

**Cannabis use among young people in Nigeria:  
Exploring the context of use and associated factors**

**Osasuyi Osamuyimen Dirisu**

Submitted in accordance with the requirements for the  
Degree of Doctor of Philosophy (PhD)

The University of Leeds School of Medicine  
Leeds Institute of Health Sciences  
Academic Unit of Public Health

December 2015

The candidate confirms that the work submitted is her own and that appropriate credit has been given where reference has been made to the work of others.

This copy has been supplied on the understanding that it is copyright material and that no quotation from the thesis may be published without proper acknowledgement.

The right of Osasuyi Osamuyimen Dirisu to be identified as author of this work has been asserted by her in accordance with the UK Copyright, Designs and Patents Act 1988.

## **Dedication**

This thesis is dedicated to my Heavenly Father, His Love, Strength and Grace led me through this tortuous journey.

To the loving memory of my late mother, Patricia Ohienwata Olomu who infused my life with her passion and resilience and taught me to believe in the potential I had to make a difference.

To every young Nigerian who has dreams and aspirations despite the harsh sociocultural determinants, your aspirations are possibilities.

## Acknowledgements

I am especially thankful to my supervisors, Professor Darren Shickle and Dr Helen Elsey who kept me focused, guided and motivated, I can't thank you enough for your unwavering support throughout the PhD. I am grateful to the Commonwealth Scholarship Commission for facilitating the scholarship that marked the beginning of this amazing journey. To Mrs Theresa Munyombwe, thank you so much for the vital statistical support.

To Dr Tony Rapu, thank you for mentoring me on my path to work with substance users and to my amiable friends and colleagues at the House of Refuge, Freedom Foundation and God Bless Nigeria, your support is immensely appreciated.

To the awesome women who were there for my children when I could not; Adeola Olugbenga, Mary Oyelade, Victoria Audu, Funmi Amokeodo, thank you so much.

To my PhD colleagues (past and present), thank you for bringing rich diversity into this PhD process. Special thanks to my G.28 buddies, Joyce (for your constant encouragement), Alaa (for being so helpful during the last days) and Esmie cheering all the way from Malawi. To my colleagues who facilitated my fieldwork, Dr Alex Oni, Lanre Adegoke, Abang Sunday, Akin Fatuga, Remi Ogunsola and Dr Ohihoin for being such an amazing host.

To my dad, Solomon and my siblings, Eghe, Gilbert, Efe and Osa who have been there through the changing seasons of life, thank you for being so loving, supportive and reliable. To my dear husband, Biodun and my children, Prince and Somi, you paid the ultimate price! I can't thank you enough for all the sacrifice and support. I hope to make it up to you someday.

Above all, I acknowledge and celebrate God's faithfulness in this entire process. Thus far I have been helped!

## **Abstract**

**Background:** Cannabis is the most widely used illicit substance in Nigeria and is the first illicit substance young people are likely to use. There is evidence to show that cannabis use causes health and social problems that are more severe among young people. Cannabis use is criminalised in Nigeria and the context of use relating to motivation, risk factors and situations in which it is used is poorly understood.

**Aim:** This research aimed to explore the context and factors that are associated with cannabis initiation and continued use among young people in Nigeria with a view to making evidence based recommendations for health promotion.

**Methods:** Two studies were conducted in Lagos state among young people aged 16-21 years utilising the Theory of Triadic Influence as a framework. A quantitative study entailed the use of questionnaires to evaluate risk factors for the initiation and use of cannabis among 909 secondary school students in Lagos state. Binary logistic regression and multinomial logistic regression utilising latent class models were the analytical strategies used. A qualitative study utilising interviews and focus groups among 39 young people explored motivations, meanings and the context of cannabis use. Interviews were analysed using thematic analysis.

**Results:** Findings showed that initiation was influenced by subcultural issues and individual factors influenced continued use. There was a tendency for continuation after initiation that was possibly linked to its use as a coping strategy for social inequalities, failed aspirations, family conflicts and the criminal identity. Cannabis users were more likely to be older, higher sensation seekers and were associated with family members or peers who used cannabis.

**Recommendation:** These findings suggest that a non-judgemental participatory approach is needed to understand how the current cannabis policy affects young people. It is important to contextualise the needs of young people in programme planning.

# Table of Contents

<b>Dedication</b> .....	<b>iii</b>
<b>Acknowledgements</b> .....	<b>iv</b>
<b>Abstract</b> .....	<b>v</b>
<b>Table of Contents</b> .....	<b>vi</b>
<b>List of Tables</b> .....	<b>xv</b>
<b>List of figures</b> .....	<b>xvi</b>
<b>Chapter 1: Introduction</b> .....	<b>1</b>
1.1. Chapter overview .....	1
1.2. Definition of terminology used in this thesis .....	1
1.3. Overview of cannabis .....	2
1.4. Cannabis use in Nigeria: History and current situation .....	4
1.4.1. Introduction .....	4
1.4.2. Brief history of substance abuse and drug policies in Nigeria .....	4
1.4.3. The Nigerian Drug Law Enforcement Agency .....	7
1.5. Nigeria and illicit drug trafficking .....	11
1.6. Patterns and characteristics of cannabis use in Nigeria .....	13
1.6.1. Introduction .....	13
1.6.2. Hospital based studies .....	13
1.6.3. School surveys .....	15
1.6.4. Population surveys .....	15
1.7. Prevention and treatment services in Nigeria .....	16
1.7.1. Treatment services .....	16
1.7.2. Prevention services.....	17
1.8. Research context .....	18
1.8.1 Nigeria.....	18
1.8.2. Lagos .....	21
1.9. Chapter Summary.....	24
<b>Chapter 2: Theoretical Framework</b> .....	<b>25</b>
2.1. Chapter overview .....	25
2.2. The role of theory in health promotion for young people.....	25
2.2.1. Health promotion .....	25

2.2.2. Theory and health promotion .....	26
2.2.3. Theory, health promotion and young people .....	27
2.3. Multivariate theories of adolescent substance use .....	29
2.3.1. Cognitive Affective Theories .....	29
2.3.2. Social Learning Theories .....	30
2.3.3. Conventional Commitment and Social Attachment Theories .....	31
2.3.4. Theories with key focus on intrapersonal characteristics .....	32
2.3.5. Integrative theories of substance abuse .....	33
2.3.6. The Theory of Triadic Influence (TTI) .....	34
2.3.7. Tiers or levels of Influence for TTI .....	36
2.3.8. Streams of influence for TTI.....	38
2.3.9. Trial behaviour and actual behaviour in TTI .....	40
2.3.10. Applicability of TTI in this thesis .....	40
2.3.11. Limitations .....	41
2.3.12. Chapter summary .....	41
<b>Chapter 3: Review of risk factors and context.....</b>	<b>42</b>
3.1. Chapter overview .....	42
3.2. Cannabis use among young people: subculture and identity .....	42
3.2.1. Cannabis subculture .....	42
3.2.2. Normalisation and subculture .....	44
3.2.3. Cannabis use and the concept of risk.....	47
3.2.4. Cannabis and social identity .....	48
3.2.5. Cannabis and context .....	49
3.3. Sociocultural influences.....	50
3.3.1. Introduction .....	50
3.3.2. Neighbourhood, crime, poor job and academic opportunities.....	50
3.3.3. School norms and problems .....	51
3.3.4. Substance availability, media and weak public policies .....	52
3.3.5. Unconventional values, tolerance of deviance and alienation .....	54
3.4. Social/interpersonal influences.....	54
3.4.1. Family factors.....	54
3.4.2. Reward, Motivation and Negative Evaluation by Parents.....	55
3.4.3. Parental warmth, support, supervision and discipline.....	55

3.4.4. Home Strain, parental divorce or separation .....	55
3.4.5. Weak attachment and weak desire to please family .....	56
3.4.6. Strong attachments and strong desire to please peers .....	56
3.4.7. Substance use in peers and family members .....	58
3.5. Intrapersonal influences.....	59
3.5.1. Genetic Susceptibility to addiction .....	59
3.5.2. Impulse control, aggressiveness and external locus of control .....	60
3.5.3. Extroversion, risk taking and sensation seeking.....	60
3.5.4. Self Esteem, anxiety, depressed mood, poor coping .....	60
3.6. Related behaviour .....	61
3.6.1. 'Gateway hypothesis' and 'marijuana gateway effect' .....	61
3.6.2. Past smoking behaviour.....	62
3.7. Proximal Factors .....	63
3.8. Rationale for the study .....	65
3.9. Chapter summary .....	66
<b>Chapter 4: Research aims and methodological approach .....</b>	<b>67</b>
4.1. Introduction.....	67
4.2. Research aims and objectives .....	67
4.2.1. Research objectives .....	67
4.2.2. Research questions.....	67
4.3. Philosophical and methodological considerations.....	68
4.3.1. Introduction .....	68
4.3.2. Pragmatism as the epistemological stance .....	69
4.4. Research approach: quantitative and qualitative methods.....	70
4.4.1. Quantitative research and its evidence .....	71
4.4.2. Qualitative research and its evidence .....	71
4.5. Chapter summary.....	72
<b>Chapter 5: Quantitative methods .....</b>	<b>73</b>
5.1. Chapter overview .....	73
5.2. Study population and location .....	73
5.2.1. Study population .....	73
5.2.2. Considerations in determining the age of the target group .....	75
5.2.3. Study location .....	76

5.3. Sampling strategies .....	77
5.3.1 Sampling method .....	77
5.3.2 Sample size .....	77
5.3.3. Sampling design .....	78
5.4. Overview of survey measures .....	81
5.4.1. Psychometric considerations in substance use measurement .....	81
5.4.2. Questionnaire design .....	81
5.5. Measuring substance use .....	83
5.5.1. Recall periods and substance use measures .....	83
5.5.2. Lifetime or ‘ever’ used .....	84
5.5.3. Age of first use/duration of use .....	84
5.5.4. Annual or 12 month use .....	84
5.5.5. Past 30 day use or current use .....	85
5.5.6. Frequency of substance use .....	85
5.5.7. Quantity of substance used .....	86
5.6. Measuring risk factors in this study .....	86
5.6.1. Introduction .....	86
5.6.2. Risk factor measures .....	87
5.7. Reliability and validity of self-report .....	94
5.7.1. Introduction .....	94
5.7.2. Factors affecting validity of self-report .....	95
5.7.3. Evaluating validity of self-report .....	96
5.7.4. Self-report consistency: Global data .....	96
5.7.5. Self-report consistency: data from Africa .....	98
5.7.6. Checking for the accuracy/consistency of self-report .....	99
5.7.7. Implications of self-report consistency .....	100
5.7.8. Strategies to increase self-report accuracy in this research .....	101
5.8. Administering the survey .....	102
5.8.1. Ethical approval .....	102
5.8.2. Planning the survey .....	102
5.8.3. Pretesting the survey questionnaire .....	103
5.8.4. Survey administration .....	103
5.9. Data entry and data cleaning .....	103

