., Leu, S.Y., Stewart, P.W., Goh, L.E. and Cohen, M.S., 2004. Brief but efficient: acute HIV infection and the sexual transmission of HIV. *Journal of Infectious Diseases*, 189(10), pp.1785-1792. *Journal of Infectious Diseases*, 189(10), pp.1785-1792.
- Pinkerton, S.D. and Abramson, P.R., 1997. Effectiveness of condoms in preventing HIV transmission. *Social science and medicine*, 44(9), pp.1303-1312
- Piot, P. et al., 2015. Defeating AIDS—advancing global health. *The Lancet*, 386(9989), pp.171–218. Available at: <http://dx.doi.org/10.1016/\nhttp://linkinghub.elsevier.com/retrieve/pii/S0140673615606584>.

- Piot, P., Bartos, M., Larson, H., Zewdie, D. and Mane, P., 2008. Coming to terms with complexity: a call to action for HIV prevention. *The Lancet*, 372(9641), pp.845-859.
- PLACA - Plateau State AIDS Control Agency. 2007. The secret behind the success of Plateau State Multi-Sectoral Approach to HIV and AIDS. Edited by Jinung, J.K and Gotodok, K.G. Plateau AIDS Control Agency (PLACA)
- PLACA -Plateau State AIDS Control Agency - (PLACA). 2009. Sero-epidemiology of Human Immunodeficiency Virus (HIV) in Plateau State. Publication of Plateau AIDS Control Agency, December, 2009.
- Plateau State Ministry of Health .2010. State Strategic Health Development Plan - 2010 – 2015. Plateau State Government, Nigeria. Available from: <http://www.mamaye.org/sites/default/files/evidence/PLATEAU05.01.2011.pdf> [Retrieved on the 7th June 2016]
- Poortinga, W., 2006a. Social relations or social capital? Individual and community health effects of bonding social capital. *Social science and medicine*, 63(1), pp.255-270.
- Poortinga, W., 2006b. Social relations or social capital? Individual and community health effects of bonding social capital. *Social science and medicine*, 63(1), pp.255-270.
- Poortinga, W., 2012. Community resilience and health: The role of bonding, bridging, and linking aspects of social capital. *Health and place*, 18(2), pp.286-295.
- Portes, A., 1998. Social capital: Its origins and applications in modern sociology. *Annual review of sociology*, 24(1), pp.1-24.
- Potterat, J.J., Muth, S.Q., Rothenberg, R.B., Zimmerman-Rogers, H., Green, D.L., Taylor, J.E., Bonney, M.S. and White, H.A., 2005. Sexual network structure as an indicator of epidemic phase. *Sexually transmitted infections*, 78(suppl 1), pp.i152-i158. available from: http://sti.bmj.com/content/78/suppl_1/i152.full.pdf+html [Retrieved on the 11th May, 2016].
- Poundstone, K.E., S. A. Strathdee, and D.D Celentano. 2004. The social epidemiology of human immunodeficiency virus/acquired immunodeficiency syndrome. *Epidemiologic reviews*, 26(1), pp.22-35. Available from: <https://academic.oup.com/epirev/article/26/1/22/384205> [Accessed 15 January, 2016]
- Power, A. and Willmot, H. 2007. Social capital within the neighbourhood, Centre for Analysis of Social Exclusion. Case Report 38, Prepared by the LSE, London, June
- Prandini, R., 2014. Family relations as social capital. *Journal of Comparative Family Studies*, 45(2), pp.221-234.
- Premium Times .2015. 63, 000 displaced persons taking refuge in Plateau — State Govt. Monday, 8th June, 2015. Available from <http://www.premiumtimesng.com/regional/north-central/184530-63-000-displaced-persons-taking-refuge-in-plateau-State-govt.html> [on the 31st March 2016]
- Preus, J.S., 1987. Explaining religion). New Haven, CT: Yale University Press. Psychological Association. p. 131
- Pronyk, P.M., Harpham, T., Morison, L.A., Hargreaves, J.R., Kim, J.C., Phetla, G., Watts, C.H. and Porter, J.D., 2008. Is social capital associated with HIV risk in rural South Africa?. *Social science and medicine*, 66(9), pp.1999-2010.
- Pulerwitz, J., Amaro, H., Jong, W.D., Gortmaker, S.L. and Rudd, R., 2002. Relationship power, condom use and HIV risk among women in the USA. *AIDS care*, 14(6), pp.789-800.

- Pulerwitz, J., Michaelis, A.P., Lippman, S.A., Chinaglia, M. and Diaz, J., 2008. HIV-related stigma, service utilization, and status disclosure among truck drivers crossing the Southern borders in Brazil. *AIDS care*, 20(7), pp.764-770.
- Pullum, T and Staveteig, S. 2017. DHS Methodological Reports 19: An Assessment of the Quality and Consistency of Age and Date Reporting in DHS Surveys, 2000-2015. USAIDS. ICF Rockville, Maryland, USA, August, 2017
- Putnam, R.D. and Leonardi, R., 1993. *Making democracy work: Civic traditions in modern Italy*. Princeton university press.
- Putnam, R.D., 2000. Bowling alone: America's declining social capital. In *Culture and politics* (pp. 223-234). Palgrave Macmillan, New York.
- Qian, M. and Jiang, J., 2021. COVID-19 and social distancing. *Journal of Public Health*, pp.1-3.
- Quddus, A.H.G., 2015. Behind the Myth of Puritan Bangladesh: Pre-and Extra Marital Sexual Reality Among Lower-Class Urban Men. *Journal of Comparative Family Studies*, 46(4), pp.451-466.
- Quinn, T.C. 2007. Circumcision and HIV transmission. *Current Opinion in Infectious Disease*. 20 (1):33-8.
- Rajaraman, V., 2018. Breakthroughs in Information and Communication Technologies Part I. *Resonance*, 23(7), pp.787-808.
- Rallis, S.F. and Rossman, G.B., 2012. *The research journey: Introduction to inquiry*. Guilford Press.
- Rambaut, A., Posada, D., Crandall, K.A. and Holmes, E.C., 2004. The causes and consequences of HIV evolution. *Nature Reviews Genetics*, 5(1), p.52.
- Randall, H.E. and Byers, E.S., 2003. What Is Sex? Students' definitions Of Having Sex, Sexual Partner, And Unfaithful Sexual Behaviour. *The Canadian Journal of Human Sexuality*, 12(2), p.87.
- Randolph, M.E., Pinkerton, S.D., Bogart, L.M., Cecil, H. and Abramson, P.R., 2007. Sexual pleasure and condom use. *Archives of sexual behavior*, 36(6), pp.844-848.
- Ranganathan, P. and Aggarwal, R., 2018. Study designs: Part 1—An overview and classification. *Perspectives in clinical research*, 9(4), p.184.
- Rao, D., Elshafei, A., Nguyen, M., Hatzenbuehler, M.L., Frey, S. and Go, V.F., 2019. A systematic review of multi-level stigma interventions: state of the science and future directions. *BMC medicine*, 17(1), pp.1-11.
- Rebbapragada, A. and Kaul, R., 2007. More than their sum in your parts: the mechanisms that underpin the mutually advantageous relationship between HIV and sexually transmitted infections. *Drug Discovery Today: Disease Mechanisms*, 4(4), pp.237-246.
- Rector, R., 2002. The Effectiveness of Abstinence Education Programs in Reducing Sexual Activity among Youth. The Heritage Foundation Backgrounder. Available from: <https://files.eric.ed.gov/fulltext/ED464977.pdf>. [Accessed 14/09/2018]
- Rediscovering Geography Committee and National Research Council, 1997. *Rediscovering geography: New relevance for science and society*. National Academies Press.
- Reeves, C. 2010. A difficult negotiation: Fieldwork relations with gatekeepers. *Qualitative Health Research*, 10, 315–331.

- Regan, P.C. and Dreyer, C.S., 1999. Lust? Love? Status? Young adults' motives for engaging in casual sex. *Journal of Psychology and Human Sexuality*, 11(1), pp.1-24.
- Regmi, P.R., Van Teijlingen, E., Mahato, P., Aryal, N., Jadhav, N., Simkhada, P., Syed Zahiruddin, Q. and Gaidhane, A. 2019. The health of Nepali migrants in India: A qualitative study of lifestyles and risks. *International Journal of Environmental Research and Public Health*, 16(19), p.3655.
- Rehle, T.M., Hallett, T.B., Shisana, O., Pillay-van Wyk, V., Zuma, K., Carrara, H. and Jooste, S., 2010. A decline in new HIV infections in South Africa: estimating HIV incidence from three national HIV surveys in 2002, 2005 and 2008. *PloS one*, 5(6).
- Relph, E., 1976. *Place and placelessness* (Vol. 67). London: Pion.
- Reniers, G., 2008. Marital strategies for regulating exposure to HIV. *Demography*, 45(2), pp.417-438
- Ridgeway, C.L., 2011. *Framed by gender: How gender inequality persists in the modern world*. Oxford University Press.
- Ridgeway, C.L., 2011. *Framed by gender: How gender inequality persists in the modern world*. Oxford University Press.
- Rigillo, N., 2009. Faith in god, but not in condoms: Churches and competing visions of HIV prevention in Namibia. *Canadian Journal of African Studies*, 43(1), pp.34-59.
- Risjord, M.W., Dunbar, S.B. and Moloney, M.F., 2002. A new foundation for methodological triangulation. *Journal of Nursing Scholarship*, 34(3), pp.269-275.
- Ritzer G. 2012. *Sociological theory* (8th edn). New York: McGraw-Hill
- Ritzer G. 2012. *Sociological theory* (8th edn). New York: McGraw-Hill
- Robards, J., Evandrou, M., Falkingham, J. and Vlachantoni, A., 2012. Marital status, health and mortality. *Maturitas*, 73(4), pp.295-299.
- Robson, C. and McCartan, K., 2016. *Real world research*. John Wiley and Sons.
- Rodger, A.J., Lodwick, R., Schechter, M., Deeks, S., Amin, J., Gilson, R., Paredes, R., Bakowska, E., Engsig, F.N. and Phillips, A., 2013. Mortality in well controlled HIV in the continuous antiretroviral therapy arms of the SMART and ESPRIT trials compared with the general population. *Aids*, 27(6), pp.973-979.
- Rodrigue, C., Blais, M., Lavoie, F., Adam, B.D., Goyer, M.F. and Magontier, C., 2018. Passion, intimacy, and commitment in casual sexual relationships in a Canadian sample of emerging adults. *The Journal of Sex Research*, 55(9), pp.1192-1205.
- Rodrigue, C., Blais, M., Lavoie, F., Adam, B.D., Goyer, M.F. and Magontier, C., 2018. Passion, intimacy, and commitment in casual sexual relationships in a Canadian sample of emerging adults. *The Journal of Sex Research*, 55(9), pp.1192-1205.
- Rodrigues, D.L., Prada, M. and Lopes, D., 2019. Perceived sexual self-control and condom use with primary and casual sex partners: age and relationship agreement differences in a Portuguese sample. *Psychology and health*, pp.1-19.
- Rodriguez-Hart, C., Bradley, C., German, D., Musci, R., Orazulike, I., Baral, S., Liu, H., Crowell, T.A., Charurat, M. and Nowak, R.G., 2018. The synergistic impact of sexual stigma and psychosocial well-being on HIV testing: a mixed-methods study among Nigerian men who have sex with men. *AIDS and Behaviour*, 22(12), pp.3905-3915.
- Rogers, E. 2003. *Diffusion of Innovations*. Fifth edition. Free Press: New York

- Rogers.,D.J., M. and Shaffer, N., 2000. Prevention of mother-to-child HIV transmission in resource-poor countries: translating research into policy and practice. *Jama*, 283(9), pp.1175-1182.
- Rolfe, G., 2006. Validity, trustworthiness and rigour: quality and the idea of qualitative research. *Journal of advanced nursing*, 53(3), pp.304-310.
- Romero-Daza, N. and Freidus, A., 2008. Female tourists, casual sex, and HIV risk in Costa Rica. *Qualitative sociology*, 31(2), pp.169-187.
- Roques, P., Menu, E., Narwa, R., Scarlatti, G., Tresoldi, E., Damond, F., Mauclore, P., Dormont, D., Chaouat, G., Simon, F. and Barre-Sinoussi, F., 1998. An unusual HIV type 1 env sequence embedded in a mosaic virus from Cameroon: identification of a new env clade. *AIDS research and human retroviruses*, 15(17), pp.1585-1589.
- Roques, P., Robertson, D.L., Souquière, S., Apetrei, C., Nerrienet, E., Barré-Sinoussi, F., Müller-Trutwin, M. and Simon, F., 2004. Phylogenetic characteristics of three new HIV-1 N strains and implications for the origin of group N. *Aids*, 18(10), pp.1371-1381.
- Roques, P., Robertson, D.L., Souquière, S., Apetrei, C., Nerrienet, E., Barré-Sinoussi, F., Müller-Trutwin, M. and Simon, F., 2004. Phylogenetic characteristics of three new HIV-1 N strains and implications for the origin of group N. *Aids*, 18(10), pp.1371-1381.
- Roques, P., Robertson, D.L., Souquiere, S., Damond, F., Ayouba, A., Farfara, I., Depienne, C., Nerrienet, E., Dormont, D., Brun-Vezinet, F. and Simon, F., 2002. Phylogenetic analysis of 49 newly derived HIV-1 group O strains: high viral diversity but no group M-like subtype structure. *Virology*, 302(2), pp.259-273.
- Rorty, R., 1999. Pragmatism as Anti-authoritarianism. *Revue internationale de philosophie*, 53(207 (1)), pp.7-20.
- Rorty, R., 2000. Pragmatism. *International Journal of psycho-analysis*, 81(4), pp.819-823.
- Rosenberg, M., 2016. Health geography II: 'Dividing' health geography. *Progress in Human Geography*, 40(4), pp.546-554.
- Rosengard, C., Adler, N.E., Gurvey, J.E. and Ellen, J.M., 2005. Adolescent partner-type experience: Psychosocial and behavioural differences. *Perspectives on Sexual and Reproductive Health*, 37(3), pp.141-147.
- Rosengard, C., Adler, N.E., Gurvey, J.E. and Ellen, J.M., 2005. Adolescent partner-type experience: Psychosocial and behavioural differences. *Perspectives on Sexual and Reproductive Health*, 37(3), pp.141-147.
- Ross, C.E. and Wu, C.L., 1995. The links between education and health. *American sociological review*, pp.719-745.
- Ross, M.W., Essien, E.J., Ekong, E., James, T.M., Amos, C., Ogungbade, G.O., Williams, M.L. 2006. The impact of a situationally focused individual human immunodeficiency virus/sexually transmitted disease risk reduction intervention on risk behaviour in a 1-year cohort of Nigerian military personnel. *Mil Med*: 171(10):970-5.
- Rothenberg, R., 2007. The relevance of social epidemiology in HIV/AIDS and drug abuse research. *American journal of preventive medicine*, 32(6), pp.S147-S153.
- Rotheram-Borus, M.J., Swendeman, D. and Chovnick, G., 2009. The past, present, and future of HIV prevention: integrating behavioural, biomedical, and structural intervention