5.9.1. Data entry .....	103
5.9.2. Data cleaning .....	104
5.10. Managing missing data.....	106
5.10.1. Introduction .....	106
5.10.2. Types of missing data .....	106
5.10.3. Strategies for managing missing data .....	107
5.11. Data analysis.....	108
5.11.1. Dependent variable .....	108
5.11.2. Descriptive analysis .....	108
5.11.3. Bivariate analysis .....	108
5.11.4. Binary logistic regression .....	108
5.11.5. Latent class analysis.....	111
5.12. Chapter summary .....	112
<b>Chapter 6: Qualitative methods.....</b>	<b>113</b>
6.1. Chapter overview .....	113
6.2. Study population and location .....	113
6.2.1. Target population .....	113
6.2.2. Study location .....	113
6.3. Study design .....	114
6.3.1. Researching sensitive issues: illicit cannabis use in Nigeria .....	114
6.3.2. Study setting: considerations for sample population .....	115
6.3.3. Approaches to data collection.....	116
6.3.4. The Topic guide.....	119
6.3.5. Snowball sampling .....	120
6.4. Recruitment of interviewees.....	121
6.4.1. Research assistants.....	121
6.4.2. Initial contact or ‘seed’ for Lagos Island.....	121
6.4.3. Recruitment of interviewees in Lagos Island.....	121
6.4.4. Lagos Island law enforcement raids .....	122
6.4.5. Challenges with recruiting female interviewees .....	123
6.4.6 Initial contact for Mushin .....	123
6.4.7. Recruitment of interviewees in Mushin .....	124
6.4.8. Mushin law enforcement raids.....	124

6.4.9. Recruitment of interviewees in a Mushin clinic .....	124
6.4.10. Telephone interviews .....	125
6.5. Ethics considerations in the research process .....	125
6.6. Managing the interviews.....	126
6.6.1. Piloting the topic guide: pilot interviews.....	126
6.6.2. The interviews.....	127
6.7. Ensuring quality and rigour .....	128
6.7.1. Triangulation.....	129
6.7.2. Audit trail .....	129
6.7.3. Deviant case analysis .....	129
6.7.4. Reflexivity.....	130
6.8. Analytical process .....	131
6.8.1. Data preparation for analysis .....	131
6.8.2. Data analysis .....	132
6.9. Chapter summary .....	134
<b>Chapter 7: Quantitative results .....</b>	<b>135</b>
7.1. Chapter overview .....	135
7.2 Demographic characteristics and substance use profiles .....	135
7.2.1. Demographic characteristics .....	135
7.2.2. Mean age at initiation and mean age of cannabis users.....	138
7.2.3. Mean age of cannabis users and substance use frequencies .....	138
7.2.4. Consistency of substance use reporting among participants.....	140
7.3. Missing data management .....	141
7.4. Descriptive results: Independent variables.....	142
7.4.1. Perceived availability and severity of cannabis dependence .....	142
7.4.2. Mean scores for continuous independent variables .....	143
7.4.3. Peer delinquency measures and parental substance use .....	144
7.5. Bivariate relationships .....	145
7.5.1. Cross tabulation of cannabis use and demographic variables .....	145
7.5.2. Logistic regression of cannabis use with continuous variables.....	149
7.6. Binary logistic Regression .....	151
7.6.1. Logistic regression analysis to obtain unadjusted odds ratios .....	151
7.6.2. Model variable selection .....	152

7.6.3. Fitting the logistic regression model .....	154
7.6.4 Logistic regression results.....	155
7.7. Evaluation of model fitness.....	157
7.8. Latent class analysis .....	158
7.8.1. Model selection .....	158
7.8.2. Description of latent classes.....	159
7.8.3. Associations between the latent classes and independent variables	159
7.8.4. Multinomial logistic regression .....	161
7.9: Chapter summary.....	162
<b>Chapter 8: Qualitative results .....</b>	<b>163</b>
8.1. Chapter overview .....	163
8.1.1. Interviewees .....	163
8.2. Cannabis use and the sociocultural context .....	166
8.2.1. Introduction .....	166
8.2.2. Facilitators: cannabis is normalised within the context .....	167
8.2.3. Probable restraints from cannabis use within the sociocultural context.	178
8.2.4. Summary on cannabis use within the sociocultural context.....	189
8.3. Cannabis use in the social/interpersonal context.....	190
8.3.1. Introduction .....	190
8.3.2. Friendship has varied meanings .....	191
8.3.3. Friends at home differ from friends on the streets.....	193
8.3.4. The influence of boyfriends.....	193
8.3.5. Social networks and the use of cannabis .....	194
8.3.6. Family associations and cannabis use .....	195
8.3.7. Summary on interpersonal context and levels of social influence ...	197
8.4. Cannabis use and intrapersonal factors.....	197
8.4.1. Motivation for cannabis initiation and use .....	197
8.4.2. The cannabis experience .....	213
8.4.3. Cannabis, madness and dependence .....	217
8.4.4. Summary on the cannabis experience .....	221
8.5. Related Behaviour .....	222
8.5.1. Cannabis use and cigarettes .....	222

8.5.2. Summary on related behaviour .....	225
8.6. Chapter summary .....	225
<b>Chapter 9: Discussion.....</b>	<b>226</b>
9.1. Chapter overview .....	226
9.2. Cannabis use patterns and demographic relationships .....	228
9.2.1. Demographic factors .....	228
9.2.2. Cannabis use patterns .....	230
9.3. The sociocultural environment .....	231
9.3.1. Normalisation and the subcultural context of cannabis use.....	232
9.3.2. Cannabis availability .....	235
9.3.3. Cannabis as a therapeutic substance .....	237
9.3.4. Social settings, neighbourhoods and social dimensions of cannabis	238
9.3.5. Law enforcement, society and the criminal identity.....	244
9.4. Social and interpersonal context.....	247
9.4.1. Peer relationships: attachment, associations and identification .....	247
9.4.2. Parental relationships: conflicts, attachment and family cannabis use.	253
9.4.3. Motivation to use cannabis .....	255
9.5. Intrapersonal Context.....	257
9.5.1. Cannabis use as a coping strategy .....	257
9.5.2. Sensation seeking and the concept of risk taking .....	259
9.5.3. Aggression and cannabis use.....	260
9.6. The cannabis use experience .....	261
9.6.1. Cannabis, madness and dependence .....	262
9.7. Related behaviour .....	264
9.7.1. Cannabis and polysubstance use .....	264
9.7.2. Relationship of cannabis with cigarette smoking.....	266
9.8. Discussion on methodological approach.....	268
9.8.1. Pragmatism as the epistemological stance .....	268
9.8.2. Theory of Triadic Influence .....	268
9.8.3. Sampling and inconsistencies in survey data .....	269
9.8.4. Data analysis .....	270
9.8.5. Interviews .....	270

9.9. Limitations of the research .....	271
9.10. Chapter summary .....	272
<b>Chapter 10: Conclusion.....</b>	<b>273</b>
10.1. Chapter overview .....	273
10.2. Summary of empirical findings.....	274
10.3. Recommendations and Implications for health promotion.....	275
10.3.1. Multilevel interventions for high risk groups .....	275
10.3.2. Build healthy public policy .....	276
10.3.3. Create supportive environments.....	278
10.3.4. Strengthen community action for health .....	280
10.3.5. Develop personal skills .....	280
10.3.6. Re-orient health services .....	281
10.4. Significance of study findings .....	282
10.5. Directions for future research .....	282
<b>Appendix A: Questionnaire .....</b>	<b>284</b>
<b>Appendix B: Evaluation of TTI risk factors .....</b>	<b>288</b>
<b>Appendix C: University of Leeds Ethics.....</b>	<b>289</b>
<b>Appendix D: Lagos Ethical/School Approval .....</b>	<b>290</b>
<b>Appendix E: Survey information sheet .....</b>	<b>291</b>
<b>Appendix F: Risk Assessment.....</b>	<b>292</b>
<b>Appendix G: Consent Form .....</b>	<b>293</b>
<b>Appendix H: Interview topic guide.....</b>	<b>294</b>
<b>Appendix I: Interview Information Sheet .....</b>	<b>295</b>
<b>Appendix J: Latent class model estimates .....</b>	<b>296</b>
<b>Appendix K: Leeds Ethics Amendment .....</b>	<b>297</b>
<b>References .....</b>	<b>298</b>

## List of Tables

Table 1.1. Number of suspects arrested by NDLEA 1990-2007 (J.E. Gyong, 2009)....	9
Table 2.1. Matrix of theories in TTI showing level and type of influence.....	35
Table 2.2. A matrix of influence factors of illicit substance use using the TTI.....	39
Table 4.1. Research paradigms (Adapted from Wahyuni, 2012).....	69
Table 5.1. Distribution of schools within the four zones in education district III....	79
Table 5.2. Summary of survey measures and instruments.....	88
Table 5.3. Summary of survey measures and instruments contd .....	89
Table 7.1. Demographic characteristics of the survey participants.....	136
Table 7.2. Parents' marital and educational status .....	137
Table 7.3. Mean age at which substances were first used .....	138
Table 7. 4. Substance use frequencies by participants' gender .....	139
Table 7.5. Disparities between reported 'use at any point' and lifetime use .....	141
Table 7.6. Perception of substance availability among participants .....	142
Table 7.7. Mean scores by gender for continuous independent variables .....	144
Table 7. 8. Peer delinquency and parental substance use by gender .....	145
Table 7.9. Cross tabulations between cannabis use and demographic variables ..	147
Table 7.10. Cross tabulation of cannabis use with peer and parental measures...	148
Table 7.11. Logistic regression for cannabis use and continuous variables .....	150
Table 7.12. Logistic regression with unadjusted individual variables.....	153
Table 7.13. Multicollinearity test using the Variance Inflation Factor (VIF).....	154
Table 7.14. Odds ratio and confidence intervals for logistic regression for lifetime, past 30 days and reported use at any point .....	156
Table 7.15. Overall model evaluation for current and lifetime cannabis use .....	157
Table 7.16. Model fit for class solutions .....	158
Table 7.17. Relationship of the latent classes with independent variables .....	160
Table 7.18. Multinomial logistic regression for latent classes.....	162
Table 8.1. Interviewees' pseudonyms and demographic profiles .....	164
Table 8.2. Summary of interviewee characteristics .....	165

## List of figures

Figure 1.1. Illicit trafficking process from South America to Europe (UNODC, 2009)	12
Figure 1.2. Map of Nigeria highlighting Lagos State in red (Dedering, 2010)	20
Figure 1.3. Map of Lagos State showing Mushin and Lagos Island (sydney, 2007)	22
Figure 2.1. Ottawa charter health promotion action areas (Ottawa charter 1986)	26
Figure 2.2. Multivariate theories of adolescent substance use	29
Figure 2.3. Theory of Triadic Influence highlighting some of its mediated pathways	37
Figure 5.1. Sampling design for the school survey	80
Figure 5.2. Evaluation criteria for substance use risk factors	87
Figure 5.3. Summary of school survey activities and processes	105
Figure 8.1. Thematic map for sociocultural context	166
Figure 8.2. Thematic map for social and interpersonal context	190
Figure 8.3. Thematic map for Intrapersonal context	198
Figure 9.1 Conceptual Framework of findings and health promotion action strategies	227

# Chapter 1: Introduction

## 1.1. Chapter overview

Cannabis is the third most commonly used substance globally after tobacco and alcohol and it is the first illicit substance that young people are likely to use (Murray et al., 2007, von Sydow et al., 2002). Illicit substance use has health, socioeconomic, political and health implications contributing 0.8% to the global burden of disease (Degenhardt et al., 2013b, WHO, 2004). Global annual prevalence (use at least once in the preceding year) of illicit substance was estimated to be between 3.4-7.0% or 162-329 million in people aged between 15-64 years in 2013 (UNODC, 2015). The global annual prevalence of cannabis use for the same period was between 2.7 – 4.9% or 128-232 million people making it the most widely consumed illicit substance worldwide (UNODC, 2015).