- strategies for the next generation of HIV prevention. *Annual review of clinical psychology*, 5, pp.143-167.
- Røttingen, J.A., Cameron, D.W. and Garnett, G.P., 2001. A systematic review of the epidemiologic interactions between classic sexually transmitted diseases and HIV: how much really is known?. *Sexually transmitted diseases*, 28(10), pp.579-597.
- Rubenstein, J.M., 2013. The cultural landscape: An introduction to human geography. 11a.
- Rudloff, P. and Vinson, L.T., 2021. Surveys in communities divided by ethnicity and conflict: Challenges, possible solutions, and lessons learned from a survey in Jos, Nigeria. *Sociological Methods and Research*, p.0049124120986175.
- Rumun, A.J., 2014. Christian Region and Reproductive Health Behaviour: A Case Study of Youths in Makurdi Local Government Area. *Global Journal of Interdisciplinary Social Sciences*, 3(5), pp.10-15.
- Rutstein, S. O. and Staveteig, S. 2014. Making the Demographic and Health Surveys Wealth Index Comparable. A Paper Presented at the 27th IUSSP International Population Conference, 26-31 August 2013, BEXCO, Busan, Korea. ICF International, Measure DHS Calverton, Maryland, USA
- Rutstein, S.O. and Johnson, K., 2004. The DHS wealth index. DHS comparative reports no. 6. Calverton: ORC Macro. Available from: <https://dhsprogram.com/pubs/pdf/cr6/cr6.pdf> [Accessed 13/12/, 2019
- Rutstein, S.O. and Rojas, G., 2006. Guide to DHS statistics. *Calverton, MD: ORC Macro*, 38.
- Saddiq, A., Tolhurst, R., Lalloo, D. and Theobald, S., 2010. Promoting vulnerability or resilience to HIV? A qualitative study on polygamy in Maiduguri, Nigeria. *Aids Care*, 22(2), pp.146-151.
- Sadikov, E., Medina, M., Leskovec, J. and Garcia-Molina, H., 2011, February. Correcting for missing data in information cascades. In *Proceedings of the fourth ACM international conference on Web search and data mining* (pp. 55-64)
- Sagay, A.S., J. Musa, A.S. Adewole, G.E. Imade, C.C. Ekwempu, S. Kapiga, J.L. Sankale, J. Idoko, and P. Kanki. 2007. Rapid HIV testing and counselling in labour in a northern Nigeria setting. *African Journal of Reproductive Health* 10(1): 76-80.
- Saldaña, J., 2015. The coding manual for qualitative researchers. Sage.
- Sale, J.E., Lohfeld, L.H. and Brazil, K., 2002. Revisiting the quantitative-qualitative debate: Implications for mixed-methods research. *Quality and quantity*, 36(1), pp.43-53.
- Salim, S.A.K. and Gita, R. 1998. Anal sex and HIV transmission in women. *American Journal of Public Health*. 88(8), 1265–1266.
- Sanders, S.A. and Reinisch, J.M., 1999. Would you say you had sex if...?. *Jama*, 281(3), pp.275-277.
- Sangowawa, A.O. and Adebisi, A.O., 2013. Factors associated with sexual abstinence among out-of-school females in a transitional town in Oyo State, South-Western Nigeria. *Health care for women international*, 34(10), pp.917-932.
- Santelli, J., Ott, M.A., Lyon, M., Rogers, J., Summers, D. and Schleifer, R., 2006. Abstinence and abstinence-only education: A review of US policies and programs. *Journal of Adolescent health*, 38(1), pp.72-81.
- Santelli, J.S., Kantor, L.M., Grilo, S.A., Speizer, I.S., Lindberg, L.D., Heitel, J., Schalet, A.T., Lyon, M.E., Mason-Jones, A.J., McGovern, T. and Heck, C.J., 2017. Abstinence-

- only-until-marriage: An updated review of US policies and programs and their impact. *Journal of Adolescent Health*, 61(3), pp.273-280.
- Santelli, J.S., Speizer, I.S. and Edelstein, Z.R., 2013. Abstinence promotion under PEPFAR: The shifting focus of HIV prevention for youth. *Global public health*, 8(1), pp.1-12.
- Sapsford, R., 2006. *Survey research*. Sage.
- Sarafino, E.P. and Smith, T.W., 2014. *Health psychology: Biopsychosocial interactions*. John Wiley and Sons.
- Saunders, B., Sim, J., Kingstone, T., Baker, S., Waterfield, J., Bartlam, B., Burroughs, H. and Jinks, C., 2018. Saturation in qualitative research: exploring its conceptualization and operationalization. *Quality and quantity*, 52(4), pp.1893-1907.
- Saunders, M., Lewis, P., and Thornhill, A. 2019. *Research Methods for Business Students*. 8th Edition, England: Pearson Education Limited
- Sawyer, S.M., Afifi, R.A., Bearinger, L.H., Blakemore, S.J., Dick, B., Ezech, A.C. and Patton, G.C., 2012. Adolescence: a foundation for future health. *The lancet*, 379(9826), pp.1630-1640.
- Scambler, G., 1998. Stigma and disease: changing paradigms. *The Lancet*, 352(9133), pp.1054-1055
- Scambler, G., 2009. Health-related stigma. *Sociology of health and illness*, 31(3), pp.441-455.
- Schaefer, R., Gregson, S., Eaton, J.W., Mugurungi, O., Rhead, R., Takaruzza, A., Maswera, R. and Nyamukapa, C., 2017. Age-disparate relationships and HIV incidence in adolescent girls and young women: evidence from Zimbabwe. *AIDS (London, England)*, 31(10), p.1461.
- Schick, V.R., Rosenberger, J.G., Herbenick, D., Collazo, E., Sanders, S.A. and Reece, M., 2016. The behavioural definitions of “having sex with a man” and “having sex with a woman” identified by women who have engaged in sexual activity with both men and women. *The Journal of Sex Research*, 53(4-5), pp.578-587.
- Schmeck Jr, H.M., 1987. AIDS Drugs Offer Hope but Cure Remains Distant. *New York Times*, March 17, 1987
- Schneider, D.M., 1984. *A Critique of the Study of Kinship*. University of Michigan Press.
- Schneider, J.P., Irons, R.R. and Corley, M.D., 1999. Disclosure of extramarital sexual activities by sexually exploitative professionals and other persons with addictive or compulsive sexual disorders. *Journal of Sex Education and Therapy*, 24(4), pp.277-287.
- Schroder, K.E., Carey, M.P. and Vanable, P.A., 2003a. Methodological challenges in research on sexual risk behaviour: II. Accuracy of self-reports. *Annals of behavioural medicine*, 26(2), pp.104-123.
- Schroder, K.E., Carey, M.P. and Vanable, P.A., 2003b Methodological challenges in research on sexual risk behaviour: II. Accuracy of self-reports. *Annals of behavioural medicine*, 26(2), pp.104-123.
- Schuklenk, U. and Kleinsmidt, A., 2007. Rethinking mandatory HIV testing during pregnancy in areas with high HIV prevalence rates: ethical and policy issues. *American Journal of Public Health*, 97(7), pp.1179-1183.
- Schwandt, T.A., 2014. *The Sage dictionary of qualitative inquiry*. Sage publications.

- Scott, N., Crane, M., Lafontaine, M., Seale, H. and Currow, D., 2015. Stigma as a barrier to diagnosis of lung cancer: patient and general practitioner perspectives. *Primary health care research and development*, 16(6), pp.618-622.
- SEAL67, Fela Kuti- The dark side Sunday, August 06, 2006. Available from: <http://subliminalcodesintext.blogspot.com/2006/08/fela-kuti-dark-side.html> [accessed 12th July, 2018]
- Seamon, D. and Sowers, J., 2008. Place and placelessness (1976): Edward relph. *Key texts in human geography*, pp.43-52.
- Seckinelgin, H., 2006. The multiple worlds of NGOs and HIV/AIDS: Rethinking NGOs and their agency. *Journal of International Development*, 18(5), pp.715-727.
- Seedall, R.B., Houghtaling, A. and Wilkins, E.J., 2013. Disclosing extra-dyadic involvement (EDI): Understanding attitudes, subjective norms, and perceived behavioural control. *Contemporary Family Therapy*, 35(4), pp.745-759.
- Seidman S N, Monsher M D, and Aral S O. 1992. Women with multiple sexual partners: United States, 1988. *American Journal of Public Health*, 82(10):1388–1394, 1992.
- Sen, A., 2001. The many faces of gender inequality. *New republic*, pp.35-39.
- Serra, M.A.A., Milhomem, A.B., Oliveira, S.B., Santos, F.A.A., Costa, A.C.P., Cunha, M.D.C.S., Silva, A.U.A., Freitas, R.W.J. and Araújo, M.F.M., 2020. Sociodemographic and Behavioural Factors Associated with HIV Vulnerability according to Sexual Orientation. *AIDS Research and Treatment*, 2020.
- Serrant-Green, L., 2002. Black on black: Methodological issues for black researchers working in minority ethnic communities. *Nurse Researcher (through 2013)*, 9(4), p.30.
- Sewell Jr, W.H., 1992. A theory of structure: Duality, agency, and transformation. *American journal of sociology*, 98(1), pp.1-29. Sewell Jr, W.H., 1992. A theory of structure: Duality, agency, and transformation. *American journal of sociology*, 98(1), pp.1-29.
- Sewell, K.K., McGarrity, L.A. and Strassberg, D.S., 2017. Sexual behavior, definitions of sex, and the role of self-partner context among lesbian, gay, and bisexual adults. *The Journal of Sex Research*, 54(7), pp.825-831.
- Sexton, J., Garnett, G., Rottingen, J.A. 2005. Meta-analysis and meta-regression in interpreting study variability in the impact of sexually transmitted diseases on susceptibility to HIV infection. *Sexual Transmitted Disease*. 32(6):351-7
- Sha, P.D., 1998. Ethnicity and political conflicts in Jos: emergence, dimensions and the way forward. *Ethnic and Religious Rights in Nigeria Kaduna: Human Rights Monitor*.
- Shai, P.N., 2020. A Local Researcher's Experiences of the Insider–Outsider Position: An Exercise of Self-Reflexivity during Ethnographic GBV and HIV Prevention Research in South Africa. *International Journal of Qualitative Methods*, 19, p.1609406920938563.
- Shannon, K., Leiter, K., Phaladze, N., Hlanze, Z., Tsai, A.C., Heisler, M., Iacopino, V. and Weiser, S.D., 2012. Gender inequity norms are associated with increased male-perpetrated rape and sexual risks for HIV infection in Botswana and Swaziland. *PloS one*, 7(1), p.e28739.
- Shannon-Baker, P., 2016. Making paradigms meaningful in mixed methods research. *Journal of mixed methods research*, 10(4), pp.319-334.
- Sharp, P.M. and Hahn, B.H., 2011. Origins of HIV and the AIDS pandemic Cold spring Harbour perspectives in medicine. *Medicine*, 6, pp.8-41. Available from:

- Shaw, G.M. and Hunter, E., 2012. HIV transmission. *Cold Spring Harbor perspectives in medicine*, 2(11), p.a006965.
- Shaw, S.A. and El-Bassel, N., 2014. The influence of religion on sexual HIV risk. *AIDS and Behavior*, 18(8), pp.1569-1594.
- Shelton, J.D., 2007. Ten myths and one truth about generalised HIV epidemics. *The Lancet*, 370(9602), pp.1809-1811.
- Shelton, J.D., Halperin, D.T. and Wilson, D., 2006. Has global HIV incidence peaked?. *The Lancet*, 367(9517), pp.1120-1122.
- Shelton, J.D., Halperin, D.T., Nantulya, V., Potts, M., Gayle, H.D. and Holmes, K.K., 2004. Partner reduction is crucial for balanced “ABC” approach to HIV prevention. *Bmj*, 328(7444), pp.891-893.
- Short, S.E. and Mollborn, S., 2015. Social determinants and health behaviours: conceptual frames and empirical advances. *Current opinion in psychology*, 5, pp.78-84.
- Shukusky, J.A., 2013. *Hookups to romantic relationships: Sexual behaviors in various partnerships* (Doctoral dissertation, Rutgers University-Camden Graduate School).
- Sieving, R.E., Eisenberg, M.E., Pettingell, S. and Skay, C., 2006. Friends' influence on adolescents' first sexual intercourse. *Perspectives on sexual and reproductive health*, 38(1), pp.13-19.
- Silverman, D., 2013. *Doing qualitative research: A practical handbook*. Sage.
- Sim, J. and Sharp, K., 1998. A critical appraisal of the role of triangulation in nursing research. *International journal of nursing studies*, 35(1-2), pp.23-31.
- Simon, F., Maucière, P., Roques, P., Loussert-Ajaka, I., Müller-Trutwin, M.C., Saragosti, S., Georges-Courbot, M.C., Barré-Sinoussi, F. and Brun-Vézinet, F., 1998. Identification of a new human immunodeficiency virus type 1 distinct from group M and group O. *Nature medicine*, 4(9), p.1032.
- Simon, Viviana, David D. Ho, and Quarraisha Abdool Karim. "HIV/AIDS epidemiology, pathogenesis, prevention, and treatment." *The Lancet* 368, no. 9534 (2006): 489-504.
- Simpa, J.O., 2014. Poverty determinants among female-headed household rural farmers in Nasarawa State, Nigeria. *Production Agricultural Technology*, 10(1), pp.93-109.
- Sivaram, S., Zelaya, C., Srikrishnan, A.K., Latkin, C., Go, V.F., Solomon, S. and Celentano, D., 2010. Associations between social capital and HIV stigma in Chennai, India: considerations for prevention intervention design. *AIDS Education and Prevention*, 21(3), pp.233-250.
- Skovdal, M., Campbell, C., Madanhire, C., Mupambireyi, Z., Nyamukapa, C. and Gregson, S., 2011. Masculinity as a barrier to men's use of HIV services in Zimbabwe. *Globalization and health*, 7(1), p.13.
- Slap, G.B., Lot, L., Huang, B., Daniyam, C.A., Zink, T.M. and Succop, P.A., 2003. Sexual behaviour of adolescents in Nigeria: cross sectional survey of secondary school students. *Bmj*, 326(7379), p.15.
- Slavin, S., Batrouney, C. and Murphy, D., 2007. Fear appeals and treatment side-effects: an effective combination for HIV prevention?. *AIDS care*, 19(1), pp.130-137.
- Slymaker, E. and Buckner, B., 2004. Monitoring trends in sexual behaviour in Zambia, 1996–2003. *Sexually transmitted infections*, 80(suppl 2), pp.ii85-ii90.

- Slaymaker, E. and Zaba, B., 2003. Measurement of condom use as a risk factor for HIV infection. *Reproductive health matters*, 11(22), pp.174-184.
- Slaymaker, E., 2004. A critique of international indicators of sexual risk behaviour. *Sexually transmitted infections*, 80(suppl 2), pp.ii13-ii21.
- Slaymaker, E., Neff W., Basia, Z. and Martine, C. 2004. Unsafe sex. Comparative quantification of health risks: global and regional burden of disease attributable to selected major risk factors 2: 1177-1254.
- Smidt, C.E. ed., 2003. Introduction. In (ed.) by Smist, C.E: *Religion as social capital: Producing the common good*. Baylor University Press.pp 1-18.
- Smith, C.J. and Yang, X., 2005. Examining the connection between temporary migration and the spread of STDs and HIV/AIDS in China. *China Review*, pp.111-139.
- Smith, D. J. 2007. Modern marriage, men's extramarital sex, and HIV risk in Southeastern Nigeria', *American Journal of Public Health*, 97(6), pp. 997–1005. doi: 10.2105/AJPH.2006.088583.
- Smith, D.J., 2003. Imagining HIV/AIDS: Morality and perceptions of personal risk in Nigeria. *Medical anthropology*, 22(4), pp.343-372
- Smith, D.J., 2004a. Youth, sin and sex in Nigeria: Christianity and HIV/AIDS-related beliefs and behaviour among rural-urban migrants. *Culture, Health and Sexuality*, 6(5), pp.425-437.
- Smolak, A., 2010. Contextual factors influencing HIV risk behaviour in Central Asia. *Culture, health and sexuality*, 12(5), pp.515-527.
- Smith, D.J., 2004b. Premarital sex, procreation, and HIV risk in Nigeria. *Studies in Family Planning*, 35(4), pp.223-235.
- Smith, D.J., 2010a. Promiscuous girls, good wives, and cheating husbands: Gender inequality, transitions to marriage, and infidelity in southeastern Nigeria. *Anthropological quarterly*, 83(1).
- Smith, N., 2010b Economic inequality and poverty: where do we go from here?. *International Journal of Sociology and Social Policy*.
- Smith, S.M. 2009. Justification for human rights and the implications for HIV prevention. *Theology Today*, 66: 45–59.
- Smolak, A., 2010. Contextual factors influencing HIV risk behaviour in Central Asia. *Culture, health and sexuality*, 12(5), pp.515-527.
- Smurda, J.D., Wittig, M.A. and Gokalp, G., 2006. Effects of threat to a valued social identity on implicit self-esteem and discrimination. *Group Processes and Intergroup Relations*, 9(2), pp.181-197
- Somefun, O.D., 2019. Religiosity and sexual abstinence among Nigerian youths: does parent religion matter?. *BMC public health*, 19(1), p.416.
- Sompayrac, L.M., 2019. *How the immune system works*. John Wiley and Sons.
- Song, L., 2013. Social capital and health. In *Medical Sociology on the move* (pp. 233-257). Springer, Dordrech
- Soskolne, V. and Shtarkshall, R.A., 2002. Migration and HIV prevention programmes: linking structural factors, culture, and individual behaviour—an Israeli experience. *Social science and medicine*, 55(8), pp.1297-1307.
- Sovran, S., 2013. Understanding culture and HIV/AIDS in sub-Saharan Africa. *Sahara-J: Journal of Social Aspects of HIV/AIDS*, 10(1), pp.32-41.

- Speizer, I.S., Fotso, J.C., Davis, J.T., Saad, A. and Otai, J., 2013. Timing and circumstances of first sex among female and male youth from select urban areas of Nigeria, Kenya, and Senegal. *Journal of Adolescent Health*, 53(5), pp.609-616.
- Speizer, I.S., Fotso, J.C., Davis, J.T., Saad, A. and Otai, J., 2013. Timing and circumstances of first sex among female and male youth from select urban areas of Nigeria, Kenya, and Senegal. *Journal of Adolescent Health*, 53(5), pp.609-616.
- Spencer, G. and Doull, M., 2013. Examining concepts of power and agency in research with young people. *Journal of Youth Studies*, 18(7), pp.900-913.
- Spencer-Oatey, H. 2008. *Culturally Speaking. Culture, Communication and Politeness Theory: Continuum* (2nd edition), London.P 3.
- Spiegel, P.B., 2004. HIV/AIDS among conflict-affected and displaced populations: Dispelling myths and taking action. *Disasters*, 28(3), pp.322-339. Available from: <http://www.unhcr.org/4162693e4.pdf> [
- Spiegel, P.B., Bennedsen, A.R., Claass, J., Bruns, L., Patterson, N., Yiweza, D. and Schilperoord, M., 2007. Prevalence of HIV infection in conflict-affected and displaced people in seven sub-Saharan African countries: a systematic review. *The Lancet*, 369(9580), pp.2187-2195.
- Stake, R.E., 1995. *The art of case study research*. Sage .p 237.
- Stanger-Hall, K.F. and Hall, D.W., 2011. Abstinence-only education and teen pregnancy rates: Why we need comprehensive sex education in the US. *PloS one*, 6(10), p.e24658.
- Stangl, A.L. and Grossman, C.I., 2013. Global Action to reduce HIV stigma and discrimination. *Journal of the International AIDS Society*, 16(3Suppl 2).
- Stangl, A.L., Earnshaw, V.A., Logie, C.H., van Brakel, W., Simbayi, L.C., Barré, I. and Dovidio, J.F., 2019. The Health Stigma and Discrimination Framework: a global, crosscutting framework to inform research, intervention development, and policy on health-related stigmas. *BMC medicine*, 17(1), p.31.
- Steele, C.M. and Josephs, R.A. 1990. Alcohol myopia: Its prized and dangerous effects. *American Psychologist* 45 (8):921-933.
- Stephenson, R., 2010. Community-level gender equity and extramarital sexual risk-taking among married men in eight African countries. *International perspectives on sexual and reproductive health*, 36(4), p.178.
- Stevenson, H.C. and White, J.J., 1994. AIDS prevention struggles in ethnocultural neighbourhoods: why research partnerships with community based organizations can't wait. *AIDS Education and Prevention*.
- Stöckl, H., Kalra, N., Jacobi, J. and Watts, C., 2013. Is early sexual debut a risk factor for HIV infection among women in sub-Saharan Africa? A systematic review. *American Journal of Reproductive Immunology*, 69, pp.27-40.
- Stoebenau, K., Heise, L., Wamoyi, J. and Bobrova, N., 2016. Revisiting the understanding of “transactional sex” in sub-Saharan Africa: a review and synthesis of the literature. *Social Science and Medicine*, 168, pp.186-197.
- Strauss, A. and Corbin, J., 1998. *Basics of qualitative research techniques*. Thousand Oaks, CA: Sage publications.
- Strawbridge, W.J., Shema, S.J., Cohen, R.D. and Kaplan, G.A., 2001. Religious attendance increases survival by improving and maintaining good health behaviours, mental health, and social relationships. *Annals of Behavioural Medicine*, 23(1), pp.68-74.

- Sule, H.M., Agaba, P.A., Patrick, L.L. and Mshelia, A.A., 2016. Pattern of home-based care in human immunodeficiency virus-infected patients attending adult antiretroviral therapy clinic of Jos University Teaching Hospital, Nigeria: A review from September, 2008 to December, 2013.
- Sullivan, M.C., Rosen, A.O., Allen, A., Benbella, D., Camacho, G., Cortopassi, A.C., Driver, R., Ssenyonjo, J., Eaton, L.A. and Kalichman, S.C., 2020. Falling Short of the First 90: HIV Stigma and HIV Testing Research in the 90-90-90 Era. *AIDS and behaviour*.
- Sunmola, A.M., Dipeolu, M., Babalola, S. and Otu, A.D., 2002. Reproductive, sexual and contraceptive behaviour of adolescents in Niger State, Nigeria. *African Journal of Reproductive Health*, pp.82-92.
- Sylvia I. 2012. Mandatory premarital HIV testing policy in Nigeria: a gross violation of the rights of people living with HIV/AIDS, *The International Journal of Human Rights*, 16:3, 401-410, DOI: 10.1080/13642987.2011.566416
- Takakura, M., 2015. Relations of participation in organized activities to smoking and drinking among Japanese youth: contextual effects of structural social capital in high school. *International journal of public health*, 60(6), pp.679-689.
- Takyi, B. K. 2003. Religion and women's health in Ghana : insights into HIV / AIDs preventive and protective behaviour', 56, pp. 1221–1234.
- Tang, J., Gao, X., Yu, Y., Ahmed, N.I., Zhu, H., Wang, J. and Du, Y., 2011. Sexual knowledge, attitudes and behaviors among unmarried migrant female workers in China: a comparative analysis. *BMC public health*, 11(1), pp.1-7.
- Tashakkori A., Creswell J.W. 2007. Editorial: The new era of mixed methods. *Journal of Mixed Methods Research*; p 3.
- Tashakkori, A. and Teddlie, C. 2010. Overview of contemporary Issues in Mixed Methods Research. In (ed.) Tashakkori, A. and Teddlie, C. *Sage handbook of mixed methods in social and Behavioural research*; Sage.
- Tashakkori, A. and Teddlie, C., 2010. Putting the human back in “human research methodology”: The researcher in mixed methods research.
- Tashakkori, A., and Teddlie, C. 2003. *Handbook on mixed methods in the behavioural and social sciences*.
- Tashakkori, A., Teddlie, C. and Kervin, J., 2000. Mixed methodology: combining qualitative and quantitative approaches. *Relations Industrials*, 55(3), p.539.
- Tashakkori, A., Teddlie, C. and Kervin, J., 2000. Mixed methodology: combining qualitative and quantitative approaches. *Relations Industrials*, 55(3), p.539.
- Tashakkori, A., Teddlie, C. and Teddlie, C.B., 1998. *Mixed methodology: Combining qualitative and quantitative approaches* (Vol. 46). Sage
- Taukeni, S. and Ferreira, R., 2016. HIV and/or AIDS awareness among adolescents in a South African at-risk rural community. *Southern African journal of HIV medicine*, 17(1).
- Tawil, O., Verster, A., and O'Reilly, K. R. 1995. Enabling approaches for HIV/AIDS prevention: Can we modify the environment and minimize the risk? *AIDS*, 9(12), 1299–1306. <https://doi.org/10.1097/00002030-199512000-00001>
- Tayo, A.O. 2017. Fela Anikulapo-Kuti His death marked a turning point in HIV/AIDS awareness: Nigerians started taking HIV/AIDS seriously when Fela died. *Pulse*, published on 02.08.2017, refreshed on 07.08.2017. Available from:

- <https://www.pulse.ng/gist/felas-death-marked-a-turning-point-in-hiv-aids-awareness-id7083893.html> [12th July, 2018]
- Teachman, J. 2003. Premarital sex, premarital cohabitation, and the risk of subsequent marital dissolution among women', *Journal of Marriage and Family*. doi: 10.1111/j.1741-3737.2003.00444.x.
- Teddlie, C. and Tashakkori, A., 2009. *Foundations of mixed methods research: Integrating quantitative and qualitative approaches in the social and behavioural sciences*. Sage.
- Templeton, D. J. 2010. Male circumcision to reduce sexual transmission of HIV. *Current Opinion in HIV AIDS*. 5 (4):344-9.
- Tenkorang, E.Y., 2013. Myths and misconceptions about HIV transmission in Ghana: what are the drivers?. *Culture, health and sexuality*, 15(3), pp.296-310.
- Tenkorang, E.Y., Gyimah, S.O., Maticka-Tyndale, E. and Adjei, J., 2011. Superstition, witchcraft and HIV prevention in sub-Saharan Africa: the case of Ghana. *Culture, health and sexuality*, 13(9), pp.1001-1014.
- Terfa, A.A., 2011. Adolescents' prostitution and the educational prospects of the girl-child in Nigeria. *Global Perspectives on Prostitution and Sex Trafficking: Africa, Asia, Middle East, and Oceania*. Lanham, MD: Lexington Books, pp.17-30.
- Tesch, R., 2013. *Qualitative research: Analysis types and software*. Routledge.
- Thato, R. and Daengsaard, E., 2016. Determinants of behavior change intention among heterosexual Thai males diagnosed with sexually transmitted diseases. *AIDS patient care and STDs*, 30(11), pp.512-518.
- The DHS Program.2020. Demographic and Health Survey (DHS): DHS Overview.
- The UN Refugee Agency, WHO and UNAIDS. 2010. HIV and Internally Displaced Persons: UNAIDS, UNHCR and WHO POLICY BRIEF: 2–5. Available at: <http://www.unhcr.org/uk/protection/health/4e1467049/unhcr-policy-brief-hiv-internally-displaced-persons.html> [Access 22 May, 2016]
- Thorburn Bird, S. and Bogart, L.M., 2003. Birth control conspiracy beliefs, perceived discrimination, and contraception among African Americans: an exploratory study. *Journal of Health Psychology*, 8(2), pp.263-276.
- Thousand Oaks, CA: Sage.
- Thrasher, A.D., Earp, J.A.L., Golin, C.E. and Zimmer, C.R., 2008. Discrimination, distrust, and racial/ethnic disparities in antiretroviral therapy adherence among a national sample of HIV-infected patients. *JAIDS Journal of Acquired Immune Deficiency Syndromes*, 49(1), pp.84-93.
- Thu Vu, N.T., Maher, L. and Zablotska, I., 2013. Amphetamine-type stimulants and HIV infection among men who have sex with men: implications on HIV research and prevention from a systematic review and meta-analysis. *Journal of the International AIDS Society*, 18(1), p.19273.
- Thurmond, V.A., 2001. The point of triangulation. *Journal of nursing scholarship*, 33(3), pp.253-258.
- Tobi, H. and Kampen, J.K., 2018. Research design: the methodology for interdisciplinary research framework. *Quality and quantity*, 52(3), pp.1209-1225.
- Tran, T.D.H., Tuan, D.K., Anh, N.D., Le, T.K.A. and Bui, T.T.H., 2018. Premarital sex, contraceptive use among unmarried women migrant workers in industrial parks in Vietnam, 2015. *Health care for women international*, 39(4), pp.377-388.

- Trinitapoli, J., 2009. Religious teachings and influences on the ABCs of HIV prevention in Malawi. *Social science and medicine*, 69(2), pp.199-209.
- Trompeter, S.E., Bettencourt, R. and Barrett-Connor, E., 2012. Sexual activity and satisfaction in healthy community-dwelling older women. *The American journal of medicine*, 125(1), pp.37-43.
- Trotter, E.C. and Alderson, K.G., 2007. University students' definitions of having sex, sexual partner, and virginity loss: The influence of participant gender, sexual experience, and contextual factors. *Canadian Journal of Human Sexuality*, 16(1/2), p.11.
- Tsang, E.Y.H., Qiao, S., Wilkinson, J.S., Fung, A.L.C., Lipeleke, F. and Li, X., 2019. Multi-layered stigma and vulnerabilities for HIV infection and transmission: a qualitative study on male sex workers in Zimbabwe. *American journal of men's health*, 13(1), p.1557988318823883.
- Tsevat, D.G., Wiesenfeld, H.C., Parks, C. and Peipert, J.F., 2017. Sexually transmitted diseases and infertility. *American journal of obstetrics and gynaecology*, 216(1), pp.1-9.
- Tun, A.A. and Del Carmen, A.V., 2018. HIV/AIDS Awareness Campaign through Sports in Yangon: The Pioneering Service-Learning Program of Dagon University, Myanmar. In SHS Web of Conferences (Vol. 59, p. 01004). EDP Sciences.
- Turčínková, J. and Stávková, J., 2012. Does the Attained Level of Education Affect the Income Situation of Households?. *Procedia-Social and Behavioural Sciences*, 55, pp.1036-1042.
- Tyler, I., 2018. Resituating Erving Goffman: From stigma power to black power. *The Sociological Review*, 66(4), pp.744-765.
- U.N., 2015. The Beijing declaration and platform for action turns 20: Beijing+5 Political Declaration and Outcome. Available from: https://www.unwomen.org/-/media/headquarters/attachments/sections/csw/pfa_e_final_web.pdf?la=en&vs=1203 [Accessed on the 10/05/2019]
- Udegbe, B.I., Fayehun, F., Isiugo-Abanihe, U.C., Nwagwu, W., Isiugo-Abanihe, I. and Nwokocha, E., 2015. Evaluation of the implementation of family life and HIV education programme in Nigeria. *African Journal of reproductive health*, 19(2), pp.79-92.
- Udry, J.R., 2000. Biological limits of gender construction. *American Sociological Review*, pp.443-457.
- Umeobi, J., 2013. Ethnicity and Religious Violence in Nigeria. Doctoral dissertation, University of the West.p.343
- Umeobi, J., 2013. *Ethnicity and Religious Violence in Nigeria*: Doctoral dissertation, University of the West.
- UNAID .2008. Evidence for HIV Decline in Zimbabwe: A Comprehensive Review of the Epidemiological Data.Geneva: UNAIDS
- UNAIDS .2014a. UNAIDS and the Global Fund express deep concern about the impact of a new law affecting the AIDS response and human rights of LGBT people in Nigeria,January 14th 2014. Available from: http://www.unaids.org/sites/default/files/web_story/20140114_PS_Nigeria_Bill_en_0.pdf [Accessed 24th January, 2016]
- UNAIDS .2014b.The Gap Report. Geneva, UNAIDS, 123 ;Switzerland: 123. Available from: <http://www.unaids.org/sites/default/files/en/media/unaids/contentassets/documents/>

- unaidspublication/2014/UNAIDS_Gap_report_en.pdf [Accessed 7th December, 2015].
- UNAIDS .2015a. How AIDS has Change everything: Fact Sheet 2015 Global Statistics. http://www.unaids.org/sites/default/files/media_asset/20150714_FS_MDG6_Report_en.pdf [Accessed August 21, 2015].
- UNAIDS .2015b. How AIDS has Change everything: MDG 6 15; YEARS, 15 LESSONS OF Hope from the AIDS Response. United Nations Joint Programme on HIV/AIDS. Geneva, Switzerland. P 63, 98 – 150. Available at: http://www.unaids.org/sites/default/files/media_asset/MDG6Report_en.pdf. (Accessed August 19, 2015).
- UNAIDS .2015d. World AIDS Day: AIDS by the Numbers 2015. Available from: <http://www.unaids.org/en/resources/campaigns/HowAIDSchangedeverything/factsheet> [Accessed 20th December, 2015].
- UNAIDS .2016a. Agenda for zero discrimination in healthcare. Available from: <http://www.unaids.org/en/resources/documents/2017/2017-agenda-zero-discrimination-health-care>. Retrieved on the 18/05/2018.
- UNAIDS 2013.President Goodluck Jonathan urges all Nigerians to "Take Charge" and take an HIV test. Available from: <http://www.unaids.org/en/resources/presscentre/featurestories/2013/december/20131201nigeria>[Accessed 24th January, 2016]
- UNAIDS 2015f. World must drastically accelerate AIDS efforts or face more HIV infections and deaths than five years ago — says UNAIDS and Lancet Commission.
- UNAIDS and Lancet Commission .2015. Press Release: Defeating AIDS –Advancing global Health. On Thursday, 25 June 2015, London. Available from: <http://www.un.org/apps/news/story.asp?NewsID=51247#.ViuPDisWOWg> [Accessed 6th December, 2015].
- UNAIDS and WHO. 2009 AIDS epidemic update. UNAIDS/WHO, Geneva, Switzerland, Nov. 2009.
- UNAIDS, 2012. Report on the Global HIV epidemic. , (July).
- UNAIDS. 2009. Partnership with Faith-based Organizations UNAIDS Strategic Framework. Geneva, Switzerland: NAIDS.
- UNAIDS. 2010. Combination HIV prevention: tailoring and coordinating biomedical, behavioural and structural strategies to reduce new HIV infections. Geneva: UNAIDS. Available from: http://files.unaids.org/en/media/unaids/contentassets/documents/unaidspublication/2011/201111110_JC2007_Combination_Prevention_paper_en.pdf [Retrieved on the 29th July 2016].
- UNAIDS. 2014b. The Gap Report. Geneva, UNAIDS, 123; Switzerland: 123. Available from: http://www.unaids.org/sites/default/files/en/media/unaids/contentassets/documents/unaidspublication/2014/UNAIDS_Gap_report_en.pdf [Accessed 7th December, 2015].
- UNAIDS. 2014d. Epidemiology Fact Sheet on HIV and AIDS in Nigeria. Available from: <http://www.unaids.org/sites/default/files/epidocuments/NGA.pdf>