Cannabis is the most widely used illicit substance in Nigeria with an annual prevalence rate of 14.3% and it accounts for the highest treatment demand in Africa (UNODC, 2015). Uptake of substance use is typically an adolescent behaviour but the onset is a complex process that has roots in broad environmental, cultural and situational factors. The recurring question about whether or not Nigeria has a cannabis problem captures a wide range of assumptions that include the nature, extent, and significance of the problem in the country's scale of priorities (Isidore S, 1992). This thesis will evaluate cannabis use in Nigeria, situating it in the context of current policy, patterns of use and associated factors using quantitative and qualitative methods. This chapter provides an overview of cannabis, explores the background to cannabis policy and use in Nigeria and provides an overview of the research setting.

## 1.2. Definition of terminology used in this thesis

**Adolescents and young people:** Adolescence refers to the period between ages 10-19 years while youth is defined as the age range between 15- 24 years (WHO, 1986b). The WHO adopted a practical definition of young people which refers to the age range 10-24 years to encompass both adolescence and youth (WHO, 1986b). The decision to use

the term 'young people' originates from the fact that the age range sampled in this thesis was from age 16-21 although the concepts being explored were likely to originate in adolescence. The term 'adolescents' was used interchangeably with young people in this thesis because the concepts and theories used were developed for the study of adolescent substance use.

**Illicit substance:** In this thesis, this refers to substances for which the sale or use is against the law in a given context (WHO, 1994). Although illicit is used in this thesis, it is used interchangeably with illegal with specific reference to some literature.

**Licit substance:** This refers to a substance that is allowed by the law in a specific context and without a prescription (WHO, 1994).

**Decriminalisation and criminalisation:** Decriminalisation refers to abolishing or lessening the criminal penalties or consequences of engaging in a behaviour that is considered a crime (WHO, 1994). This does not stop the behaviour from being defined as a crime and it is only legalisation that can remove both the penalties and the definition of criminality (WHO, 1994).

**Substance use:** The term 'substance use' is utilised in this thesis to refer to various forms of licit or illicit use and when there are specific problems relating to use, these problems are stated. This was done to avoid the contentions with respect to the use of a wide range of terms such as substance abuse or substance misuse. In addition, any form of use of an illicit substance may be considered abuse or problematic just because the use is illicit (WHO, 1994).

### **1.3. Overview of cannabis**

Cannabis is derived from the Cannabis Sativa plant and is processed in different forms such as herbal cannabis (also known as weed) which consists of the dried leaves and flowering heads, cannabis oil and cannabis resin also known as hashish (UNODC, 2012). The use of cannabis dates back 4,000 years and perceptions about its effects have oscillated between two ends of the spectrum of it being therapeutic or being hazardous to health (Murray et al., 2007). Cannabis consists of over 400 constituents

out of which about 60 are cannabinoids and  $\Delta^9$ -tetrahydrocannabinol (THC) is the major psychoactive component (Ashton, 2001, Murray et al., 2007).

The potency of cannabis has been on the increase as a result of advanced growing techniques and the THC content has increased from 10mg in a reefer in 1960 to about 150-300mg mg especially in potent varieties such as skunkweed or hashish oil (Ashton, 2001). This implies that the contemporary cannabis user is exposed to THC with up to 15 times higher potency than in the past and since the effect is dose dependent, research on the effects need to reflect the current reality (Ashton, 2001). Cannabis is used in versatile ways ranging from being smoked in a joint to being ingested orally as part of cooked food or drinks (Ashton, 2001). Up to 50% of THC is inhaled when cannabis is smoked and this is available in the brain shortly after use with effects being fully noticeable within minutes; it takes from 30 to 120 minutes to notice the effects after oral use (Ashton, 2001). Due to its large concentration in fat tissues, it takes up to 30 days for consumed cannabis to clear from the body.

THC exerts its effects on cannabinoid receptors (CBRs) which mainly function within areas of the brain that coordinate memory, reward, pleasure, pain perception and cognitive functions (Ashton, 2001, Ashton, 2002, Murray et al., 2007, UNODC, 2012). The effects of THC include euphoria, hallucinations (high doses), impaired cognitive function, reduced psychomotor coordination, reduced reaction time, pain relief, increased appetite, sedation and relaxation with most of the effects being dose related (Ashton, 2001, Murray et al., 2007, UNODC, 2012). The acute health effects of cannabis include anxiety, hallucinations and psychosis in high doses while the chronic effects include dependence, respiratory disorders and cognitive impairment (Hall, 2009). The impact on cognition may be related to the age of onset and a link with impaired cognition has been observed in young people who initiate before 17 years (Murray et al., 2007). Cannabis has been linked with psychosis and numerous longitudinal studies have established the link after adjusting for the confounding effect of other psychoactive substances or pre-existing psychotic symptoms but the evidence, however, is strongly suggestive and not proof of causality (Murray et al., 2007). Evidence for cannabis related dependence has been shown from animal studies and

the fact that its use is not associated with overt withdrawal symptoms may be related with its slow elimination from the body (Murray et al., 2007). The health burden from cannabis use is linked more with mental health problems and dependence than with mortality (Degenhardt and Hall, 2012).

There is considerable ongoing research on the therapeutic benefits of cannabis; the challenge is ensuring a logical separation of the discourse about its medicinal value from the debates around its recreational use (Murray et al., 2007). Emerging concerns relating to recreational cannabis use are centred around its increasing THC content and the lowering of the age of onset of use among young people as both have significant implications for more severe consequences of use (Murray et al., 2007).

## **1.4. Cannabis use in Nigeria: History and current situation**

### **1.4.1. Introduction**

A critical aspect of the history of cannabis in Nigeria is understanding how perceptions and meanings attached to it evolved over decades to become accepted for use among young people within the local context (Klantschnig et al., 2014). Cannabis policies are woven into policies relating to other illicit substances and cannabis dominates debates about Nigeria's substance use policies. It has shaped policy discussions not only because it is the most widely used substance but because it has been linked with a wide range of perceptions in historic and contemporary society. Nigeria has consistently been reported to play a major role in global illicit drug trafficking for decades (Ellis, 2009, Klantschnig, 2009). This section briefly examines literature on how Nigeria's substance use history has evolved with a focus on policies, drug trafficking, patterns of use and intervention services.

### **1.4.2. Brief history of substance abuse and drug policies in Nigeria**

Substance use policies in Nigeria date back to 1889-1890 when its colonial rulers acting under International Treaties from the Brussels conference strived to limit the importation and sale of alcohol to assuage competing moral, political and economic interests (Klein, 1999, Olorunfemi, 1984). Nigeria was included in the Opium Control Treaty of 1912 by Britain as part of a plan that extended the provisions of the Treaty to

all its colonised territories (Klein, 1999). In 1935, international control of dangerous substances, opium and poisons was regulated by the Dangerous Drugs Ordinance and at that time, there was no indication that opium, cannabis or cocaine existed in Nigeria (Klantschnig et al., 2014, Klein, 1999, NDLEA, 1989). Apart from debates and concerns about alcohol problems at this time, the use of other substances was considered almost non-existent and the law was instituted only to fulfil international treaties (Klantschnig et al., 2014).

Research documenting substance misuse as an emerging concern in Nigeria dates back to the late 1950s (Ebie and Pela, 1981b). Cannabis was not originally native to Nigeria and was presumed to have been brought in after the Second World War by soldiers returning from training in Asia where they had been introduced to it (Isidore S, 1990a, Isidore S, 1992, Klein, 1999). Its use was initially reported among labourers, seaport workers and ex-soldiers but by the 1960s, young people, skilled workers and a wide range of working class people were also identified as users (Isidore S, 1990a, Klantschnig et al., 2014). The use of cannabis in coastal West African cities like Lagos was due to the role of Lagos ports in the conveyance of cannabis from India to United Kingdom (Klantschnig et al., 2014).

The tropical climate in Nigeria facilitated the growth of cannabis and its transition from an imported to indigenous substance within a short time (Isidore S, 1992, Isidore S, 2004). Rural urban migration may also have played a role in the changing dynamics of cannabis use in Nigeria. Cannabis use was not viewed by the colonial masters in Nigeria as a social, health or political concern in the 1950s even though the police had begun issuing warnings about the growing availability and potential dangers (Klantschnig et al., 2014). Post-independence in the 1960s, cultivation increased leading to increased availability and affordability with its use extending to a wide range of social classes (Klantschnig et al., 2014). Increased police surveillance resulted in an exponential increase in seizures and massive media coverage of cannabis related activities at that time was tagged '*Hemp boom in Lagos*' (Klantschnig et al., 2014).

Increased uptake of cannabis mainly among urban youth was perceived to be related to a surge in violence in the Western part of Nigeria at that time although there was

barely any evidence of such a link (Isidore S, 1992, Klantschnig et al., 2014). Westernisation of traditional African music in the mid-1960s resulted in cannabis use in clubs being associated with a sophisticated lifestyle and as the scope of its use widened so did the perceptions about it (Klantschnig et al., 2014). Fela Kuti, the king of afro beat music was instrumental in the socialisation of cannabis as he openly smoked it in his 'Shrine' and sang to his audience about 'igbo' (cannabis) being good and 'gbana' (heroin) being deleterious to health (Klein, 1999).

An increase in treatment demand and in the number of cannabis related admissions in psychiatric hospitals especially among young people in the 1960s was perceived as an indication that it was harmful and psychiatrists began to highlight the effects of cannabis (Isidore S, 1992, Klantschnig et al., 2014). Prominent Nigerian psychiatrists and researchers such as Thomas Adeoye Lambo began to engage the public about cannabis and associated mental health problems but his effort was perceived as an endorsement that cannabis caused 'madness' (Klantschnig et al., 2014). This is not surprising because there is an embedded public perception in Nigeria that psychiatrists are doctors who treat problems relating to insanity. Despite the fact that cannabis use was common, it was not accepted in mainstream society and was viewed as related to madness and deviance (Klein, 1999). Obot (1992) captured this perception thus:

*'The complexity of the relationship between cannabis use and mental illness notwithstanding, madness remains the most salient feature of cannabis consumption in the public imagination. This association has helped to shape Indian hemp laws in modern Nigeria and may explain the persistent support for the continuation of strict punishment for offences' (Isidore S, 1992).*

The rise in the admission of cannabis users in Lagos hospitals from 8% in 1962 to 21% of patients with acute psychotic symptoms in 1965 was interpreted as an indication of growing problematic cannabis use and the need for action (Isidore S, 1990a). Although Thomas Adeoye Lambo advocated for a more inclusive approach in addressing the issue, the military government in 1966 was more disposed to a radical approach to drug control (Klantschnig et al., 2014). The military government had cited the country's need for drastic and revolutionary reforms as their basis for overthrowing the previous

democratic government (Klantschnig et al., 2014). It was presumed that Thomas Adeoye Lambo's complicated proposal to integrate social, educational, health and legal dimensions into a holistic programme was unworkable and unrealistic at that time (Klantschnig et al., 2014). The cannabis problem had been viewed as a law enforcement issue and thus the solution was also viewed the same way.