- UNAIDS. 2014e Nigerian: Country Factsheets HIV and AIDS Estimates 2014. Available at: <http://www.unaids.org/en/regionscountries/countries/nigeria/> [Accessed August 20, 2015].
- UNAIDS. 2014f. The Gap Report. Geneva, UNAIDS, 123; Switzerland: 123. Available from: http://www.unaids.org/sites/default/files/en/media/unaids/contentassets/documents/unaidspublication/2014/UNAIDS_Gap_report_en.pdf [Accessed 7th December, 2015].
- UNAIDS. 2014g. HIV Treatment in Africa: A Looming Crisis. JC2752. Geneva, Switzerland. P1 -2.
- UNAIDS. 2015e. World must drastically accelerate AIDS efforts or face more HIV infections and deaths than five years ago — says UNAIDS and Lancet Commission
- UNAIDS. 2016b. Fast-track Cities: Cities Ending the AIDS Epidemic. Joint United Nations Programme on HIV/AIDS (UNAIDS), UNAIDS / JC2846
- UNAIDS. 2017. Confronting discrimination: overcoming HIV-related stigma and discrimination in health-care settings and beyond. https://www.unaids.org/sites/default/files/media_asset/confronting-discrimination_en.pdf
- UNAIDS. 2020b. HIV Progression. AIDInfo Available from: <https://aidsinfo.nih.gov/understanding-hiv-aids/fact-sheets/19/46/the-stages-of-hiv-infection>, 2018
- UNAIDS. 2020a. Fact Sheet: World AIDS Day 2020 Global HIV Statistics Available from: https://www.unaids.org/sites/default/files/media_asset/UNAIDS_FactSheet_en.pdf. [Retrieved on the December 05/01/2021]
- UNAIDS-Lancet Commission. 2015. London meeting discussion paper. AIDS post-2015: a catalyst for convergence and results. Geneva: Joint United Nations Programme on HIV/AIDS, 2014. Available from: http://www.unaids.org/sites/default/files/media/20150528DiscussionPaper_2016-2021_CRP1.pdf [Accessed 25/01/ 2017]
- Underhill, K., Montgomery, P. and Operario, D., 2007a. Sexual abstinence only programmes to prevent HIV infection in high income countries: systematic review. *Bmj*, 335(7613), p.248.
- Underhill, K., Operario, D. and Montgomery, P., 2007b. Abstinence-only programs for HIV infection prevention in high-income countries. *Cochrane Database of Systematic Reviews*, (4).
- UNDP and FGN. 2015. Nigeria 2015 Millennium Development Goals End-Point Report. September, 205.
- UNESCO .2003. Definition from UNESCO's Gender Mainstreaming Implementation Framework, Baseline definitions of key concepts and terms, April 2003; p.1 Available from: <http://portal.unesco.org/es/files/11483/10649049699Definitions.doc/Definitions.doc> [Accessed on the 12/12/2019].
- UNESCO .2003a. Definition from UNESCO's Gender Mainstreaming Implementation Framework, Baseline definitions of key concepts and terms, April 2003; p.1 Available from:

- <http://portal.unesco.org/es/files/11483/10649049699Definitions.doc/Definitions.doc> [Accessed on the 12/12/2019].
- UNICEF Staff, 2011. *The state of the world's children 2011-executive summary: Adolescence an age of opportunity*. UNICEF.
- United Nations. 2000. Millennium summit goals. New York: United Nations.
- UNODC. 2012. Global Report on Trafficking in Person 2012. United Nations Office on Drugs and Crime, Vienna.
- USAID. 2003. Sexual Behaviour, HIV and Fertility Trends: A comparative analysis of Six Countries; Phase I of the ABC Study.
- USAID. 2015. Technical Issue Brief: The Female Condom is safe and Effective.
- Utulu, S.N. and Lawoyin, T.O., 2007. Epidemiological features of HIV infection among pregnant women in Makurdi, Benue State, Nigeria. *Journal of Biosocial Science*, 39(3), pp.397-408.
- Uzokwe, A.O., 2008. Prostitution in Nigerian University Campuses (part1). *Nigerian World (Monday)*.
- Vallari, A., Holzmayer, V., Harris, B., Yamaguchi, J., Ngansop, C., Makamche, F., Mbanya, D., Kaptué, L., Ndembi, N., Gürtler, L. and Devare, S., 2011. Confirmation of putative HIV-1 group P in Cameroon. *Journal of virology*, 85(3), pp.1403-1407.
- Van De Bongardt, D., De Graaf, H., Reitz, E. and Deković, M., 2014. Parents as moderators of longitudinal associations between sexual peer norms and Dutch adolescents' sexual initiation and intention. *Journal of Adolescent Health*, 55(3), pp.388-393.
- van Rooyen, M., 2013. Structure and agency in news translation: An application of Anthony Giddens' structuration theory. *Southern African linguistics and applied language studies*, 31(4), pp.495-506.
- Vandemoortele, Jan, and Enrique Delamonica. 2000. The 'education vaccine 'against HIV.'" *Current issues in comparative education* 3 (1): 6-13.
- Vanderstoep, S.W. and Johnston, D.D., 2009. Methods for everyday life blending qualitative and quantitative approaches. *San Francisco: Jossey-Bass. Wicklund, RA, and Duval, S.(1971). Opinion change and performance facilitation as a result of objective self-awareness. Journal of Experimental Social Psychology*, 7, pp.319-342.
- Vanguard News. 2011. Increased HIV prevalence caused by crises – Official. Monday, 8th August, 2011. Available from: Read more at: <http://www.vanguardngr.com/2011/08/increased-hiv-prevalence-caused-by-crises-official/> [Retrieved on the 22nd February, 2016].
- Varghese, B., Maher, J.E., Peterman, T.A., Branson, B.M. and Steketee, R.W., 2002. Reducing the risk of sexual HIV transmission: quantifying the per-act risk for HIV on the basis of choice of partner, sex act, and condom use. *Sexually transmitted diseases*, 29(1), pp.38-43.
- Vathesatogkit, P., Sritara, P., Kimman, M., Hengprasith, B., E-Shyong, T., Wee, H.L. and Woodward, M., 2012. Associations of lifestyle factors, disease history and awareness with health-related quality of life in a Thai population. *PloS one*, 7(11).
- Vearey, J., Palmary, I., Thomas, L., Nunez, L. and Drimie, S., 2010. Urban health in Johannesburg: the importance of place in understanding intra-urban inequalities in a context of migration and HIV. *Health and place*, 16(4), pp.694-702.

- Villalonga-Olives, E. and Kawachi, I. 2017. The dark side of social capital: A systematic review of the negative health effects of social capital', *Social Science and Medicine*. Elsevier, 194(April), pp. 105–127.
- Villalonga-Olives, E. and Kawachi, I., 2015. The measurement of social capital. *Gaceta sanitaria*, 29, pp.62-64.
- von dem Knesebeck, O., 2015. Concepts of social epidemiology in health services research. *BMC health services research*, 15(1), pp.1-4.
- Vu, L., Adebajo, S., Tun, W., Sheehy, M., Karlyn, A., Njab, J., Azeez, A. and Ahonsi, B., 2013. High HIV prevalence among men who have sex with men in Nigeria: implications for combination prevention. *JAIDS Journal of Acquired Immune Deficiency Syndromes*, 63(2), pp.221-227.
- Wacquant, L. J. D. 1998. 'Negative social capital: State breakdown and social destitution in America's urban core', *Journal of Housing and the Built Environment*. doi: 10.1007/bf02496932.
- Wade Taylor, S., O'Cleirigh, C., Mayer, K.H. and Safren, S.A., 2013. HIV-infected men who have sex with men who engage in very high levels of transmission risk behaviours: establishing a context for novel prevention interventions. *Psychology, health and medicine*, 18(5), pp.576-587.
- Wald, A., and Link, K. 2002. Risk of human immunodeficiency virus infection in herpes simplex virus type 2-seropositive persons: A meta-analysis. *Journal of Infectious Disease*. 85(1):45-52.
- Walque, D., Nakiyingi-Miir, J.S., Busingye, J. and Whitworth, J.A., 2005. Changing association between schooling levels and HIV-1 infection over 11 years in a rural population cohort in south-west Uganda. *Tropical medicine and international health*, 10(10), pp.993-1001.
- Wamoyi, J., Stobeanu, K., Bobrova, N., Abramsky, T. and Watts, C., 2016. Transactional sex and risk for HIV infection in Sub-Saharan Africa: a systematic review and meta-analysis. *Journal of the international AIDS society*, 19(1), p.20992.
- Wamoyi, J., Wight, D., Plummer, M., Mshana, G.H. and Ross, D., 2010. Transactional sex amongst young people in rural northern Tanzania: an ethnography of young women's motivations and negotiation. *Reproductive health*, 7(1), p.2.
- Wang, Z., Yang, L., Jiang, H., Huang, S., Palmer, A.E., Ma, L. and Lau, J.T., 2019. High prevalence of inconsistent condom use with regular female sex partners among heterosexual male sexually transmitted disease patients in Southern China. *Journal of sex and marital therapy*, 45(1), pp.31-43.
- Watts, J., 2006. 'The outsider within': dilemmas of qualitative feminist research within a culture of resistance. *Qualitative research*, 6(3), pp.385-402.
- Wawer, M.J., Reynolds, S.J., Serwadda, D., Kigozi, G., Kiwanuka, N., and Gray, R.H. 2005. Might male circumcision be more protective against HIV in the highly exposed? An immunological hypothesis. *AIDS*. 19(18):2181-2.
- Webb, E. J. , Campbell, D. T. , Schwartz, R. D. and Sechrest, L. 1966. *Unobtrusive Measures: Non-Reactive Research in the Social Sciences*. Chicago: Rand McNally.
- Weinhardt, L.S., Carey, M.P., Maisto, S.A., Carey, K.B., Cohen, M.M. and Wickramasinghe, S.M., 1998. Reliability of the timeline follow-back sexual behaviour interview. *Annals of Behavioural Medicine*, 20(1), pp.25-30.

- Weir, S.S., Pailman, C., Mahlalela, X., Coetzee, N., Meidany, F. and Boerma, J.T., 2003. From people to places: focusing AIDS prevention efforts where it matters most. *Aids*, 17(6), pp.895-903.
- Weller, S.C. and Davis-Beaty, K., 2002. Condom effectiveness in reducing heterosexual HIV transmission. *Cochrane database of systematic reviews*, (1).
- Whitaker, D.J. and Miller, K.S., 2000. Parent-adolescent discussions about sex and condoms: Impact on peer influences of sexual risk behaviour. *Journal of Adolescent research*, 15(2), pp.251-273.
- White, M., Adams, J. and Heywood, P., 2009. How and why do interventions that increase health overall widen inequalities within populations
- White, R., Cleland, J. and Caraël, M., 2000. Links between premarital sexual behaviour and extramarital intercourse: a multi-site analysis. *Aids*, 14(15), pp.2323-2331.
- Whiteside, A., 2002. Poverty and HIV/AIDS in Africa. *Third world quarterly*, 23(2), pp.313-332.
- Whiteside, A., A. De Waal, and T. Gebre-Tensae. 2006. AIDS, security and the military in Africa: a sober appraisal. *African Affairs*, 105(419), pp.201-218. Available from: <http://afraf.oxfordjournals.org/content/105/419/201.full.pdf+html> [Accessed 03 August, 2016].
- WHO - World Health Organization. 2020. WHO reveals leading causes of death and disability worldwide: 2000-2019. Available from: <https://www.who.int/news/item/09-12-2020-who-reveals-leading-causes-of-death-and-disability-worldwide-2000-2019> [Retrieved on the December 21/12/2020].
- WHO - World Health Organization-(). 2000. The world health report 2000: health systems: improving performance. World Health Organization.
- WHO - World Health Organization-(). 2001. The world health report 2000: health systems: improving performance. World Health Organization.
- WHO - World Health Organization-(WHO). 2006. The African regional health report: The health of the people. Geneva: WHO.
- WHO - World Health Organization-(WHO). 2013. Sixty-sixth World Health Assembly Resolution on eHealth Standardization and Interoperability (WHA66.24). Retrieved 10 January 2014 from Geneva, Switzerland: http://apps.who.int/gb/ebwha/pdf_files/WHA66/A66_R24-en.pdf
- WHO - World Health Organization-(WHO). 2016. Global health sector strategy on HIV 2016-2021. Towards ending AIDS (No. WHO/HIV/2016.05). World Health Organization.
- WHO .2014. Atlas of African Health Statistics 2014: Health Situation Analysis of the African Region. MLM: WA 900.1. pp 1 - 10, 54 – 62, 78 - 87, 120 – 124
- WHO -World Health Organization, 2015. Global health sector response to HIV, 2000-2015: focus on innovations in Africa: progress report. Available from: http://apps.who.int/iris/bitstream/10665/198148/1/WHO_HIV_2015.40_eng.pdf [Retrieved on the 29th July 2016].
- WHO, 2019. Gender. April 2019. Available from: <https://www.who.int/health-topics/gender#tab=overview> [Accessed on the 12/12/2019]
- WHO. World Health Organization .2014. Atlas of African Health Statistics 2014: Health Situation Analysis of the African Region. MLM: WA 900.1. pp 1 - 10, 54 – 62, 78 - 87, 120 – 124

- Wiersma, E.C., 2008. The experiences of place: Veterans with dementia making meaning of their environments. *Health and Place*, 14(4), pp.779-794.
- Wiggins, B. J. 2011. Confronting the dilemma of mixed methods. *Journal of Theoretical and Philosophical Psychology*, 31, 44–60.
- Williams, C., 2007. Research Methods, *Journal of Business and Economic Research*–March 2007 Volume 5, Number 3.
- Williams, D.R. and Stewart, S.I., 1998. Sense of place: An elusive concept that is finding a home in ecosystem management. *Journal of forestry*, 96(5), pp.18-23.
- Williams, K. and Umberson, D., 2004. Marital status, marital transitions, and health: A gendered life course perspective. *Journal of Health and Social behaviour*, 45(1), pp.81-98.
- Wilson, E. K. et al. 2010. Parents’ Perspectives on Talking to Preteenage Children About Sex’, *Perspectives on Sexual and Reproductive Health*. doi: 10.1363/4205610.
- Wilson, K., 2003. Therapeutic landscapes and First Nations peoples: an exploration of culture, health and place. *Health and place*, 9(2), pp.83-93.
- Wingood, G.M. and DiClemente, R.J., 2000. Application of the theory of gender and power to examine HIV-related exposures, risk factors, and effective interventions for women. *Health education and behaviour*, 27(5), pp.539-565.
- Winkleby, M.A., Jatulis, D.E., Frank, E. and Fortmann, S.P., 1992. Socioeconomic status and health: how education, income, and occupation contribute to risk factors for cardiovascular disease. *American journal of public health*, 82(6), pp.816-820.
- Wolcott, H.F., 1998. *Transforming qualitative data: Description, analysis, and interpretation*. Sage.
- Wolffers, I., 2000. Biomedical and development paradigms in AIDS prevention. *Bulletin of the World Health Organization*, 78, pp.264-273.
- Woolcock, M. and Narayan, D. 2000. ‘Social Capital: Implications for Development Theory, Research, and Policy’, *The World Bank Research Observer*. doi: 10.1093/wbro/15.2.225.
- Woolley, N.O. and Macinko, J., 2019. Association between sociodemographic characteristics and sexual behaviours among a nationally representative sample of adolescent students in Brazil.
- Workowski, K.A. and Bolan, G.A., 2015. Sexually transmitted diseases treatment guidelines, 2015. *MMWR. Recommendations and reports: Morbidity and mortality weekly report. Recommendations and reports*, 64(RR-03), p.1.
- World Bank, 2018. *World development report 2019: The changing nature of work*.
- World Bank. 2002. *Project Appraisal Document on a proposed: Nigeria - Second Health Systems Development Project*. Federal Republic of Nigeria and World Bank. Report No: 21582 UNI. Available from: <http://documents.worldbank.org/curated/en/485151468758158188/Nigeria-Second-Health-Systems-Development-Project> [Retrieved on the 18/01/20202]
- World Bank. 2002. *World Development Report 1993: Investing in Health*. Oxford: Oxford University Press.
- World Bank. 2002. *World Development Report 1993: Investing in Health*. Oxford: Oxford University Press.