Widespread use of cannabis was depicted as a sign of socio-political disarray and deviance among young people and this culminated in the introduction of the Indian Hemp decree in 1966 (Klantschnig et al., 2014). The Indian Hemp Decree 19 was enacted by the Nigerian government with harsh punishments such as the death penalty for cultivation or trafficking and prison sentences for use or possession of Indian hemp paraphernalia (Klantschnig et al., 2014, Owoade, 1989). This strategy was expected to eradicate supply of cannabis but regardless of the harsh penalties, statistics showed that the cultivation and use of cannabis became progressively more extensive (Klein, 2001).

The realities of the expanding cannabis problem led to the revision of the penalties and in 1975, the Indian Hemp Amendment Act replaced the Decree resulting in revision of the death penalty to prison terms of less than 10 years and a fine (Klantschnig et al., 2014, Owoade, 1989, V. O. Oviasu, 1976). The Indian Hemp Amendment Decree (Special Tribunal Decree) in 1984 led to a repeal of the Amendment Act and reintroduction of harsh penalties such as the death penalty by firing squad for drug offences (Isidore S, 2004, Klein, 1999, O S Omadjohwoefe, 2010). The control of cannabis was the main focus of Nigeria's drug laws until 1984 when the decree included other drugs such as cocaine which became identified as a problem (Isidore S, 1992). The use of cocaine and heroin in Nigeria was first reported in 1983 (Pela and J. C. Ebie, 1982). Public outcry following the execution of some convicted traffickers led to the replacement of the death penalty with life imprisonment and asset forfeiture (Isidore S, 2004, Klein, 1994, Klein, 1999).

#### **1.4.3. The Nigerian Drug Law Enforcement Agency**

In 1989, the National Drug Law Enforcement Agency (NDLEA) was set up in line with the 1988 United Nations Convention against illicit traffic in narcotic drugs and

psychotropic substances to coordinate drug law enforcement (J.E. Gyong, 2009). Prior to the establishment of NDLEA, the police force had a narcotic section that coordinated the arrest and prosecution of drug offenders. NDLEA is the apex substance use agency that coordinates the entire spectrum of supply and demand reduction including prevention and treatment (NDLEA, 1989). NDLEA was commissioned to spearhead the task of supply and demand reduction of illicit drugs and ultimately set the pace in Africa. Its mission statement read thus:

*'The National Drug Law Enforcement Agency shall deploy all resources at its disposal for the total eradication of illicit trafficking in narcotic drugs and psychotropic substances; suppression of demand for illicit drugs and other substances of abuse; recovery of ill-gotten wealth, acquired from proceeds of illicit drug trade, protection, enhancement and maintenance of the image of Nigeria and Nigerians at home and abroad'* (NDLEA, 1989).

Under this Decree illicit drug trafficking was punishable by life imprisonment and possession or use was punishable by jail terms that ranged from between 15-25 years in addition to asset forfeiture (NDLEA, 1989). A further amendment to the decree in 1990 incorporated a subsection that made Nigerian convicts for drug related crimes abroad also guilty of the same crimes in Nigeria and it was tagged 'double jeopardy' (Klein, 1999). These offenders were punished a second time for the same offence in Nigeria for harming the country's reputation after serving sentences abroad (Klein, 1999). NDLEA was also authorised by the Money Laundering Decree of 1995 to scrutinise financial records, correspondences and communication trails of suspects (Klein, 1999). Sixteen out of eighteen functions of the NDLEA relate to enforcement and within a decade after the NDLEA decree was in force, there were myriads of arrests, seizures, detentions and asset forfeitures (Klantschnig, 2009, Klein, 1999).

There were widespread allegations of human right abuse but these were overshadowed by the perceived success of the drug control strategy (Klein, 1999). The perception of success was based on reports which showed that an increasing number of people were being arrested and more seizures were being made as shown in Table 1.1. Leaders of drug trafficking networks in Nigeria have consistently evaded prosecution and majority of those arrested by NDLEA for drug related charges were

cannabis users and street peddlers of cannabis (Klein, 1999). Over a 4 year period, 93.8% of arrests reported in a study were mainly cannabis users and this reflected the fact that they were easier target than high profile dealers (Klein, 1999). An evaluation of NDLEA arrest data in Table 1.1 showed that arrests increased from 464 in 1999 to 6,308 in 2007 (J.E. Gyong, 2009). Over 80% of detainees in 2006 were arrested for cannabis related offenses and most of them were male, unemployed street peddlers and users arrested for possessing less than 50g of cannabis (J.E. Gyong, 2009).

**Table 1.1. Number of suspects arrested by NDLEA 1990-2007 (J.E. Gyong, 2009)**

Year	Males	Females	Total
1990	NA	NA	464
1991	NA	NA	293
1992	NA	NA	395
1993	NA	NA	458
1994	632	61	693
1995	732	66	798
1996	1099	88	1187
1997	2208	164	2372
1998	2610	204	2814
1999	2380	121	2501
2000	2253	132	2385
2001	2693	136	2829
2002	2549	108	2657
2003	2316	174	2490
2004	3382	318	3700
2005	3181	292	3473
2006	5883	440	6323
2007	5891	417	6308
<b>TOTAL</b>	<b>37809</b>	<b>2721</b>	<b>42140</b>

Although the data provides some useful information regarding detainees, it is unclear how the NDLEA collects data on arrests and seizures. The NDLEA was, however, plagued with problems of bribery, corruption and accountability from inception and senior officials were frequently dismissed for accepting bribes to facilitate drug trafficking or escape of suspects from detention (Ellis, 2009, Klein, 1994). In one instance, only 12 out of 637 wraps seized of heroin recorded in the NDLEA inventory

was available for inspection during an unscheduled visit by the Chairman of the NDLEA tribunal, the rest had disappeared (Klein, 1999).

Nigeria was decertified by the United States Drug Enforcement Agency in 1994 for its increasing role in escalating drug trafficking to the United States along with Myanmar, Iran and Syria (Isidore S, 2004). Nigeria was the only African country to be decertified; strict sanctions were instituted and development support was withdrawn (Isidore S, 2004). The implications of being decertified meant that vital aid could be withdrawn and sanctions instituted to pressure the country to comply with USA's counternarcotic strategy. These sanctions put pressure on the Nigerian Government to institute stricter measures to combat trafficking in order to get recertified (Isidore S, 2004). Although Nigeria did not meet the recertification criteria set by the United States, it was recertified in 1999 on the premise of 'vital national interests' (Isidore S, 2004).

There are arguments that there were political dimensions to the decertification of Nigeria because it was done to pressure the military dictatorship that was ruling Nigeria during that period (Klein, 1999). The incentives in complying with the USA's drug control policy were considered too critical to ignore because receipt of foreign aid and favourable trade were tied to recertification and acting contrary was considered devastating (Isidore S, 1992). This pressure to comply with external drug control mandates reflect the highly political nature of the substance use discourse that undermine the need to focus internally, contextualise the problem and potential solutions.

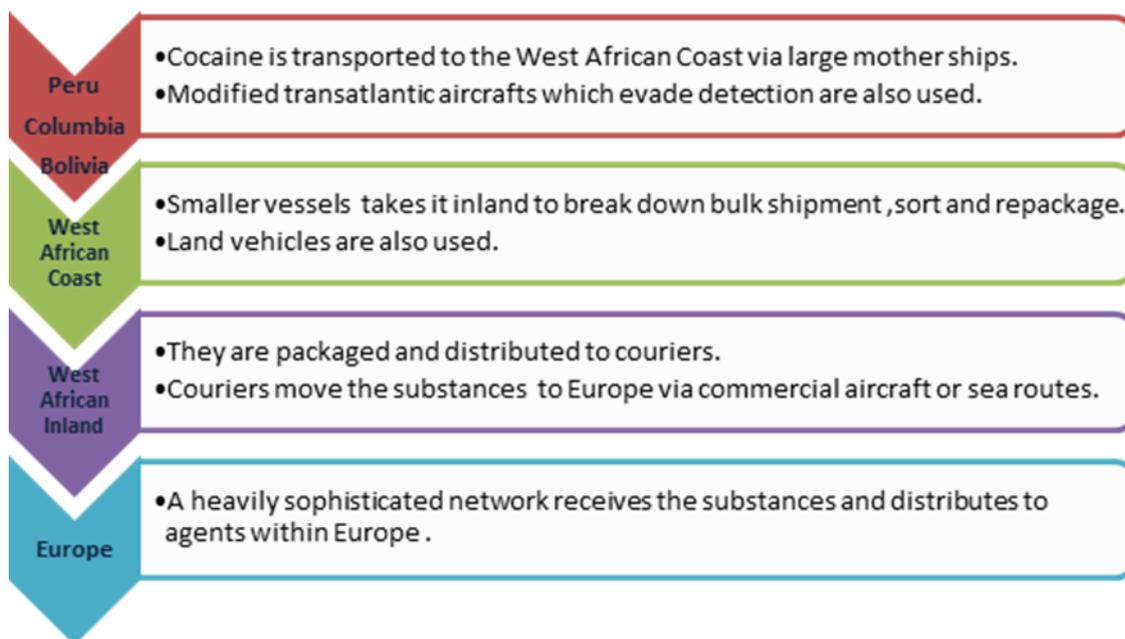
Although the first National Drug Control Master Plan (NDCMP) was launched in 1999, its documentation was mainly about arrests and seizures with little mention of prevention or treatment activities (NDLEA, 2015). Nigeria's entanglement in the politics of meeting international yardsticks relating to trafficking have resulted in its failure to constructively address its substance use problems (Ellis, 2009, Klantschnig, 2009). These yardsticks do not address vital areas in substance misuse interventions such as prevention, treatment, advertising restrictions, and protection of vulnerable groups (Isidore S, 1992). The most recent NDCMP (2015-2019) was launched by the NDLEA in May 2015 as a framework for demand, supply and harm reduction. The plan

advocates an integrated approach to addressing legal and public health aspects of illicit substance use (NDLEA, 2015). The current NDCMP and its possible implications for health promotion in Nigeria will be discussed in Chapter 10.

The foundation for the current perceptions about cannabis use and control was laid in the 1960s and there has been limited policy deliberations since then because the policy framework has been institutionalised through the NDLEA (Klantschnig et al., 2014). The overriding portrayal of cannabis is driven by the policy framework which criminalises cannabis use and it has been suggested that the stance that law enforcement is the panacea is deeply ingrained in all strata of society (Isidore S, 1992).