- World Bank. 2019. World development report 2019: Learning to Realise Education's Promise. Available from: <https://www.iri.edu.ar/wp-content/uploads/2018/07/ri-54-SG-doc-BM-World-Development-Report-2018-Learning-to-Realize-Educations-Promise.pdf> [Retrieved on the 12/10/2020]
- Worobey, M., Gemmel, M., Teuwen, D.E., Haselkorn, T., Kunstman, K., Bunce, M., Muyembe, J.J., Kabongo, J.M.M., Kalengayi, R.M., Van Marck, E. and Gilbert, M.T.P., 2008. Direct evidence of extensive diversity of HIV-1 in Kinshasa by 1960. *Nature*, 455(7213), pp.661-664.
- Wright, P.J., Sun, C. and Miezian, E., 2019. Individual differences in women's pornography use, perceptions of pornography, and unprotected sex: Preliminary results from South Korea. *Personality and Individual Differences*, 141, pp.107-110.
- Wu, W., Yan, X., Zhang, X., Goldsamt, L., Chi, Y., Huang, D. and Li, X., 2020. Potential HIV transmission risk among spouses: marriage intention and expected extramarital male-to-male sex among single men who have sex with men in Hunan, China. *Sexually transmitted infections*, 96(2), pp.151-156.
- Wusu, O. 2011. Sexual Health Content of Mass Media in Nigeria: An Exploratory Study. *Journal of Health and Mass Communication*, 3(1-4), p.158-169
- Wusu, O., 2013. Exposure to media content and sexual health behaviour among adolescents in Lagos metropolis, Nigeria. *African journal of reproductive health*, 17(2), pp.157-168.
- Xu, H., Mberu, B.U., Goldberg, R.E. and Luke, N., 2013. Dimensions of rural-to-urban migration and premarital pregnancy in Kenya. *The annals of the American academy of political and social science*, 648(1), pp.104-119.
- Yaya, S. and Bishwajit, G., 2018. Age at first sexual intercourse and multiple sexual partnerships among women in Nigeria: A cross-sectional analysis. *Frontiers in medicine*, 5, p.171.
- Yeganeh, H., Su, Z. and Chrysostome, E.V.M., 2004. A critical review of epistemological and methodological issues in cross-cultural research. *Journal of Comparative International Management*.
- Yezli, S. and Khan, A., 2020. COVID-19 social distancing in the Kingdom of Saudi Arabia: Bold measures in the face of political, economic, social and religious challenges. *Travel medicine and infectious disease*, 37, p.101692.
- Yin R.K. 2009. *Case Study Research: Design and Methods*. Fourth edition. Sage Publications, Thousand Oaks CA.
- Yin, R. K. 2012. *Case study methods*. In H. Cooper, P. M. Camic, D. L. Long, A. T. Panter, D. Rindskopf, and K. J. Sher (Eds.), *APA handbooks in psychology*®. *APA handbook of research methods in psychology, Vol. 2. Research designs: Quantitative, qualitative, neuropsychological, and biological* (p. 141–155). American Psychological Association.
- Yin, R.K., 2018. *Case study research and applications: Design and methods*. Sage publications.
- Yinusa, O. and ILO, B.M., .2021 - under review) Workability of Conditional Cash Transfer Programme in Nigeria. *American Review of Political Economy* Available from: <https://www.arpejournal.com/archived-issues/volume-12-number-1/workability-of-conditional-cash-transfer-programme-in-nigeria/> [Retrieved on the 17/01/2021]

- Young, R.M. and Meyer, I.H., 2005. The trouble with “MSM” and “WSW”: Erasure of the sexual-minority person in public health discourse. *American journal of public health*, 95(7), pp.1144-1149.
- Zhang, J.H., Zhang, H., Liu, C., Jiang, X., Zhang, H. and Iwaloye, O., 2020. Association between religion and health in China: Using propensity score matching method. *Religions*, 11(1), p.37.
- Zhou, Y., Li, D., Lu, D., Ruan, Y., Qi, X. and Gao, G., 2014. Prevalence of HIV and syphilis infection among men who have sex with men in China: a meta-analysis. *BioMed research international*, 2014.
- Zierler, S. and Krieger, N., 1997. Reframing women's risk: social inequalities and HIV infection. *Annual review of public health*, 18(1), pp.401-436.
- Ziersch, A., Osborne, K. and neighbourhood matter?. *Urban Policy and Research*, 29(4), pp.381-399.
- Zuma, K., Setswe, G., Ketye, Y., Mzolo, T., Rehle, T. and Mbelle, N., 2010. Age at sexual debut: a determinant of multiple partnership among South African youth. *African journal of reproductive health*, 14(2), pp.47-54.
- Zuwaira I. H., T.O. Afolaranmi, Y. O. Tagurum, D. A. Bello, J. C. Daboar, C.A. Miner, A.I. Zoakah. 2014. Effect of health education on the uptake of HIV counselling and testing among long distance drivers in Jos North Local Government Areas of Plateau State. *Journal of Medicine in the Tropics* 16 (2): 97-103.

APPENDIX A: CHARACTERSITICS OF INTERVIEW PARTICIPANTS

A1: Key Informant Participants Plateau State

Participant Number	Gender	Age	Marital Status	Place Of Residence	Education	Occupation	Role in Interview
PL203	Male	58	Married	Rural	No Education	Business	Women Leader
PL205	Male	41	Unmarried	Rural	Secondary	Youth Leader	Community Leader
PL207	Male	43	Married	Rural	Secondary	Islamic Clergy	Religious Leader
PL209	Male	52	Married	Rural	Tertiary	Christian Clergy	Religious Leader
PL213	Female	58	Married	Urban	Secondary	Development Worker	NGO Directors and an Consultant
PL225	Male	42	Married	Urban	Tertiary	Civil servant	HIV/AIDS M and Officer
PL229	Male	55	Married	Urban	Secondary	civil servant	Community Leader
PL233	Male	63	Married	Urban	Secondary	Business	Community Leader
PL255	Male	61	Married	Rural	Secondary	Business	Community Leader
PL277	Male	55	Married	Urban	Secondary	Development Worker	NGO Coordinator
PL299	Male	49	Married	Urban	Tertiary	Civil servant	LACA Officer

A2: Semi-Structured Participants in Plateau State

Participant Number	Gender	Age	Marital Status	Place Of Residence	Education	Occupation
PL300	Male	46	Married	Urban	Secondary	Farming
PL322	Female	41	Unmarried	Rural	Tertiary	Health Worker
PL333	Female	28	Unmarried	Rural	Primary	Business
PL344	Male	36	Unmarried	Rural	Tertiary	Health Worker
PL355	Male	37	Unmarried	Rural	Primary	Business
PL366	Male	27	Unmarried	Rural	Tertiary	Applicant
PL377	Male	38	Married	Urban	Tertiary	Business
PL388	Female	21	Unmarried	Rural	Secondary	Applicant
PL399	Male	42	Married	Urban	Tertiary	Teaching
PL400	Male	38	Married	Urban	Tertiary	Civil Servant
PL433	Male	26	Unmarried	Urban	Tertiary	National Service
PL444	Female	30	Unmarried	Urban	Tertiary	Business
PL455	Female	36	Married	Urban	Tertiary	Civil Servant
PL449	Female	36	Married	Urban	Tertiary	Civil servant
PL409	Male	31	Unmarried	Urban	Tertiary	Applicant
PL477	Male	23	Unmarried	Urban	Secondary	Applicant
PL499	Male	32	Unmarried	Urban	Tertiary	Civil Servant

A3: Key Informant Participants in Nasarawa State

Participant Number	Gender	Age	Marital Status	Place Of Residence	Education	Occupation	Role Interview
NS909	Male	43	Married	Urban	Tertiary	Protocol Officer	Community Leader
NS907	Male	48	Married	Rural	Tertiary	Civil servant	Community Leader
NS905	Male	43	Married	Urban	Tertiary	Development worker	HIV/AIDS Contact Person
NS903	Male	66	Married	Urban	Tertiary	Consultant	NGO Coordinator
NS937	Male	52	Married	Urban	Tertiary	Business	NGO Coordinator
NS953	Female	42	Married	Urban	Tertiary	Development worker	Programme officer
NS973	Male	34	Unmarried	Urban	Tertiary	Development worker	Programme officer
NS979	Female	52	Married	Urban	Tertiary	Civil servant	Women Leader

A4: Semi-Structured Participants in Nasarawa State

Participant Number	Gender	Age	Marital Status	Place Of Residence	Education	Occupation
NS724	Female	23	Unmarried	Rural	Secondary	Student
NS711	Male	24	Unmarried	Urban	Primary	Commercial Motorcyclist
NS705	Male	25	Unmarried	Urban	Secondary	Business
NS707	Male	26	Unmarried	Rural	Secondary	Student
NS723	Female	26	Unmarried	Urban	Tertiary	Applicant
NS713	Male	28	Unmarried	Rural	Secondary	Business
NS700	Male	31	Married	Urban	Secondary	Casual work
NS715	Female	33	Married	Urban	Secondary	Business
NS706	Male	34	Unmarried	Urban	Secondary	Business
NS708	Male	36	Unmarried	Urban	Tertiary	Applicant
NS703	Female	37	Married	Rural	Secondary	Housewife
NS701	Female	39	Married	Rural	Tertiary	Civil servant
NS722	Male	45	Married	Urban	No education	Housewife
NS702	Female	51	Married	Rural	Secondary	Business
NS714	Male	47	Married	Urban	Primary	Truck Driver

APPENDIX B: RESEARCH INFORMATION DOCUMENTS

B1: Research Information Sheet

RESEARCH PROJECT
Sexual Behaviour and the Social Epidemiology of HIV/AIDS
in Nigeria: The Case of Plateau and Nasarawa States



Department of Geography,
University of Sheffield

Introduction

My name is Clement Dongurum. I am doing a research on the above research project title. This document is designed to provide you important information on the purpose of the study, what the research entails and your involvement to ensure you clearly and full understand. This information is necessary, should you decide to participate. You may carefully think over these details and take your time to decide whether you may have interest to partake in the study.

What is the purpose for this research?

The purpose of the research is to understand factors determining sexual behaviour and contribution to HIV transmission. In Nigeria, HIV prevalence is relatively low compared to countries in Southern Africa, the sheer size of the country's population means it contains the second highest number of people infected globally. Within Nigeria, there are strong disparities in the rates of infection between and within States that have been associated with unexplained changes in the trends of the disease spreads. In particular, Plateau State that is the focus of this research was once at the centre of Nigeria's HIV/AIDS epidemic having the highest infection in the country from which the virus spread to surrounding States, but then in 2003 HIV prevalence started declining in Plateau State and failed to decline in the surrounding States. This study explores the underlying factors that led to the significant decline of HIV infection in Plateau. The neighbouring Nasarawa State is selected (as proxy) to understand why HIV infection failed to decline in neighbouring States. The study employs a mixed methods research design to triangulate evidence; drawing conceptually on HIV Social Epidemiology and Information Diffusion scholarship.

Who is organising and funding the Research?

I have no organisation or individual funding this research. I am the researcher and the research is purely for academic purposes and is not obligated to any organisation.

Why have you been chosen to participate in the research?

You have been selected to partake in the study because I will like you to contribute on how sexual health will be sustained to help reduce the burden of HIV and AIDS in our communities. Your participation is important for achieving the aim and specific objectives of this research project.

Must you participate in the Research Project?

No. You may choose not to partake, it is voluntary. Even when you decide to participate, you may not answer questions you are not comfortable about and you can even withdraw from the participation at any time of the interview.

How will you be involved in the Research Project?

The study will like to obtain information in an in-depth interview that will last about an hour, which will be fairly informal at a venue you like best. If you are interested to participate in the research, I will contact you in the next few days in person or on phone to arrange for the venue and convenient time you prefer.

What will happen with information you may give?

The information to be obtained from you will be audio recorded, securely and anonymously stored (unless you choose to be identified) and be treated with high level of confidentiality for research purpose only. The outcome of the research may also be presented at policy forums, conferences, in book chapters and academic journals. I assure you reports will not in any way be linked to identifying you. In case you would like short communications from the outcome of the research project, I will be glad to deliver it following the completion of the research project.

Who has ethically reviewed the project?

This project has been ethically approved via Faculty of Social Sciences of the University of Sheffield ethics review procedure. The University of Sheffield's Research Ethics Committee monitored the ethics application, which was painstakingly reviewed and ethically given approval. Here in Nigeria, organisations will be approached for ethical approval to enable access to relevant data/information that will support the study.

What do you stand to gain?

This research may not really have immediate benefit. However, there will be a feedback on information received from you and the outcome of the research project will be presented at policy forums with government and international development donors, which hopefully will facilitate addressing sexual health, HIV/AIDS and health related issues in the community.

Who do you contact, if you need to raise a complaint?

If you have further questions, a need to forward a complaint or provide additional information, be free to contact me. When I am not reached, you may contact my supervisors, if it urgent.

RESEARCH SUPERVISOR

Dr. Deborah Sporton
Telephone: +44(0)1142227953 (UK).
Email - d.sporton@sheffield.ac.uk

RESEARCH SUPERVISOR

Dr. Julie Balen
Email j.balen@sheffield.ac.uk

LEAD RESEARCHER

Clement Dongurum
GSM:+44(0) 7442045093 (UK) +234(0)8035272440 (Nigeria)
Email- clemdong@gmail.com

I appreciate your time for reading this information sheet. Let me know if you need further clarifications.

RESEARCH PROJECT
‘Sexual Behaviour and the Social Epidemiology of
HIV Infection in Nigeria: The Case of
Plateau and Nasarawa States’



The
University
Of
Sheffield.

Department of Geography,
University of Sheffield,

Date _____

Researcher: CLEMENT DONGURUM

Contact Email: clemdong@gmail.com

Contact phone Number: +44 (0)70500799083 (UK) / +234 (0) 8035272440 (Nigeria)

Participants Identification Project Number:

Please tick the box provided at the end of each Statement to show consent.

1. I confirm that I have read or read to me and clearly understand the information sheet explaining this research project and I have asked the necessary questions and all the details about the research project
2. I am fully aware that my participation in the research project is voluntary and I am free to decline answers to any question I am not comfortable to reply and can withdraw at any time without giving any reason during the interview
3. I understand that this interview and my responses will form part of data generation for the research and be audio recorded to be kept strictly confidential. I give permission for the researcher to have access to my anonymised responses and may re-use in the research future presentations and publications with high sense of anonymity to my personal information
4. I consent to participate and respond to the research interview or discussion

Participant's Name: _____ **Signature/ThumbPrint:** _____ **Date:** _____

Lead Researcher: _____ **Signature:** _____ **Date:** _____

Note: Forms **MUST** be signed and dated in the presence of the participants. All co-signers should go with a copy each and be securely kept.

B3: Community Agreement Form

RESEARCH PROJECT

Sexual Behaviour and the Social Epidemiology of HIV/AIDS in Nigeria: The Case of Plateau state and Nasarawa state

Project ID No.



The University Of Sheffield.

Department of Geography,
University of Sheffield,
United Kingdom

Date _____

This is an understanding between the lead researcher and our community on participation in a research project title: **“The Sexual Behaviour and the Social Epidemiology of HIV Infection in Nigeria: The Case of Plateau and Nasarawa States.”**

1. We, the people of _____ Community in _____ Local Government Area, _____ State, Nigeria have agreed that a postgraduate student of the University of Sheffield, **Mr. Clement Kevin Dongurum** will undertake interviews with community group leaders on a research titled; “The Sexual Behaviour and the Social Epidemiology of HIV Infection in Nigeria: The Case of Plateau and Nasarawa States.”
2. _____ Community confirm that the information sheet explaining his research project and our involvement have been read/read to us, we clearly understand and have asked the necessary questions, and all the details about the research project are understood.
3. That we are fully aware our participation in the research project is voluntary and are free to decline answers to any question we are not comfortable to reply and can withdraw at any time without giving any reason during the interview.
4. That we understand the responses to the interviews and discussions will form part of data generation for the research project and will be audio recorded to be strictly kept confidential and be used for research purpose. We permit the researcher and his team to have access to our members, service centres and local association groups with high sense of anonymity to their responses.
5. That the researcher should anonymised and may re-use audio recordings, transcripts or observations and notes made form responses for future policy forum discussions, presentation at conferences and publications in book chapters and academic journals without use of any form of information that will identify individuals, groups or the community, unless we choose to be identified.
6. We agree to partake and respond to the research interviews and discussions as individuals, groups or community.

Details Community Representatives

1 _____ Position _____ Signature/Date _____

2 _____ Position _____ Signature/Date _____

B: Lead Researcher: _____ Signature/Date _____

Note: Forms **MUST** be signed and dated in the presence of the community leaders.
All co-signers should go with a copy each and be securely kept.