### **1.5. Nigeria and illicit drug trafficking**

Nigeria is reported to be a major transit hub for drug trafficking in Africa and Nigerians constitute complex trafficking and money laundering networks spread all over the world (INL, 2010, UNODC, 2009). Nigeria was considered by trafficking networks as a lucrative route because of its weak border controls, weak justice system, complex social problems and the affinity for affluent lifestyles (Ellis, 2009, Klein, 1994). Nigeria has consistently been listed among the United States drug transit countries and was the only African country listed among 20 major illicit drug producing and/or drug-transit countries in 2009 (INL, 2010). Although Nigeria has documented some progress in terms of increase budget for drug law enforcement and seizures, Nigerian drug syndicates still operate complicated, drug trafficking and distribution networks around the world (UNODC, 2009). Emerging trafficking opportunities to Europe (Figure 1.1) are presumed to be responsible for the increasing use of West Africa and consequently Nigeria as a trafficking hub (UNODC, 2015). Over a 2 year period under review from 2006- 2008, 57% of the drug couriers arrested in West Africa were Nigerians and they were arrested attempting to courier drugs out of every country in West Africa except Guinea Bissau (UNODC, 2009). Nigerians, however, make up over 50% of West Africa's population so this finding needs to be viewed contextually.



**Figure 1.1. Illicit trafficking process from South America to Europe (UNODC, 2009)**

The global illicit drug trafficking business is presumed to be worth \$400b globally; dealers easily bribe their way through corrupt judicial, enforcement or border system (UNODC, 2015). Several transit points are utilised to facilitate the complex and risky packaging or routing of funds and illicit substances to their destination (UNODC, 2015). Illicit drug trafficking is a part of the big picture which encompasses various forms of illicit trade from weapons to human trafficking as almost all illicit trades facilitate the drug trade (UNODC, 2009). There are strong arguments that Nigeria started out as a drug trafficking country and consequently evolved to become a drug consuming country (Klein, 1994). It has been argued that the quantity of substances trafficked through Nigeria is insignificant compared to the global picture and thus not commensurate with the foreign pressure on Nigeria to institute draconian drug laws (Isidore S, 1992). The pressure to reduce trafficking and improve the country's image abroad underpins Nigeria's relationships with international narcotic agencies (Ellis, 2009, Isidore S, 1992, Isidore S, 2004, Klantschnig, 2009). Research in substance misuse and trafficking is limited in Nigeria and thus the changing trends in demand and supply are rarely available for policy and planning (Isidore S, 1992).

## **1.6. Patterns and characteristics of cannabis use in Nigeria**

### **1.6.1. Introduction**

Although large scale epidemiological surveys that can characterize the distribution and determinants of substance misuse including cannabis in Nigeria have been advocated, they are still lacking (Ebie and Pela, 1981a, Isidore S, 1990a, Morakinyo and Odejide, 2003). Available studies are mainly cross sectional and limited in terms of inferences for planning intervention programmes and they lacked vital methodological information (Adelekan, 1996, Isidore S, 2004). In the 1960s, most surveys were hospital based, later on school surveys were carried out and then community and small scale population surveys (Ebie and Pela, 1981b, Isidore S, 1990b, J. Nevadomsky, 1981, Morakinyo and Odejide, 2003, Pela and J. C. Ebie, 1982).

Although most of these studies were of limited epidemiological significance, they provided useful insight into the trends in substance user characteristics. There were no standard classifications for measuring occupational, educational and socioeconomic status of hospitalised patients and variations were observed in how these parameters were assessed. Studies carried out in the 1960s indicated that most patients hospitalised for cannabis related problems were unskilled and semi-skilled workers while about 10% were students (Ebie and Pela, 1981b). The situation changed in the 1970s and instead of low skilled workers, students constituted a higher percentage of hospitalised cannabis users although immediately after the Nigerian civil war in 1972, soldiers constituted up to 50% (Ebie and Pela, 1981b). Most of these studies were carried out in South Western Nigeria and may not reflect the situation in other parts of Nigeria at that time (Oshodi OY, 2010). Substances initially observed among young people were cannabis, alcohol, and amphetamines (Amechi Anumonye, 1980, Ebie and Pela, 1981a).

### **1.6.2. Hospital based studies**

In a school survey and hospital study conducted simultaneously in 1973 in Lagos, cannabis (2.5%) had the second highest frequency of use in the school survey after alcohol (20.9%) in a sample of 2,846 students (Amechi Anumonye, 1980). Cannabis, however, accounted for the highest number of hospital substance use treatments

constituting 78% of the 300 patients treated on an inpatient or outpatient basis (Amechi Anumonye, 1980). Over 80% of these patients reported initiation between ages 14-16 and most of them had their first hospital appointments between age 15-18 years (Amechi Anumonye, 1980). There was limited information on the cannabis user profiles and sampling methods for the 17 secondary schools included in the survey. Although data from the hospital and school study cannot be integrated to make inferences, the findings were useful in highlighting the dominance of cannabis in treatment demand for substances.

A retrospective review of drug related admissions in 28 psychiatric care facilities across Nigeria in 1986 showed that substance related problems accounted for 866 or 8.3% of all admissions (Ohaeri and Odejide, 1993). In Northern Nigerian facilities, 77% (352 patients) of the admissions were for cannabis followed by alcohol, heroin and cocaine while in the Southern Nigeria, 60.6% (248 patients) was for cannabis followed by heroin, cocaine and alcohol (Ohaeri and Odejide, 1993). Cannabis was the most common substance related to hospitalisation in both regions and it constituted a higher proportion of admissions in the North than South. The findings appear to correspond with the dynamics of substance availability as cocaine and heroin had just been introduced to Nigeria and was more likely be available in the South due to its proximity to coastal areas and major airports. These reviews are limited in being able to capture contextual data to account for the differences in the regions. The hospitals did not have a standardised format for collecting substance use data and this poses a challenge in making additional inferences (Ohaeri and Odejide, 1993).

A hospital based evaluation of substance related admissions utilising standardised protocols over a 10 year period ending in 2007 showed that majority were males (90%) and initiation of substance use was predominantly between age 15- 19 years (Adamson et al., 2010). In the first 5 years, cocaine (44%) accounted for the highest number of admissions and in the second 5 years, cannabis (56%) accounted for the highest number of admissions (Adamson et al., 2010). Another hospital review between 2004-2008 showed that 55% were admitted on account of cannabis with males more than females (T. A. Adamson 2010). One challenge with making inferences

from hospital data is that it is difficult to ascertain if patients admitted for cannabis related problems (especially mental health) suffered those problems as a consequence of cannabis use or used cannabis to mitigate the problems. In addition, it has been suggested that the high proportion of cannabis users who sought treatment were disoriented early users who did not understand that the 'strange' effects of cannabis they experienced were 'normal' (J. Nevadomsky, 1981). Despite these limitations and irrespective of the motivation for the hospital visits, the marked increase in treatment demand for cannabis and arrests related to cannabis provide a strong indication that cannabis use was increasing in Nigeria.

### **1.6.3. School surveys**

A review of school surveys conducted between 1978-1992 showed that cannabis was the third most common substance used after alcohol and tobacco in studies that evaluated multiple substances and majority of the users were male (Omoluabi, 1995). A school survey of 1,500 students in 1981 showed that cannabis was the third most commonly used substance after alcohol and tobacco with a lifetime use of 10% (J. Nevadomsky, 1981). Cannabis use frequency varied from 3% to 16.7% in some school surveys evaluated between 1983- 2010 and mainly conducted in South Western Nigeria (Atoyebi and Atoyebi, 2013, Fatoye and Morakinyo, 2002, Morakinyo, 1983, Oshodi OY, 2010). In all the studies listed, cannabis was the second or third most common substance used except the study conducted in 2013 in which cannabis was the most commonly used (16.7%) compared with tobacco (14.3%) and alcohol (8.3%) use (Atoyebi and Atoyebi, 2013). The higher proportion of cannabis users compared to other substances may reflect a new trend but more studies will be needed to confirm. Schools survey data sometimes does not appear to match empirical evidence because it is widely believed that participants underreport their use of cannabis to avoid stigma and probable legal consequences of admitting to use.

### **1.6.4. Population surveys**

A WHO World Mental Health population survey of 17 countries including Nigeria in 2008 reported that countries with stricter illicit substance use policies did not necessarily report lower substance use than those with relaxed policies (Degenhardt et

al., 2008). The lifetime prevalence of cannabis use reported for Nigeria was 2.7% (much lower than annual prevalence of 13.8% reported by UNODC during the same period) and mid to late adolescence was the time period considered with the highest risk (Degenhardt et al., 2008). The study indicated that despite measures adopted to improve self-report accuracy, prevalence data from developing countries participating in the mental health survey may be much lower than actual prevalence (Degenhardt et al., 2008). Data on arrest and seizures which are the most readily available in the country do not provide an indication of trends in consumption of substances (Adelekan, 1996). Trends in the street value of substances provide a fairly good indication of the impact of demand and supply forces although cheaper forms of a substance could account for price reduction as seen in cocaine and heroin in the past (Adelekan, 1996, Klein, 1999).

## **1.7. Prevention and treatment services in Nigeria**

### **1.7.1. Treatment services**

Substance misuse services are poorly defined in Nigeria and although most psychiatric hospitals provide treatment services, the NDLEA has the overall mandate for coordinating prevention and treatment services. The conflicts that exist between policy and intervention may hinder substance users from seeking help for fear of stigma. Treatment services have slowly evolved in Nigeria, they are not well regulated and there is currently no national directory or regulatory body for treatment centres in Nigeria (Onifade et al., 2011). This implies that users may not be aware in the first instance of where to get help as there is limited information on the location and services offered by treatment centres.

Substance use treatment was traditionally offered as part of services provided by psychiatric hospitals until a dedicated Drug Addiction Treatment Education and Research unit (DATER) was set up in 1983 (Onifade et al., 2011, T. A. Adamson 2010). Some reports that have listed a few treatment centres in Nigeria did not provide details about the services rendered (Onifade et al., 2011). Treatment services have taken different approaches based on the cultural understanding of the problem of

substance misuse. Several traditional homes offer both outpatient and residential treatments and faith based programmes run by religious organisations play a very prominent role in treatment (Odejide et al., 1989). Data on the treatment process and outcome for these programmes is not available. A descriptive survey of treatment centres in Nigeria conducted in 2011 documented 62 units excluding traditional healing homes that provide some form of substance misuse services (Onifade et al., 2011). Only 31 centres provided coordinated non-residential and/or residential substance misuse treatment out of which 58.1% were run by non-governmental organisations and 35.5% were government owned (Onifade et al., 2011). About half of the centres were located in the South Western part of Nigeria which is just one of the six geopolitical zones in the country. The 62 treatment centres represent centres that delegated their personnel to participate in a UNODC training implying that treatment centres that did not attend the training were automatically excluded.

Funding and long term sustainability is a challenge especially since NGOs that bear a significant burden rely mainly on charitable donations and health insurance schemes exclude these services in Nigeria (Onifade et al., 2011). The 16 residential treatment centres evaluated in the study had a combined capacity to provide in patient care for 566 patients at any given time and the duration of residential care ranged from three months to two years (Onifade et al., 2011). Considering the country's population and current prevalence estimates, this capacity is grossly inadequate although actual treatment demand is not known. The role of NGOs in rendering substance use services is remarkable but inferences cannot be made on service quality or treatment outcomes because half of the programmes don't evaluate their services (Onifade et al., 2011). The NDLEA has a treatment and rehabilitation unit which provides counselling and referral services for substance users. In 2011, 4,162 substance users underwent the NDLEA counselling programme; the process or outcome of the programme is not stated in the NDLEA 2011 annual report (NDLEA, 2015).

### **1.7.2. Prevention services**

Prevention services are coordinated by the NDLEA and NGOs play a vital role in public sensitisation about the dangers of substance misuse. The NDLEA has a Drug Abuse

Prevention Education unit (DAPE) as part of its demand reduction services which is charged with the responsibility of creating awareness at school, community and national level about dangers of substance misuse and trafficking (NDLEA, 2015). The DAPE unit coordinates lectures on substance misuse and has been working with the National Council on Education to incorporate a Drug Abuse Education Curriculum for schools (NDLEA, 2015). Unfortunately, the details of these services, their effectiveness and long term impact is unclear and they don't appear to be driven by what works in terms of behaviour change (Klein, 1999). Some of the prevention campaigns organised in the past include one that was launched in 1987 and involved dissemination of antidrug messages using diverse mass media strategies under a theme tagged 'Yes to life: No to drug abuse' (Klein, 1994). Most of these campaigns were one off strategies that were not sustained or evaluated and they were unlikely to convey contextual evidence based messages because they were copied from other countries. No coordinated short or long term prevention or health promotion programme for substance misuse in Nigeria was identified in literature.

The reinforced narrative about Nigeria being a transit point for substances has led to a down play of the issues relating to demand reduction and this is reflected in the national strategy which does not emphasize intervention (Klein, 1994). It was assumed that supply reduction would lead to reduced local consumption and thus act as an incentive to achieve demand reduction but without evidence, such conclusions are presumptive (Klein, 1999).

## **1.8. Research context**

### **1.8.1 Nigeria**

Nigeria with an estimated population of 177.5 million, is the most populous country in Africa and the 8<sup>th</sup> most populous country in the world (Bank, 2015). Nigeria constitutes about half the population of the West African region which is home to 15 other countries and accounts for 60% of the GDP of the region (Bank, 2015, UNODC, 2009). Nigeria as shown in figure 1.2 has existed as a nation since 1914 with the amalgamation of the Southern and Northern regions under the British rule

(Commission, 2014). Despite the amalgamation, Nigeria is distinctly divided along ethnic and religious lines possibly because its creation facilitated colonial administration and trade as opposed to historical commonalities or ethnic and sociocultural integration (Ghanbari, 2011).

When Nigeria achieved full independence in 1960, Lagos was the administrative capital until 1991 when it was moved to Abuja (Commission, 2014). Nigeria has 36 states and is divided into six geopolitical zones namely the South West, South South, South East, North West, North Central and North East which are ethnically diverse with over 200 ethnic groups and 500 local languages (Commission, 2014). The major religions practiced in Nigeria include Islam which constitutes 50%, Christianity 40% and other traditional lineal religions 10% (Falola and Heaton, 2008). Post-independence, the effect of Nigeria's diversity was reflected in intense political, ethnic and religious conflicts that culminated in a civil war in 1967. Military rule lasted from 1966-1999 with a brief period of civilian administration from 1979-1983 and this period was marked by corruption, repression and socioeconomic problems. Uneven distribution of resources and ineffective strategies for empowerment laid the foundation for inequalities, socioeconomic disparities and underdevelopment.

The country has rich natural resources and geographical features and is listed among the top 10 oil producing nations in the world (Falola and Heaton, 2008). Although agriculture was the backbone of the country's economic growth in the early 1960s, it gradually took the backseat with the discovery of oil to the point where the economy became over reliant on oil revenue (Commission, 2014). The rich cultural diversity and natural resources has not translated into sustained positive development since its independence in 1960 because of repeated cycles of ethno-religious tensions compounded by squabbles for resource control, crippling corruption and poverty (Falola and Heaton, 2008). English is the official language of instruction and communication; Pidgin English which is a hybrid of English language and other local languages or slangs is a popular means of communication.



**Figure 1.2. Map of Nigeria highlighting Lagos State in red (Dedering, 2010)**

The Nigerian educational system has evolved through decades and the Universal Basic Education (UBE) scheme which was launched in 1999 has been instrumental in increasing school enrolment of children ((UBEC), 2010). Under the UBE scheme, education is compulsory and tuition free for the first 9 years but this strategy has been challenged by rapid population growth, rural-urban migration, socioeconomic problems, and curriculum and teaching standards.

The proportion of the population below 25 years is 62.5%, young people between 15-24 years constitute 19.3% of the Nigerian population and the median age of the Nigerian population is 18.2 years (Mundi). The Nigerian health system ranked 187 out of 191 countries assessed by the WHO on health systems performance and its health indices are poor with life expectancy at birth of 52 years (Bank, 2015). There have been several initiatives and policies targeted at the poorest and most vulnerable but weak infrastructure, poor coordination and inadequate manpower have limited its capacity

to achieve MDGs (Bank, 2015). Although there has been recent progress as evidenced by remarkable economic growth since transition to democratic government in 1999, there has not been commensurate growth in infrastructural development, investment in education, employment and empowerment of youth (Bank, 2015).

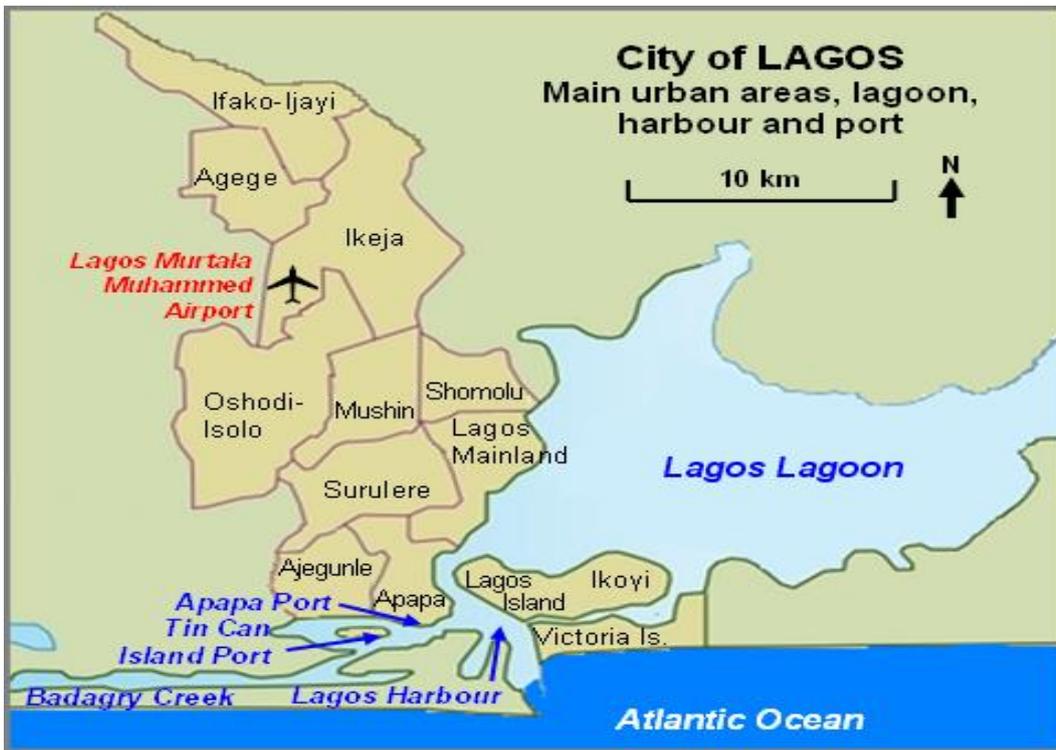
### **1.8.2. Lagos**

Lagos state, popularly known as 'Eko' is in South Western Nigeria and Metropolitan Lagos is one of the fastest growing cities in the world (Lagos State Government, 2011). It is the smallest state in Nigeria by size with an area of 3,577km<sup>2</sup> but with a growth rate of 3.2% and a population of over 21 million people, Metropolitan Lagos is the most populous city in Africa (Lagos State Government, 2011). Although the actual population of Lagos has been a source of dispute, there are clear indications that it is overpopulated with an estimate of 20,000 people per square kilometre (Lagos State Government, 2011).

The historical diversity of Lagos dates back to the 15<sup>th</sup> century as a hub for Portuguese slave traders until they were expelled by the British when they set up the colonial government in 1861 (Cities, 2000, Falola and Heaton, 2008). Sociocultural changes brought about by rural-urban immigration of unskilled workers (mainly male) during the colonial rule resulted in explosive population growth and reshaped the demography of Lagos and this has continued till date (Falola and Heaton, 2008).

Topographically, Lagos comprises mainly of islands and lagoons and is made up of two major regions namely: the Lagos Island which represents the original Lagos and Lagos Mainland which developed as a result of expansion. The indigenous settlements in Lagos Island are densely populated urban slums with poor housing; this is in contrast to its central business district with towering high rise buildings that continues to expand pushing the slums peripherally. Lagos Island is the commercial and financial hub for Lagos and it extends to Victoria Island which is an affluent commercial and residential area with many beaches and businesses. The islands are connected to the mainland by one of the longest bridges in Africa and a large proportion of the population of Metropolitan Lagos live on the mainland which also is home to many industries (Wikipedia, 2015). Lagos is one of the most diverse states in Nigeria with a

wide range of inhabitants from varying ethnic, socio economic and educational backgrounds as a result of increasing rural urban migration. There is no predominant culture as the way of life is shaped by the pragmatic drive to beat the odds of thriving in a bustling city. Lagos is an important coastal city as shown in Figure 1.2 and 1.3 and is home to the country's major airport and seaports.



**Figure 1.3. Map of Lagos State showing Mushin and Lagos Island (Sydney, 2007)**

Although Lagos was the capital of Nigeria until 1991, it is still regarded as the commercial and strategic nerve centre of the country. Over 60% of Nigeria's industrial and commercial investments take place in Lagos which controls over 80% of the country's imports (Gandy, 2006). Lagos is also an entertainment destination and it is the focal point of Nollywood, the second largest film industry in the world (Wikipedia, 2015). It also hosts several festivals and carnivals with its many beaches and music clubs featuring a wide variety of live music such as afro beat and traditional jazz music (Wikipedia, 2015).

### **1.8.2.1. Lagos Island**

The 'Aworis' were the indigenous tribe in Lagos in 1400AD and they were a strong and cohesive fishing community that occupied Lagos Island (Lagos State Government, 2011). The British colonial administration in the 19<sup>th</sup> century facilitated a dichotomy of existence within Lagos Island by creating an elite British community that expanded by pushing the indigenous communities into overcrowded slums (Gandy, 2006). The condition of living at that time was described as '*herrings in a barrel*' with poor ventilation, lack of water and electricity (Heap, 2010). Poor sanitary and public health negligence led to a devastating outbreak of bubonic plague in the 1920s (Gandy, 2006). After the outbreak, thousands of people were resettled on the Lagos mainland (Fourchard, 2006).