B4: Application Letter for Data Collection in Organisations

RESEARCH PROJECT

**Sexual Behaviour and the Social Epidemiology of HIV/AIDS
in Nigeria: The Case of Plateau state and Nasarawa state**

Contacts

Email: ckdongurm1sheffield.ac.uk/ clemdong@gmail.com

Mobile Phone: +44 (0)70500799083 (UK)
+234 (0) 8035272440 (Nigeria)



**The
University
Of
Sheffield.**

Department of Geography,
University of Sheffield,
United Kingdom

Date _____

Dear Sir/Madam

APPLICATION FOR DATA COLLECTION IN YOUR ORGANISATION

I write to for request for permission to carry out data collect in your organisation to support my research.

I am a student of the Department of Geography, University of Sheffield in the United Kingdom carrying out a research on '**Sexual Behaviour and the Social Epidemiology of HIV Infection in Nigeria**'. Plateau state and Nasarawa state are my specific study locations, where now, the research is at the phase of data collection.

The research I am doing specifically requires:

1. Access to documents containing reports on Social services/interventions, prevention supports, HIV and AIDS Education and other health-related prevention activities your organisation has implemented.
2. An In-depth interview with the Programme Officer on your activities that relates to HIV/AIDS and health-related programmes or projects.

The data I will collect from your organisation will be used only for academic purpose and will be handled with strict ethical value. Attached are my introduction letter, Research Information Sheet and ethic clearance and other relevant documents for your consideration. I look forward to hearing from you.

Thank you.

Yours faithfully,
Clement Kevin Dongurum

APPENDIX C: ETHICS PERMISSION / APPROVALS

C1 : University of Sheffield of Ethical Approval



Downloaded: 03/11/2016
Approved: 02/11/2016

Clement Dongurum
Registration number: 150101688
Geography
Programme: Ph.D. Human Geography

Dear Clement

PROJECT TITLE: The Social Epidemiology of HIV Infection in Nigeria: A Case of Plateau State
APPLICATION: Reference Number 009229

On behalf of the University ethics reviewers who reviewed your project, I am pleased to inform you that on 02/11/2016 the above-named project was **approved** on ethics grounds, on the basis that you will adhere to the following documentation that you submitted for ethics review:

- University research ethics application form 009229 (dated 01/11/2016).
- Participant information sheet 1019512 version 1 (14/06/2016).
- Participant consent form 1019514 version 1 (14/06/2016).
- Participant consent form 1019513 version 1 (14/06/2016).

If during the course of the project you need to [deviate significantly from the above-approved documentation](#) please inform me since written approval will be required.

Yours sincerely

Thomas Sullivan
Ethics Administrator
Geography



The
University
Of
Sheffield.

Department
Of
Geography.

Head of Department
Professor David Robinson

Department of Geography
University of Sheffield
Winter Street
SHEFFIELD
S10 2TN

Telephone: 0114 222 7953

Fax: 0114 279 7907

Email : d.sporton@sheffield.ac.uk

15th October 2017

To whom it may concern.

Clement Dongurum: PhD Student, Department of Geography, University of Sheffield

I write to confirm that Clement Dongurum is a registered PhD student at the University of Sheffield working under my supervision. His PhD research is focused on Sexual behaviours and the social epidemiology of HIV infection in Nigeria: The case of Plateau and Nasarwa State. He is currently undertaking fieldwork in Nigeria. I would be extremely grateful if you could support him with providing relevant information and data to enable him to undertake his research. Clement's research has received approval from the University of Sheffield Research Ethics Committee.

Yours Faithfully,

A handwritten signature in blue ink, appearing to read 'Deborah Sporton'.

Dr Deborah Sporton
Senior Lecturer in Human Geography



GOVERNMENT OF PLATEAU STATE
MINISTRY OF HEALTH HEADQUARTERS
P.M.B 2014, JOS, PLATEAU STATE

MOH/MIS/202/VOL.T/X
23rd June, 2017

CLEMENT KEVIN DONGURUM
Department of Geography and Planning
Faculty of Environmental Sciences
University of Jos, Nigeria

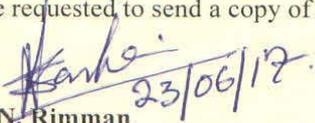
RE: REQUEST FOR PERMISSION TO CARRY OUT RESEARCH

I have been directed to refer to your communication on the above subject.

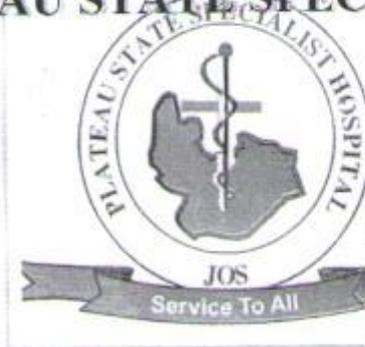
The Ministry has granted you permission to conduct the study on the proposed topic
"Sexual Behaviour and *the Social Epidemiology of HIV Infection in Nigeria; The Case of Plateau State and Nasarawa States.*"

Please note that the participation of any individual or group in this study is optional.

You are requested to send a copy of your research findings to the Ministry, please.


Dashe N. Rimman
Ag. DPRS
For: Hon. Commissioner

PLATEAU STATE SPECIALIST HOSPITAL JOS



Ref. NO. PSSH/ADM/ETH.CO/2017/013
Old Bukuru Road,
P.M.B. 2113,
Jos, Nigeria
Tel. 073-462180
Fax: 073-464031
Email: psshjos@yahoo.com
Date: July 20, 2017

Reg. No: NHREC/09/23/2010b

NOTICE OF EXPEDITED REVIEW AND APPROVAL

Re: Sexual Behavior and the Social Epidemiology of HIV Infection in Nigeria; The Case of Plateau and Nasarawa States

Name of Principal Investigator: Clement Kevin Dongurum

Address of Principal Investigator: University of Sheffield, United Kingdom

Date of receipt of valid application: June 30, 2017.

Date of meeting when final determination of research was made: July 20, 2017.

This is to inform you that the research described in the submitted protocol, has been reviewed and given expedited approval by the Health Research Ethics Committee.

This approval dates from 20/07/2017 to 20/07/2018. Note that no participant accrual or activity related to this research may be conducted outside of these dates. You may liaise with the Hospital records department for necessary cooperation / assistance. All informed consent forms used in this study must carry the HREC assigned number and duration of HREC approval of the study. In multiyear research, endeavor to submit annual report to the HREC early in order to obtain renewal of your approval and avoid disruption of research. *The National Code for Health Research Ethics requires you to comply with all institutional guidelines, rules and regulations and with the tenets of the Code including ensuring that all adverse events are reported promptly to the HREC. No changes are permitted in the research without prior approval by the HREC except in circumstances outlined in the Code. The HREC reserves the right to conduct compliance visit your research site without previous notification.*


Dr. Bitrus Matawal, MBBS,
FWACSChairman, HREC PSSH

NASARAWA STATE OF NIGERIA
MINISTRY OF HEALTH

In replying, please quote reference and date
All correspondence should be directed to
the commissioner



Ministry of Health Headquarters
Private Mail Bag 032
Lafia, Nasarawa State
E-mail: healthnasarawa@gmail.com

Telephone: _____

Reg. No: NHREC 18/06/2017
18th October, 2017

Clement Kevin Dongurum
Dept of Geography and Planning
University of Jos,
Plateau State,
Nigeria

NOTICE OF EXPEDITED COMMITTEE REVIEWS AND APPROVAL

With reference to your letter dated September 20th, 2017 requesting approval for the research protocol titled: *Sexual Behaviour and the social Epidemiology of Hiv Infection in Nigeria: The case study of Plateau and Nasarawa States.*

The Health Research Ethics Committee has studied your proposal and has given you an expedited approval for the study which has no more than minimal risk for the participants, in line with the National Health Research Ethics.

You are to adhere to the amended proposal and kindly forward a report to the committee at the end of the study.

Muhammad O. Ibrahim
DD. Planning, Research and Statistics
For: Chairman HREC



**NASARAWA STATE
PRIMARY HEALTHCARE
DEVELOPMENT AGENCY
(NAPHDA)**

23-11-2017

The PHC Coordinators
Lafia, Karu LGAs and Lafia North DA
Nasarawa State.

Dear Sir/Ma,

**RE; APPLICATION FOR PERMISSION TO UNDERTAKE
QUALITATIVE RESEARCH INTERVIEWS AT PHC FACILITIES IN
NASARAWA STATE**

The Principal Investigator for a research titled: **The Social Epidemiology of HIV Infection In Nigeria: The Case Of Plateau And Nasarawa States** has been to the Agency and has been given due clearance to engage our facilities/ personnel in your respective LGAs for the purpose of the research. He has ethical clearance from the Ministry of Health and his research will not involve collection of any biologic sample.

Kindly give him the necessary cooperation and support. Thanks and Regards

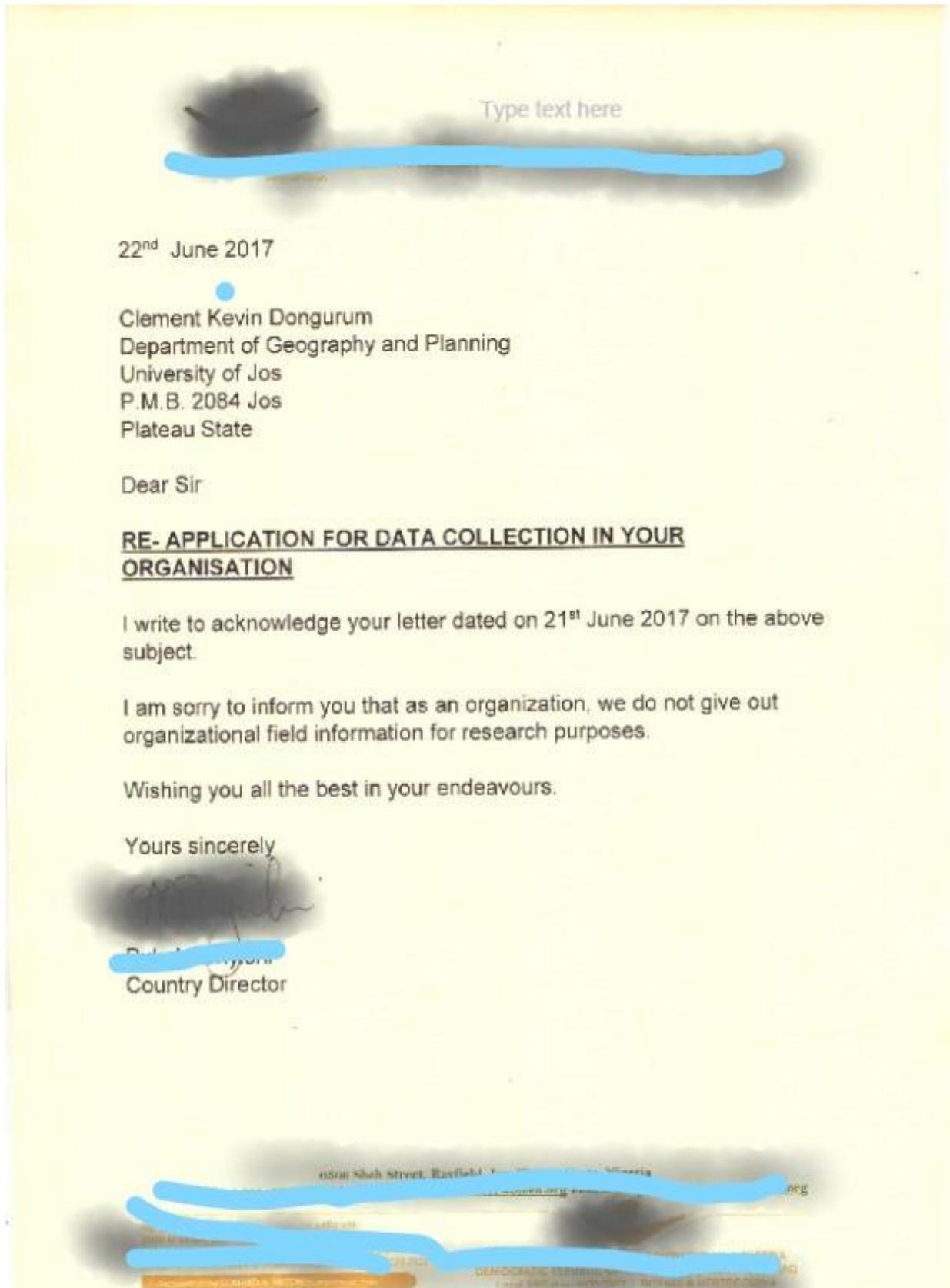
Dr. Sasetu, S.I.

Director, Planning, Research and Statistics

For Executive Chairman.

OFFICE: Adjacent Lafia City Stadium, Jos Road, Lafia, Nasarawa State
Tel: 08086259770, 09036563128, 08070527878, 09081374833 | **email:** naphalafia@outlook.com

All Correspondence to be Address to the Executive Chairman



APPENDIX D : CHARACTERISITICS OF COMMUNITY AND SOCIAL RESOURCES

D1 :Characteristics of Social Organisations/Groups in Case Site (Shendam) in Plateau State

Category of Social groups / organisation	Identified Social Groups/Organisations	Membership/ Clients/Targets	Activities	Networking Partners	
Community / Tribal Development Association (CDAs)	Goemai Unity Development Organization	Men, women youths and adult	Pays School fees to indigent students, medical-outreaches ,education, seminars, advocate peaceful coexistence , support during burials / births / wedding / sick and bereaved members, importation about jobs, community projects	Government organisations, FBOs, NGOs	
	Ngas Development Association				
	Mwagwavul Development Organization				
	Qua'an-pan Women Association	Adults women			
	Taroh Development Association	Men, women and youths			
Faith Based Organisations (FBOs)	Denomination	Congregations	Spiritual teachings, Prayers Encourage sexual fidelity in marriage, Encourage Family Planning, compulsory HIV and pregnancy test for intending couples, Encourage total sexual abstinence, Discourage nigh clubbing /disco dance, Financial and emotional assistance during wedding, childbirth, sickness bereavement, emotional supports, visits to prisons, internally displaced people and the poor with foods, beverages and clothing.	APIN, LACA,NGOs, General Hospital, COCIN Dispensary, Primary Healthcare clinics	
	Baptist Church in Nigeria	Baptist Women Missionary Society			married women
		Baptist Youth Fellowship			male and female youths
		Baptist men Convention			male and female youths
	Catholic Church of Nigeria	Catholic Youth Organization of Nigeria			male and female youths
		Catholic Women Organization			married women
		Catholic Men Organization			men
	Church of Christ In Nations (COCIN)	COCIN Women Fellowship			married women
		COCIN Youth Fellowship			male and female youths
		COCIN Men Fellowship			men
	Evangelical Church Winning All (ECWA)	ECWA Women Fellowship			married women
		ECWA Youth Fellowship			male and female youths
		ECWA Men Fellowship			men
	Grace of God Mission Church	Grace Women's Fellowship			married women
		Grace Men's Meeting			men
Grace Youths Fellowship		male and female youths			
Non-denominational / Free-standing	Christian Association of Nigeria (CAN)	married women			
	Fellowship of Christian Students (FCS)	adult men and women, young people			
	Jama'atun Nasir Islam(JNI)	adult men and women, youths			
	Muslim Student Society (MSS)	adult men and women, youths			

D1: Characteristics of Social Organisations/Groups in Case Site I (Shendam) in Plateau State (cont.)

Category of Social groups / organisation	Identified Social Groups/Organisations	Membership/ Clients/Targets	Activities	Networking Partners
Family and Friends	Family/Clans group Meeting (6)	Adult women	Promote moral lifestyle, encourage condom use and HIV test, make financial contributions, assist members in times of sickness, wedding, bereavement, peer education, provide psychosocial care support, family/parenting responsibility, give loan to members, strict family rules	FBOs, NGOs,
	Sisters of Honour Group	Adult women		
	Overcomers sisters	Adult women		
	Happiness sisters	Adult women		
	Royal sisters	Adult women		
	HIV/AIDS Support Group	Adult men and women		
	Sweet Sisters	Adult women		
Government	Primary Healthcare Clinic A	Children, youths and adults patients	HIV testing and Counselling , distributes free males and females condoms to individuals, psychosocial support for PLWH, HIV sensitisation, provide family Planning Services, treatment of STDs, distribute free ARV drugs, treatment of other opportunistic diseases, PMTC services, Antenatal and postnatal clinics, Homebased care, Nutrition education, Health Awareness, The Local Government Secretariat run the governance of the local council.	FBOs, CSOs, NGOs, APIN, Plateau State Ministry of Health, Plateau State AIDS Control Agency (PLACA), Teaching and Specialist Hospitals in Jos
	Primary Healthcare Clinic B			
	Primary Healthcare Clinic Total			
	General Hospital			
	Primary Healthcare Clinic Kuka			
	Local Government Secretariat	Adults men and women staff		
	Local AIDS Control Agency	General population		
Professional Associations	Nigerian Union of Local government Employees (NULGE)	Adult men and women	Support the rights of vulnerable people, provide human right education, mediate for the welfare of members with employers	Government, FBOs, NGOs,
	National Union of Teachers (NUT)	Adult men and women		
	Medical and Health Workers' Union of Nigeria (MHWUN)	Adult men and women		
	Nigerian Bar Association (NBA)	Adult men and women		

D1: Characteristics of Social Organisations/Groups in Case Site I (Shendam) in Plateau State (cont.)

Category of Social groups / organisation	Identified Social Groups/Organisations	Membership/ Clients/Targets	Activities	Networking Partners
Business / Market Trading Associations	Yam Loaders Association	Adult men	Give loan to members, material support to members during childbirths, wedding, sickness, bereavement, provide agricultural farm tools and seeds skills, provide entrepreneur skill, Self-help dashi/Esusu daily/weekly/monthly savings or rotating.	Government, FBOs, Family and Friends
	Farm Produce Middlemen Association	Adult men		
	Agbero/Labourers Association	Adult men		
	National Union of Road Transport Workers (NURTW)	Adult men		
	Market Women Association	Adult women		
	Retail Traders' Union	Adult men and women		
	Neighbourhood micro saving groups (11)	Young people and adults men		
	Tailoring/Sawing Associations	Adult men and women		
	Association of Commercial Motorcycle of Nigeria (ACOMORAN)	Adult men		
Sports/Supports clubs	Total Football Clubs	male adults and youths	Entertainment to the public, Support members emotionally and with materials during wedding, childbirths, bereavement, sickness, Nutrition awareness, Body exercises	Community and Individual groups
	Shaldas Football Club	Youth and adult men		
Non-Governmental Organisations (NGOs)	COCIN Dispensary Shendam	Target children, men, women and youths	HIV testing and counselling, Provides FBOs members weeding HIV and pregnancy test, ,distributes free male and female condoms to individuals, psychosocial support for PLWH, HIV/AIDS sensitisation, provide Family Planning Services, Treatment of STDs, Distribute free ARV drugs, treatment of other opportunistic diseases, PMTC services, Homebased care, Nutrition education, Health education	FBOs, Government Organisations, General Hospital
	May Hospital Shendam			
	Bene Hospital			
Most at-risk	Commercial Sex Workers (CSW)	Youths and adults men and women	Sex work, substance abuse, sexual networking	NGOs
	Beer Parlours/Drinking joints			

D2: Distribution and Characteristics of Social Organisations/Groups in Case Site III (Kuka) in Plateau State

Category of Social groups / organisation	Identified Social Groups/Organisations	Membership/ Clients/Targets	Activities	Networking Partners	
Community / Tribal Development Association (CDAs)	Goemai Unity Development Organization	Men, women youths and adult	Pays School fees to vulnerable people, medical outreaches, education seminars, advocate peaceful coexistence , support during urials/births/wedding/sick and bereaved embers, importation about jobs, community projects	Government organisations, FBOs, NGOs	
	Ngas Development Association	Men, women youths and adult			
	Tweitkyop Development Association	Adults women			
	Jaapswal Jibaam	Men, women youths and adult			
	Qua'an-pan Women Association	Adults women			
	TIV Community Association	Men, women youths and adult			
	Taroh Development Association	Men, women youths and adult			
Faith Based Organisations (FBOs)	Baptist Church in Nigeria	Baptist Women Missionary Society	married women	Spiritual teachings, Prayers Encourage sexual fidelity in marriage, Encourage Family Planning, compulsory HIV and pregnancy test for intending couples, Encourage total sexual abstinence, Discourage nigh clubbing /disco dance, Financial and emotional assistance during wedding, childbirth, sickness bereavement, emotional supports, visits to prisons, internally displaced people and the poor with foods, beverages and clothing.	APIN, LACA,NGOs, General Hospital, COCIN Dispensary, Primary Healthcare clinics
		Baptist Youth Fellowship	male and female youths		
		Baptist men Convention	male and female youths		
	Catholic Church of Nigeria	Catholic Youth Organization of Nigeria	male and female youths		
		Catholic Women Organization	married women		
		Catholic Men Organization	men		
	Church of Christ In Nations (COCIN)	COCIN Women Fellowship	married women		
		COCIN Youth Fellowship	male and female youths		
		COCIN Men Fellowship	men		
	Evangelical Church Winning All (ECWA)	ECWA Women Fellowship	married women		
		ECWA Youth Fellowship	male and female youths		
		ECWA Men Fellowship	men		
	Grace of God Mission Church	Grace Women's Fellowship	married women		
		Grace Men's Meeting	men		
		Grace Youths Fellowship	male and female youths		
Non-denominational / Free-standing	Christian Association of Nigeria (CAN)	married women			
	Fellowship of Christian Students (FCS)	adult men and women, young people			
	Jama'atun Nasir Islam(JNI)	adult men and women, youths			
	Muslim Student Society (MSS)	adult men and women, youths			

D2: Distribution and Characteristics of Social Organisations/Groups in Case Site III (Kuka) in Plateau State (cont.)

Category of Social groups / organisation	Identified Social Groups/Organisations	Membership/ Clients/Targets	Activities	Networking Partners
Family and Friends	Brotherhood group	Adult males	Encourage condom use and HIV test, make financial contributions, assist members in times of sickness, wedding, bereavement, provide psychosocial care support, family/parenting responsibility, give loan to members, strict family rules	FBOs, NGOs,
	Peace Brothers	Adult women		
Government	Primary Healthcare Clinic Kuka	Children, youths and adults patients	HIV testing and Counselling , free condoms, HIV sensitisation, family Planning services, treatment of STDs PMTC services, Antenatal and postnatal clinics, Homebased care, Nutrition education, Health Awareness,	FBOs, NGOs, APIN, PLSMoH, Plateau State LACA,
NGOs	Godiya Clinic and Maternity Kuka Pebar Clinic Kuka	General population		
Business / Market Trading Associations	Yam Loaders Association	Adult men	Give loan to members, material support to members during childbirths, wedding, sickness, bereavement, provide agricultural farm tools and seeds skills, provide entrepreneur skill, Self-help dashi/Esusu daily/weekly/monthly savings or rotating.	Government, FBOs, Family and Friends
	Farm Produce Middlemen Association	Adult men		
	Agbero/Labourers Association	Adult men		
	National Union of Road Transport Workers (NURTW)	Adult men		
	Market Women Association	Adult women		
	Retail Traders' Union	Adult men and women		
	Neighbourhood micro saving groups (401)	Young people and adults men		
	Tailoring/Sawing Associations	Adult men and women		
Association of Commercial Motorcycle of Nigeria (ACOMORAN)	Adult men			
Sports/Supports clubs	Kuka United	Youth and adult men	Football matches entertainment to the public, Support members emotionally and with materials Body exercises	Community and Individual groups
Most at-risk	Commercial Sex Workers (CSW)	Youths and adults men and women	Sex work, substance abuse, sexual networking	NGOs
	Beer Parlours/Drinking joints			

D3: Characteristics of Social Organisation/Groups identified in Case Study II (Lafia) in Nasarawa State

Category of Social groups / organisation	Identified Social Groups/Organisations	Membership/ Clients/Targets	Activities	Networking Partners
Ethnic/Tribal Community Development	Mada Development Association (MDA)	Men, women and youths	Unity of members, Upholding traditions, advocating for peaceful coexistence, Organise cultural festivals, support vulnerable members, medical outreaches, Community volunteering work, Ensure security of safety of members, provided financial and material assistance to member who were sick, bereaved, had child birth, and wedding.	Government organisations, FBOs, NGOs, Professional Associations
	Migili Cultural and Development Association (MCDA)			
	Mada Youths Development Association			
	Tiv Development Association			
	Eggon Community Development Association (ECDA)	Women		
	Eggon Christian Forum women's Wing			
	Alago Community Development Association	Men, women and youths		
	Agbashi Development Association (ADA)			
	Igala cultural and development association (ICDA)			
Igbo women association	Women			
Family and Friends	Sweet mothers	Married women	Provide counsel in moments of critical decision, give loan to start or boost business, regular meetings round members houses, entrepreneur skills, share intimate sexual issues, give information on opportunities, Health discussions, visits, financial and material support for members during sickness, bereavement, wedding, child birth, birthday. Circulate information on job, contract, admission and other opportunities	Ethnic/Tribal Groups, Religious/FBOs
	Destiny sisters	Married women		
	Zion sisters	Single women		
	Shalom Sister group	Married Women		
	Ash group	Single women		
	Red group	Male youths		
	Arewa group	Male youths		

D3 : Characteristics of Social Organisation/Groups identified in Case Site II (Lafia) in Nasarawa State (cont.)

Category of Social groups / organisation	Identified Social Groups/Organisations		Membership/ Clients/Targets	Activities	Networking Partners
Faith Based Organisation (FBOs)	Denominations	Congregations		Bible/Quran teachings religious principles regarding total abstinence, fidelity in marriage, prayers seminars, Evangelism and medical outreaches to vulnerable communities, entrepreneurial skills, visitation to prisons and Orphanages - homes with donations, volunteering as during religious meetings, conflicts resolution	NASACA, NACA,NGOs, Family and Friend
	Anglican Church	Anglican Women Fellowship	men, women and youths		
	Baptist Church in Nigeria	Baptist Women Missionary Society	married women		
		Baptist Youth Fellowship	male and female youths		
		Baptist men Convention			
	Catholic Church of Nigeria	Catholic Youth Organization of Nigeria			
		Justice Development Progress Centre (JDPC)			
		Catholic Women Organization	married women		
		Catholic Men Organization	men		
	Church of Christ In Nations (COCIN)	COCIN Women Fellowship	married women		
		COCIN Youth Fellowship	male and female youths		
		COCIN Men Fellowship	men		
	Evangelical Church Winning All (ECWA)	ECWA Women Fellowship	married women		
		ECWA Youth Fellowship	male and female youths		
		ECWA Men Fellowship	men		
	Evangelical Reformed Church of Christ (ERCC)	ERCC Women's Fellowship	married women		
		ERCC Men's Fellowship	men		
		ERCC Youths Fellowship	male and female youths		
	Non-denominational / Free-standing	Voice of Islam Hospital	adult men, women and young people		
		Christian Association of Nigeria (CAN)			
Young Men's Christian Association Mada Hills (YMCS)					
Fellowship of Christian Students (FCS)					
Jama'atun Nasir Islam(JNI)					
Nigeria AIDS Group of Islam Women Wing (NAGI)					
Izalatu Bid'a Waikamatu Sunnah (IBWS)					
Muslim Student Society (MSS)					

D3: Characteristics of Social Organisation/Groups identified in Case II (Lafia) in Nasarawa State (cont.)

Category of Social groups / organisation	Identified Social Groups/Organisations	Membership/ Clients/Targets	Activities	Networking Partners
Business/ Market trading	Market women association	Women	Entrepreneur skill, provide loan, source, circulate business opportunities, financial supports for sick, bereaved, child delivery, wedding, ensure safety of members, Self-help dashi/Esusu daily/weekly/monthly savings or rotating.	Government, FBOs, NGOs, NBA
	Agbero/Labourers Association	Adult men		
	National Union Road of Transport Workers (NURTW)			
	Middlemen association			
	Open Body Truck Transport Workers			
	Association Commercial Motorcycle of Nigeria (ACOMORAN)	Adult men and women		
	Neighbourhood micro saving scheme Groups (11)	Men		
	National Union of Road Transport Workers	Adult men and women		
	Farm Produce Market Association			
Sport/ Supporters club	Baba Saleh FC	Men	Out-matches, support for wedding, sick or bereaved, promoted integration among communities, entertainment football matches	NGOs, NBA, NASACA
	FC Buka Junior	Men		
	FC Mama	Men		
	Greater Tomorrow FC	Men		
	Basira FC	Men		
	Nasarawa Amazon Football Clubs	Young women		
	Nasarawa United	Men		
	Filan Hardy	Men		
	Arsenal Supporters Club	Men		
	Manchester Supporters' Club	Men		
Professional	Nigerian Labour Congress (NLC)	Men and women	Advocates for the welfare members such as salaries and promotion, protect the rights of HIV infected members, mediate for remuneration increase, Healthcare, including HIV/AIDS awareness	Government, NOGOs
	Medical and Health Workers' Union of Nigeria (MHWUN)			
	Nigerian Union of Local government Employees (NULGE)			
	National union of Teachers (NUT)			
	Nigerian Medical Associations (NAM) Branch			
	Association of Secondary School Union (ASSU)			
	Nigeria Bar Association (NBA)			
	Judicial Staff Union of Nigeria (JUSUN)			

D3: Characteristics of Social Organisation/Groups identified in Case Site II (Lafia) in Nasarawa State (cont.)

Category of Social groups / organisation	Identified Social Groups/Organisations	Membership/ Clients/Targets	Activities	Networking Partners
Government	Primary Healthcare Centre, Bukan Sidi	Children, men, women and youths	HIV/AIDS treatment/therapy, HIV testing services, condom distribution, psychosocial support for PLWH, HIV prevention awareness, Family Planning Services (adolescents centre), STDs services, ARV drugs, treatment of diseases, PMTC services, Clinics for pregnant women, Home-based care, food and nutrition awareness.	World Bank, Global Fund, USAID, NACA, Federal and State Ministries of Health, Nasarawa State Primary Health Care Development Agency (NSPHDA), Nasarawa State Community and Social Development Agency (NSCSDA)
	Primary Healthcare Centre Tudun Kauri			
	Dalhatu Araf Specialist Hospital (DASH)			
	Collage of Agriculture, Lafia			
	Primary Healthcare Centre Emirs Palace			
	Primary Health Care New Market Road			
	Primary Healthcare Centre Wadata			
	Model Comprehensive Centre Shabu			
	Nasarawa State Polytechnic, Lafia	adult men, women and youths	Higher education	
	Nasarawa State Agency for the Control of AIDS (NASACA)	NGOs ,FOBs, and all people	Manages HI/AIDS activities in Nasarawa State	
	Nasarawa State Primary Healthcare Development Agency (NPHDA)	Primary Healthcare Centres	Manages primary healthcare services	
	Nasarawa State Community and Social Development Agency (NSCSDA)	Communities and organisations	Improves access to services for human development	
	Local Government Secretariat	the general public	provide a range of services and infrastructure needed by individual communities, approving and enforcing building, planning, health and wellbeing regulations	
	State Headquarters Secretariat			

D3: Characteristics of Social Organisation/Groups identified in Case Ste II (Lafia) in Nasarawa State (cont.)