Increasing unemployment and poverty in the 1920s amidst rapid migration in addition to a breakdown of closely knit family units and communal living was reported to have led to the rise of juvenile delinquency and criminal groups among jobless youth (Fourchard, 2006, Heap, 2010). This was because the prospect of employment which was the main attraction for young people migrating to Lagos was not realised and they resorted to delinquency and prostitution to cope with the frustration and hopelessness (Fourchard, 2006, Heap, 2010).

Post-independence in 1960, despite Lagos taking the lead in industrial development, poor governance and political tensions worsened the situations in the early 1900s and new slums kept emerging to accommodate the growth in population which was not accompanied by growth in infrastructure. Poor infrastructural planning resulted in flooding, poor housing and host communities were constantly being pushed further into peripheral slums to make room for rapidly expanding foreign investments and commerce (Gandy, 2006). These slums have become the base for violent crime, prostitution and transaction of illicit substances. Basic amenities such as water for domestic use, refuse disposal systems, electricity and solid waste management systems are lacking and these are compounded by flooding in Lagos (Gandy, 2006).

### **1.8.2.2. Mushin**

Mushin is a local government area within the Lagos mainland. It evolved as an agricultural village surrounding Lagos in the 1880s to an urbanised area by 1960 that was unified as a district under Lagos. Large migration to Mushin during the 1950s as a result of rapid industrialisation of Mushin led to overcrowding and poor living conditions (Wikipedia, 2015) . The setting of Mushin is similar in many aspects to Lagos Island though the absence of coastal areas may account for differences in the community structure. In Lagos Island, slums are pushed peripherally to beaches and lagoons by expanding businesses but in Mushin, however, as the large Industrial estate expands, existing slums are compressed further and communities already crowded and overstretched have nowhere to go. The impact is similar for both Lagos Island and Mushin, the attendant dangers of violent crime, substance use and prostitution.

The problems with poor infrastructure also impact on social services such as provision of basic healthcare and education. The gaps in provision of education and healthcare for a rapidly expanding population are largely supplemented by private institutions for those who can afford it. Young people are most affected by problems with unemployment and education.

## **1.9. Chapter Summary**

This chapter provided a background of cannabis policies, its use and interventions in Nigeria. Law enforcement is the predominant approach to addressing the problem of cannabis in Nigeria mainly in compliance with international regulation. Intervention services are not well defined and there are gaps in knowledge about the scope and patterns of use. The setting for this research was in Lagos, Nigeria.

## **Chapter 2: Theoretical Framework**

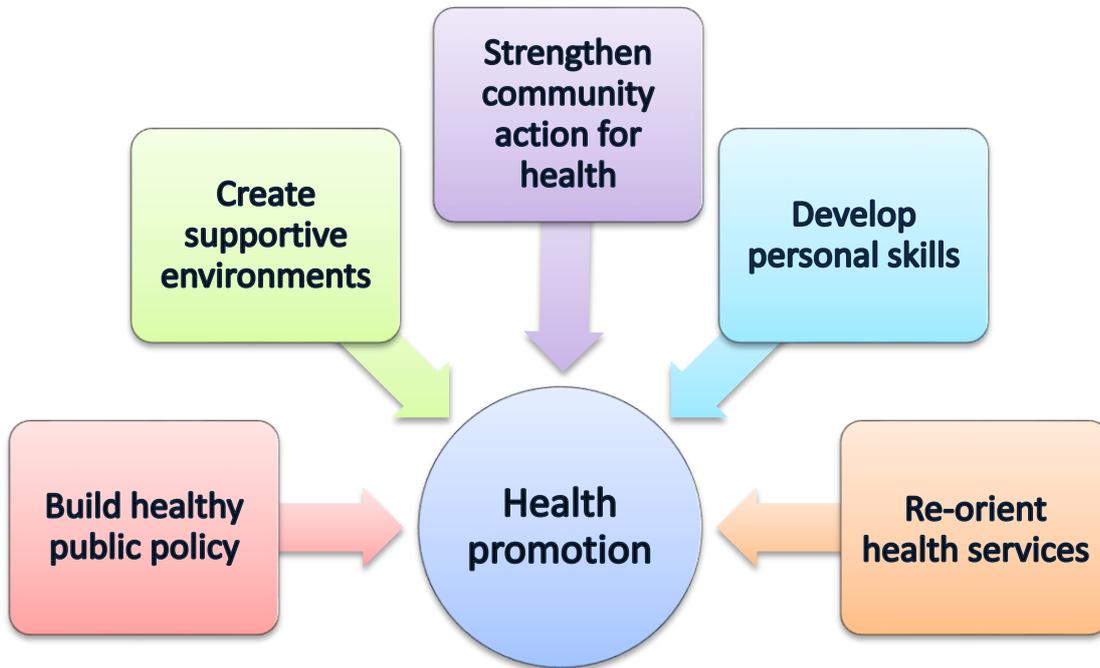
### **2.1. Chapter overview**

Several theories have been used to explain substance use among young people and the predictors are numerous, cutting across multiple behaviours. A critical consideration relates to how to detangle the reasons why some adolescents try out substances within the same context and others do not; some of those who try them out will continue to use and some will not (Petraitis et al., 1995). Theoretical frameworks provide useful systematic mechanisms for evaluating and implementing interventions with respect to health behaviour (Nutbeam et al., 2010). In order to understand the linkages between cannabis predictors, a theoretical framework that provides a multidimensional view of the problem was considered necessary in this thesis (Flay et al., 2009). This chapter will provide a brief overview on the importance of theory in health promotion, outline multivariate theories of adolescent substance use and describe the Theory of Triadic Influence (TTI).

### **2.2. The role of theory in health promotion for young people**

#### **2.2.1. Health promotion**

Health promotion practice has evolved through centuries of work in the area of health monitoring and disease prevention (McLeroy and Crump, 1994). Health promotion is defined as *'the process of enabling people to increase control over and to improve their health'* (WHO, 1986a). The Ottawa charter (WHO, 1986a) provides a clear framework for health promotion action as shown in figure 2.1 which should incorporate the social determinants of health. These determinants relate to provision of basic infrastructure, livelihood, conducive communities and equity regardless of social or personal disadvantage (Dixey, 2013). In line with the fundamental focus of health promotion on social paradigms, exploring contextual meanings and experiences are considered important aspects of this thesis (Dixey, 2013, Naidoo and Wills, 2010).



**Figure 2.1. Ottawa charter health promotion action areas (Ottawa charter 1986)**

### **2.2.2. Theory and health promotion**

Theory provides a valuable framework for identifying health related needs and should be an integral part of design, planning and evaluation of health promotion programmes (Nutbeam et al., 2010). When theories that are best suited to situational factors are optimised, they help to identify the relationships and linkages between key factors that are relevant in a given context (Glanz et al., 1997). In addition to empirical evidence, theoretical principles are crucial in guiding practice in specific contextual and complex situations (Green, 2000). There are concerns that theory provides a narrow and restrictive perspective to research, but without theory underpinning research enquiry, focus may be diverted to irrelevant indicators (Glanz et al., 1997, Green, 2000). A common sense approach to health promotion based on presumptive decision making cannot be probed because it provides no basis for doing so (Naidoo and Wills, 2010).

Theory enhances the quality of health promotion programmes because it provides a basis to select indicators and evaluate programmes such that feedback could be useful in validating or improving theory (Green, 2000). A critical balance is thus required between the use of theory in shaping health promotion practice and openness to unanticipated issues within a specific context.

Considering the diversity of health needs and intervention required at individual, community and policy level, no single theory can provide all the strategies required (Nutbeam et al., 2010). Programmes at different levels are likely to address a wide range of determinants of health across different populations and thus likely to utilise multiple theories (Nutbeam et al., 2010). Health promotion action requires a comprehensive approach that must be driven by carefully planned, evidence based programmes which incorporate a framework for measuring milestones.

### **2.2.3. Theory, health promotion and young people**

Social factors play a crucial role in adolescent development and they shape the transitions through adolescence (Viner et al., 2012). The underlying determinants of health should form the basis for addressing the needs of young people (Nutbeam, 1997). School based substance use programmes are generally assumed to be effective in young people; the converse may be true if young people in a setting do not feel connected to school and consequently do not engage with these programmes (Nutbeam, 1997). A more effective approach will therefore be to address evidence based issues relating to school connectedness first followed by the integration of health and education goals that extend to personal and family life (Nutbeam, 1997). This implies that health promotion approaches should address health determinants within young people's context as a priority before implementing wider strategies such as school based programmes.

In order for a programme to address a health determinant, it has to be designed with a key understanding of the predisposing factors, the context and priorities of the target population (Catford, 2001). Theory can drive this process as traditional approaches with illicit substance use interventions are not effective because they ignore the linkages between young people and their sociocultural domains (Catford, 2001).

Theory is relevant to health promotion in young people because it shows linkages between influence factors and the situational context (Davies and Macdowall, 2005). A wide range of health behaviours among adolescents co-occur and it is useful to identify common pathways in terms of environmental, social or developmental situations and possible areas of divergence (Jessor, 1982). This also implies that effective health promotion programmes in young people can be synchronised between the various domains such as school, home and community (Nutbeam, 1997). Integrating theories at different levels facilitate better problem identification and outcome (Davies and Macdowall, 2005).

While the rates of substance use initiation are important, continuation rates after initiation are equally important because they may indicate whether or not young people are maturing out of use as they move from adolescence to adulthood (Jessor, 1982). Substance use programmes may not be justifiable if continuation rates are very low indicating that majority are maturing out because they typically quit after initiation (Jessor, 1982). This illustration reflects the benefit of integrating evidence in programme planning and it is crucial in a developing country like Nigeria where cost, sustainability and cultural acceptance are barriers to health promotion.

The importance of obtaining young people's perspectives and involving them in a participatory manner cannot be overemphasised especially as it relates to translating evidence to action (Michaud, 2003). Meanings attached to substance use are important because they expand the conceptualisation of behaviour from being simply normative or irrational to address the purposive intentions of young people (Jessor, 1982). Health promotion strategies that address the perceived reasons for substance use and introduce substitute behaviours or choices of action may be more effective because the fundamental needs underpinning both spectrums of behaviour are met (Jessor, 1982). Theory was thus considered invaluable in exploring linkages and levels at which integration of determinants facilitate improved health and wellbeing in young people.