Category of Social groups / organisation	Identified Social Groups/Organisations	Membership/ Clients/Targets	Activities	Networking Partners
NGOs	Life beyond Limit (LBL)	Adult men and women	HIV testing services, distributes condoms, psychosocial support, HIV/AIDS awareness, Family Planning Services, Treatment of STDs, PMTCT and ARV therapy	NGOs State Government, NASAC, World Bank (HSDPII, USAID, Global Fund, Civil Society Organisation (CSO))
	Vigilante Group of Nigeria (VGN)			
	Oliveth Hospital Lafia			
	Sauki Clinic			
	Kowa Hospital			
	Oshegba Josh Hospital GRA Lafia			
	Institute of Human Virology, Nigeria (IHAVN)			
	Namu Clinic			
	Sandanji Medical Centre			
	Aboki Clinic			
	Agu Hospital Lafia			
	Solina Health			
	Society for Women Development and Empowerment of Nigeria (SWODEN)	Target children, women and girls	Capacity building, HIV testing services, distributes condoms, psychosocial support, HIV/AIDS awareness, Family Planning Services, Treatment of STDs, advocates PMTCT and ARV therapy, financial grants to vulnerable women and girls, women and girl-child empowerment, scholarship for OVCs, Gender violence prevention,	
	Centre For Women And Youth Community Action			
	Mother and Child Care Engenderment Foundation			
	Child Education Community Development (CECD)			
	Mother and Child Care Enhancement Foundation (MCCEF)			
	Centre for Women, Youth and Community Action			
Society for Women Development and Empowerment of Nigeria (SWODEN)	General population , most at-risk groups	provide health equipment and commodities, building capacities, procures and distributes condoms, psychosocial support for PLWH, HIV/AIDS sensitisation, financial grants for HIV activities, implement HIV prevention among MSM, CSW, IDU,		
USAID, Lafia				
Family Health Care Foundation (FAHCI)				
Hope Rising Foundation				
Civil Society Organisations (CSOs)				
Nasarawa State Network of People Living with HIV/AIDS (NASN)	Men	sex work, substance abuse, sexual networking, street sex hawking , one night stand,		
Men who have Sex with Men Club (MSM)				
Commercial Sex Workers (CSW)				
Adult Social Media Groups				
Most-at Risk	Drugs and Substances abuse Dens	Men and women		NGOs, NBA, NASACA

D4: Characteristics of Social Organisation/Groups identified in Case Site IV (Assakio), Nasarawa State

Category of Social groups / organisation	Social groups/Organisations		Membership/ Clients/Targets	Activities	Networking Partners	
Ethnic/ Tribal Community Development	Mada Development Association (MDA)		Men, women and youths	Unity of members, upholding traditions, advocating for peaceful coexistence, Organise cultural festivals, support vulnerable members, medical outreaches, Community, volunteering work, provided financial and material assistance to member who were sick, bereaved, had child birth, and wedding.	Government organisations, FBOs, NGOs,	
	Migili Cultural and Development Association (MCDA)					
	Mada Youths Development Association					
	Eggon Community Development Association (ECDA)					
	Alago Community Development Association					
	Eggon Christian Forum women's Wing		women			
Family and Friends	Progressive Sisters		Married women	Meetings in members' houses, talk about sexual health issues, give information jobs, financial support for members during sickness, bereavement, wedding, birthday.	Ethnic/Tribal Groups, Religious/FBOs	
	Caring Sisters		Single women			
FBOs	Denomination	Congregation		Bible/Quran teachings religious principles regarding total abstinence, fidelity in marriage, prayers seminars, Evangelism and medical outreaches to vulnerable communities, entrepreneurial skills, visitation to prisons and Orphanages -homes with donations, volunteering as during religious meetings, conflicts resolution,	NASACA, NACA,NGOs, Family and Friend	
	Anglican Church	Anglican Women Fellowship	men, women and youths			
	Baptist Church in Nigeria	Baptist Women Missionary Society				married women
		Baptist Youth Fellowship				male and female youths
		Baptist men Convention				
	Catholic Church of Nigeria	Catholic Youth Organization of Nigeria				male and female youths
		Catholic Women Organization				married women
		Catholic Men Organization				men
	Church of Christ In Nations (COCIN)	COCIN Women Fellowship				married women
		COCIN Youth Fellowship				male and female youths
		COCIN Men Fellowship				men
	Evangelical Church Winning All (ECWA)	ECWA Women Fellowship				married women
		ECWA Youth Fellowship				male and female youths
		ECWA Men Fellowship				men
	Evangelical Reformed Church of Christ (ERCC)	ERCC Women's Fellowship				married women
ERCC Men's Fellowship		men				
ERCC Youths Fellowship		male and female youths				
Christian Association of Nigeria (CAN)		adult men, women and young				
Non-denominational	Jama'atun Nasir Islam(JNI)		adult men, women and young			

D4: Characteristics of Social Organisation/Groups identified in Case Site IV (Assakio), Nsarawa State

Category of Social groups / organisation	Identified Social Groups/Organisations	Membership/ Clients/Targets	Activities	Networking Partners
Business/ Market trading	Market women association	Women	Entrepreneur skill, provide loan, source, circulate business opportunities, financial supports for sick, bereaved, child delivery, wedding, ensure safety of members, Self-help dashi/Esusu daily/weekly/monthly savings or rotating.	Government, FBOs, NGOs, NBA
	Agbero/Labourers Association	Adult men		
	National Union Road of Transport Workers (NURTW)			
	Middlemen association			
	Open Body Truck Transport Workers			
	Association Commercial Motorcycle of Nigeria (ACOMORAN)	Adult men and women		
	Neighbourhood micro saving scheme Groups (11)	Men		
	National Union of Road Transport Workers	Adult men and women		
Farm Produce Market Association				
Sport/ Supporters club	Assakio United	men	Out-matches, support for communities, entertainment football matches	NGOs, NBA, NASACA
Professional	Nigerian Labour Congress (NLC)	Men and women	Advocates for the welfare members such as salaries and promotion, protect the rights of HIV infected members, mediate for remuneration increase, Healthcare, including HIV/AIDS awareness	Government, NGOs
	Nigerian Union of Local government Employees (NULGE)			
Government	Primary Healthcare Centre Assakio	Primary Healthcare Centres women and youths Children, men,	HIV testing services, condom distribution, psychosocial support HIV prevention awareness, Family Planning, STDs services, PMTCT services, Clinics for pregnant women, Home-based care, and food and nutrition awareness.	Nasarawa State Primary Health Care Development Agency (NSPHDA)
	Lafia East Development Areas Headquarters,	the general public	Extension of administration at the local community	
NGOs	Vigilante Group of Nigeria (VGN)	Adult men and women	HIV testing services, distributes condoms, psychosocial support, HIV/AIDS awareness, Family Planning Services, Treatment of STDs, PMTCT and ARV therapy	NGOs, State Government, NASAC, World
	Kauna Clinic			
	Taimako Clinic and Maternity			
	Akoiwu Medical Clinic			
Most-at Risk	Commercial Sex Workers (CSW)	Women	sex work, substance abuse, sexual networking, street sex hawking, one night stand,	NGOs, NBA, NASACA

D5: Overview of activities across Social Organisations/Groups and Case Sites in the Study Locations

Categories of support in social groups/organisations	Type of activity	Categories of Social Group/organisation									Performed in Case			
		Family and Friends	Ethnic / Tribal	Religious / FBOs	Business /Market Trading	NG Os	Government	Professional	Sport / Supporters Clubs	Most at-risk	I	II	III	IV
Prevention Support	Encourage abstinence	X	X	X		X					X	X	X	X
	Encourage HIV testing	X	X	X		X	X	X			X	X	X	X
	Discourage extramarital sex	X	X	X		X	X				X	X	X	X
	Discourage night clubbing	X	X	X		X					X	X	X	X
	Good role model	X		X		X					X	X		
	Discourage drunkenness	X		X			X					X	X	X
	Mentor mothers											X		
	Promote condom use	X				X	X	X			X	X	X	X
	Peaceful coexistence and security	X	X	X		X	X	X			X	X	X	X
	Procure condoms					X	X				X	X	X	X
Distribute condoms					X	X				X	X	X	X	
Care and Treatment	ART Treatments			X		X	X				X	X		
	Community pharmacy					X	X				X	X		
	Treatment of STDs					X	X				X	X	X	X
	Homebased Care	X		X		X	X				X	X		
	Treat other Sickness					X	X				X	X	X	X
	Mental Health services					X	X				X	X		
	Medical outreaches		X	X		X	X				X	X	X	
	PMTCT Prevention			X		X	X				X	X		
Family planning services					X	X				X	X	X	X	
HIV Testing Services	Provide HIV testing			X		X	X				X	X	X	X
	Mandatory HIV and pregnancy test			X							X	X	X	X
	Voluntary HIV/AIDS counselling	x		x		x	x				x	x	x	x

D5::Overview of activities across Social Organisations/Groups and Case Sites in theStudy Locations (cont.)

Categories of support in social groups/ organisations	Type of activity	Categories of Social Group/organisation									Performed in Case			
		Family & Friends	Ethnic / Tribal	Religious / FBOs	Business /Market Trading	NGO s	Government	Profes- sional	Sport / Supporte rs Clubs	Most at-risk	I	II	III	IV
Education	HIV education	X	X	X		X	X			X	X	X	X	
	Capacity building			X		X	X				X	X	X	
	Health education	X		X		X	X			X	X	X	X	X
	Life skills coaching			X		X	X					X		X
	Agricultural skills		X	X	X	X	X				X	X	X	X
	Food and Nutrition awareness		X	X		X	X				X	X	X	
	IEC materials			X		X	X	X			X	X		
Economic support	Supply office furniture					X	X				X	X		
	Provide Hospital equipment		X			X	X				X	X		
	Provide loan/grant	X	X	X	X	X	X		X		X	X		X
	Pay school fees / scholarship to the vulnerable	X	X	X		X	X		X		X	X		X
	Entrepreneur skills	X	X	X	X	X	X		X		X	X	X	X
	Circulate news (on jobs, health, etc.)	X	X	X					X			X	X	X
	Employ/engage vulnerable people					X	X		X		X	X		
Financial support to the bereaved	X	X	X	X	X	X		X		X	X	X	X	
Social / Spiritual Support	Provide clothes and foods	X	X	X	X	X	X		X		X	X	X	X
	Spiritual support (Bible study, singing & prayers)	X		X							X	X	X	X
	Emotional support in difficult times	X	X	X	X	X	X		X		X	X	X	X
	Material gifts for child-birth, weddings etc.	X	X	X	X	X	X		X		X	X	X	X
	Provide psychosocial support	X	X	X	X	X	X		X		X	X	X	X
Legal Support	Advocate for justice and equity			X		X	X				X	X		
	Human right awareness							X			X	X		
	Mediate for the welfare of the vulnerable			X			X	X			X	X		
The Most at-risk	Multiple sex partnership									X	X	X	X	X
	Transactional sex									X	X	X	X	X
	Drugs and Substances abuse									X	X	X	X	X
	Inconsistent condom use									X	X	X	X	X
	Sex work									X	X	X	X	X

APPENDIX E: INTERVIEW QUESTION GUIDE

E1: Semi-Structured Interviews Guide

THEMES	QUESTIONS
Participant's Background Information	Would you briefly tell me about yourself?
Sexual activities and networking	<ul style="list-style-type: none"> ▪ Are you aware that people engage in different forms of sexual activities? ▪ Which one do you know about? ▪ Do you do any? How? Why? How regular? ▪ How many girls/boyfriends do you have?
	<ul style="list-style-type: none"> ▪ Whom do you discuss intimate and private issues of your life with? Why? ▪ If you are tested HIV positive/impregnated, who would like to inform? Why? ▪ With who do/would you discuss important sexual and HIV matters
Prevention of Sexual Transmitted Infections (STIs)/HIV/AIDS	<ul style="list-style-type: none"> ▪ Are you aware people can prevent pregnancy and STIs? ▪ Which have you ever used? Why? ▪ Has your partner ever refused use of protection during sex? Why? Did you do did you
	Have you ever test for HIV/used any method to prevent pregnancy/STI? Why did you use/not use it?
	How was methods used /non-use done/ decided?
Social Network Capital/	<ul style="list-style-type: none"> ▪ Are you aware of any association/group/club in your community? ▪ Are a member of any? ▪ What do you do? Who how is the nature of relationship in you group? ▪ Do you associate with other groups? ▪ What do you do together? ▪ Have you benefited from the group? ▪ From do they do? ▪ What are the benefits(probe on sexual behaviour and HIV/AIDS)

E2: Key Informant Interviews Guide

THEMES	QUESTIONS
Background Information	<ul style="list-style-type: none"> ▪ Would you briefly tell me about you organization?
Sexual Activities and traditions	<ul style="list-style-type: none"> ▪ Please describe to me your experience/understanding on the forms of sexual practices ▪ How has the forms of sexual behaviour been influenced in the past and present in the community
Roles of social groups/organizations in sexual health and HIV prevention	<ul style="list-style-type: none"> ▪ Tell me about your association/social group /organization activities on sexual health and HIV prevention information and skills
Social and behavioural context of sexual and HIV/AIDS	<ul style="list-style-type: none"> ▪ What are the crucial causes of the current sexual behaviours, lifestyles and HIV situation in this community?
Social groups' supports	<ul style="list-style-type: none"> ▪ What have you specifically achieved/impacted/influenced on the sexual health and HIV prevention behaviours? ▪ How are your activities working towards achieving sexual health and HIV/AIDS concerns in the Sustainable Development Goals (SDGs)?

E3: Social Groups / Organisations and Resources Inventory Record Form

Name	Social Group / Organisation and Resources								
	Year of Establishment/operation	Name of Community (Rural/Urban)	HIV prevalence Zone	Type of Organization /Social group	Activity Coverage (State, LGA, Rural level)	Membership strength/R registration	Type of Activities	How do you support members	Funding Partners /Sources

E4 : Policy Document Review Questions Record Form

Name of Organisation	Document / Project Title	Project Location	Funding Source	Purpose	Targets Audience	Specific Activity	Period of Activity	Number Reached Audience	Activity Impact

APPENDIX F: HAF II HIV PREVENTION PROGRAMME IMPLEMENTATION

F1: Plateau State HAF II Implementation of HIV Prevention Programme 20014-2017

Name of Organisation	Target Population	Contract Targets	Targe reached	Name of Organisation	Target Population	Contract Targets	Targe reached
AID Care Education & Training, Nigeria (ACET-NG)	SDD	660	270	Halt AIDS	SDD	540	988
	PMTCT	480	299		PMTCT	1864	807
	GP	752	1194		PLHIV	3750	1866
Adolescent Health Empowerment & Development Initiative Nigeria (AHEAD-	GP	6525	1067	Help International	SDD	1000	337
Bish Integrated Services (BIS)	PMTCT	440	134		OVC	670	1338
	GP	6665	1419	Inter Gender Development Centre	FSW	100	13
Christian Health Association of Nigeria (CHAN)	SDD	700	1388		SDD	540	90
	GP	6200	1220	PMTCT	1040	250	
	OVC	200	284	Manna Resource Development Centre	FSW	65	50
	PMTCT	1120	440		PLHIV	3784	1923
Community Initiative for Sustainable Development (COIN)	GP	6525	1888	Relief and Hope Foundation	SDD	800	567
	OVC	1410	1639		GP	6665	1095
	PLHI	5860	0		PLHIV	3783	672
Country Women Association of Nigeria (COWAN)	SDD	784	607	Scripture Union West Africa	FSW	65	106
	GP	6000	2061		GP	6665	706
	PLHIV	6200	1743	YARAC	FSW	40	48
FSW	40	30	SDD		960	644	
SDD	560	167	GP		6200	6676	
Fahariya Adolescent Development Network	PMTCT	1000	887	Youth's Information & Leadership Training	SDD	1000	484
	SDD	1560	361		GP	6525	1813
Fellowship of Christian Students	GP	6665	1496	Women in Agriculture and Youth	FSW	100	56
	PMTCT	764	766		GP	6665	232
	OVC	752	608				
GP = General Population				SDD =Short Distance Drivers			
PMTCT = Prevention of Mother-to-Child Transmission				OVC = Orphans and Vulnerable Children			
PLHIV =People Loiving with HIV				FSW = Female Sex Worker			

Source: Plateau State AIDS Control Agency (PLACA), 2018

F2: Nasarawa State HAF II Implementation of HIV Prevention Programme 20014-2017

Name of Organisation	Target Population	Contract Targets	Targe reached	Name of Organisation	Target Population	Contr act	Targe reached
Society for Women Development and Empowerment of Nigera (SWODEN)	FSW	400	250	Centre for Research and Documentation, COE Akwanga (CRD)	GP	485	110
	GP	400	271		IDU	135	70
CEDECOM	FSW	1711	1433	Nigeria AIDS Group of Islam Women Wing (NAGI)	PMTCT	3140	1609
	PLHIV	6325	1282		GP	2500	85
Child Right Foundation	PW	1128	602	Jama'atu Nasril Islam (JNI)	PMTCT	4148	1537
	GP	3000	2038		PLHIV	1062	225
Joint Alliance People AIDS Campaign and Awanreness Team	OVC	574	83	Family Health Care Foundation (FAHCI)	PMTCT	2000	800
	PMTCT	4124	2249		FSW	4700	444
Better Leven Advancement (BLA)	GP	64800	4199	Centre for Youth Transformation and Community Development	MSM	221	129
	PMTCT	3924	530		PMTCT	4124	3654
Taimako Women Health Foundation	GP	65274	1218	Centre for Women Youth and Community Action (NACWYCA)	GP	6760	2407
	PMTCT	2127	530		FSW	2000	927
Centre for Youth Challenge (CYCD)	FSW	1587	121	Africa Health Project (AHP)	GP	8000	3976
	GP	1800	194		FSW	1217	331
Monther and Child Care Enhancement Foundation (MCCEF)	PMTCT	3100	1061	Civil Society for HIV/AIDS in Nigeria (CISHAN)	OVC	721	200
	OVC	450	345		MSM	221	240
	PLHIV	2125	221	GP	6760	3940	
Community Life Advancement Project (CLAP)	PMTCT	3924	1682	HERWA Community Initiative	IDU	280	86
	GP	14000	325		GP	500	188
	OVC	462	501		OVC	926	210
Christian Association of Nigeria	GP	22500	850		FSW	565	275
					GP	8400	1253
GP = General Population			OVC = Orphans and Vulnerable Children				
PMTCT = Prevention of Mother-to-Child Transmission			FSW = Female Sex Worker				
PLHIV =People Loiving with HIV			MSM = Men having Sex with Men				
			IDU =Injecting Drug User				

Source: Plateau State AIDS Control Agency (PLACA), 2018