### 2.3. Multivariate theories of adolescent substance use

There are numerous theories that have been applied to the study of adolescent substance use and multivariate theories incorporating multiple constructs are more effective than theories with single constructs. Multivariate theories that incorporate more than two constructs to specifically address substance use in young people have been organised into categories that capture cognitive, social, environmental and intrapersonal predictors (Petraitis et al., 1995). Although some of these theories were not specifically designed for substance use research, they have been successfully applied in this area and these theories are categorised in figure 2.2

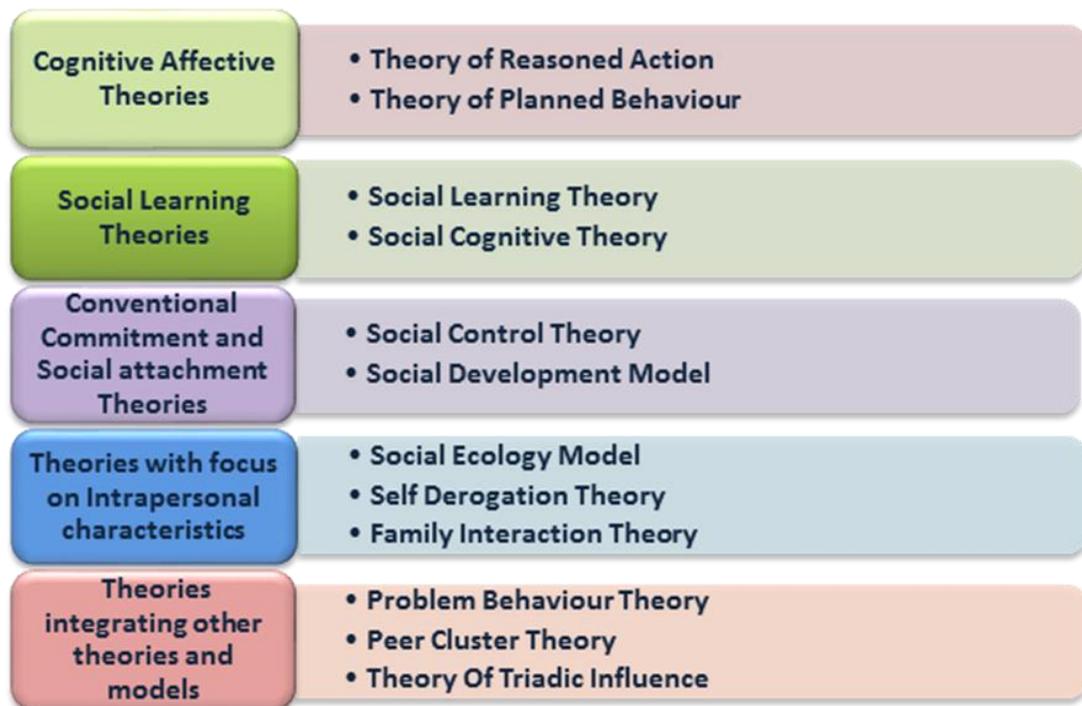


Figure 2.2. Multivariate theories of adolescent substance use.

*(Adapted from Petraitis 1995)*

#### 2.3.1. Cognitive Affective Theories

These theories focus on explaining the decision to use substances as a result of adolescents' cognitive evaluation of the decision making process and other influence factors are mediated through cognition (Petraitis et al., 1995). While the Theory of Reasoned Action posits that behavioural intention is the proximal antecedent of

behaviour under volitional control, the Theory of Planned Behaviour incorporates perceived behavioural control to explain behaviour not under volitional control (Ajzen, 1991, Dillard and Pfau, 2002, Madden et al., 1992). Further research has highlighted the influence of additional variables on behaviour and intentions after taking the Theory of Planned Behaviour constructs into consideration (Conner et al., 2006, McMillan et al., 2005).

These theories have proven extremely relevant in explaining the role of cognitions in experimental substance use, initiation and future use (Ajzen, 2011, Glanz et al., 1997, Higgins and Conner, 2003, McMillan et al., 2005, Petraitis et al., 1995). The Theory of Planned Behaviour has particularly been used extensively to predict substance use initiation and future use (Flay et al., 1998, Petraitis et al., 1995). Perceived behavioural control has been applied in two forms in adolescent substance use; 'use self-efficacy' to connote belief in an adolescent's ability to acquire and use substances and 'refusal self-efficacy' to connote adolescents' belief in their ability to refuse and resist pressure to use substances (Petraitis et al., 1995). The theories are limited in explaining remote influences that facilitate cognitive inclinations to substance use and thus can only provide a proximal understanding of initiation (Petraitis et al., 1995).

### **2.3.2. Social Learning Theories**

The Social Learning Theory posits that adolescents experiment with substances as a result of observing role models and emulating them based on their subjective perception regarding positive expectancies from use (Akers and Lee, 1996, Petraitis et al., 1995). Social reinforcement drives observational learning and the rationalisation that the utility of use is greater than the consequences (Akers and Lee, 1996, Petraitis et al., 1995). The Social Cognitive Theory goes a step further in incorporating self-efficacy which relates to beliefs about the personal competency to exert control over demanding situations and overcome barriers to perform behaviour (Bandura, 1989). Social modelling influences cognition and action within a triad of personal, environmental and cognitive determinants (Bandura, 1989). Personal accomplishment, vicarious experiences, verbal persuasion and emotional arousal are sources of self-efficacy which in turn shapes outcome expectancies (Bandura, 1989).

Social Cognitive Theory has been applied to a wide range of behaviours including substance use (Bandura, 1989, Conner and Norman, 2005, Petraitis et al., 1995). The theory, however, does not explain why adolescents differ in their inclinations to associate with deviant role models (Petraitis et al., 1995). The Social Cognitive Theory encompasses a more distal focus to explain adolescent substance use behaviour than Theory of Planned Behaviour by accounting for past behaviour and external influence (Petraitis et al., 1995).

### **2.3.3. Conventional Commitment and Social Attachment Theories**

Conventional commitment theories attempt to provide insight into why some adolescents are inclined to deviant role models or values that are opposed to conventional societal values (Petraitis et al., 1995). These adolescents are at risk of substance use and they detach from conventional societal institutions to adopt deviant, non-conforming behaviour by social learning (Agnew, 1991b, Petraitis et al., 1995). Social attachment theories seek to explain why vulnerable adolescents attach to substance using peers and have weak affinity to institutions such as schools, religions and families that deter adolescents from substance use (Petraitis et al., 1995). There are two main theories that share these concepts.

#### **2.3.3.1. Social Control Theory**

Fundamental to this theory is the understanding that conformity to society occurs through socialisation that is achieved by attachment, commitment, involvement and belief (Wiatrowski et al., 1981). Failed aspirations causes strain in adolescents that results in an uncommitted and uninvolved attitude towards conventional society and an attraction to delinquent role models and tendencies (Agnew, 1991b, Petraitis et al., 1995). Social disorganisation from collapse of social institutions result in disorganised neighbourhoods, crime and failed schools putting adolescents at risk of bonding with deviant peers (Kaplan et al., 1984). There is evidence to support the association of strain and social disorganisation with adolescent substance use (Elliott et al., 1979, Petraitis et al., 1998). Evidence from longitudinal studies is weak possibly because the factors are not predictive of future delinquency (Agnew, 1991b).

### **2.3.3.2. The Social development Model**

Positive experiences or interaction with key entities of socialisation such as the family, school, peers and the community stimulate adolescents to develop conventional attachments through social learning which result in the uptake of conventional behaviour (Hawkins and Weis, 1985). Adolescents develop attachments in the direction of perceived reward either for positively beneficial or deviant activities (Cleveland et al., 2008). In the absence of positively reinforcing interactions for bonding in the family, schools and with peers, they are more predisposed to experimental substance use (Petraitis et al., 1995). These theories explain attachment at societal and interpersonal level which are distal determinants but do not explain the role of cognitions in substance use and do not take into account the role of personal variations to explain why not all adolescents in these contexts will use substances (Petraitis et al., 1995).

### **2.3.4. Theories with key focus on intrapersonal characteristics**

#### **2.3.4.1. The Social Ecology Model**

This model explains that adverse family and school factors which negatively impact on an adolescent's self-efficacy and self-esteem could result in a predilection for deviant behaviour to cope with the resultant stress. This theory emphasizes the impact of poor academic potential or perception of school as burdensome on the development of weak attachment to school and the risk of association with substance using peers but supportive evidence is limited (Kumpfer and Turner, 1990, Petraitis et al., 1995).

#### **2.3.4.2. Self-Derogation Theory**

Poor academic performance may denigrate the self-esteem of adolescents resulting in reduced drive to function within conventional groups and an increased inclination for deviant behaviours that are opposed the conventional norms in order to enhance their self-worth and boost their ego (Kaplan et al., 1982, Petraitis et al., 1995). This theory assumes self-esteem has a direct effect on substance use and early applications of the theory showed a positive correlation (Kaplan et al., 1982). Wider evidence for the correlation of self-esteem and substance use both in cross sectional and longitudinal designs has been mixed (Conrad et al., 1992, Petraitis et al., 1998).

#### **2.3.4.3. The Family Interaction Theory**

This theory asserts that cordial cohesive relationships between parents and children considerably reduces the probability of substance use as adolescents are more likely to be well-adjusted adolescents and unlikely to get attached to deviant peers (Brook et al., 2001, Petraitis et al., 1995). These cohesive relationships reduce conflict and strain within the home providing a conducive environment for adolescents to handle internal pressure (Brook et al., 1998). There has been mixed evidence however on the role of strict discipline (Brook et al., 2001, McNeill et al., 1989). Contrary to the presuppositions that intrapersonal characteristics described in these theories affect substance use directly, supportive evidence is lacking from several studies; it is more likely that intrapersonal factors act indirectly through cognitions to influence initiation (Petraitis et al., 1995).

#### **2.3.5. Integrative theories of substance abuse**

These theories attempt to incorporate various constructs across theories to better explain the aetiology of adolescent substance use.

##### **2.3.5.1. Problem Behaviour Theory**

The Problem Behaviour Theory addresses the inclination to multiple problem behaviour in adolescence by positing that an adolescent at risk for any deviant behaviour will automatically be prone to another; substance use inclusive (Jessor and Jessor, 1977, Petraitis et al., 1995). Adolescents who use substances are thus more likely to get involved in crime, fights, truancy and general antisocial tendencies. The key underpinning of this theory is the interaction of the individual with the environment that results in behaviour (Donovan and Jessor, 1985). There is evidence from cross sectional and longitudinal studies for the association between cannabis use, deviant behaviour and other substance use (Donovan and Jessor, 1985, Jessor and Jessor, 1977). It incorporates constructs such as personal belief, motivational instigation and personal control from a wide range of models but it underplays the crucial role of cognitive influence on behaviour (Petraitis et al., 1995).

### **2.3.5.2. The Peer Cluster Theory**

Peer clusters which are small cohesive subunits of peer groups that form as a result of socialization during adolescence are presumed to impact adolescent behaviour and either facilitate or prohibit substance use (Oetting and Beauvais, 1987). Peer clusters have common substance use characteristics, 'attitudes, values, socialisation links and beliefs' (Oetting and Beauvais, 1987, Petraitis et al., 1995). A major limitation with the peer cluster theory is the affirmation that peer influence is the immediate predictor of substance use and that other influences act to make an adolescent susceptible to a deviant peers group which would then influence experimental substance use. (Petraitis et al., 1995). There is limited evidence of how the correlates from these theories can interact and be integrated in a hierarchical order to put an adolescent at risk of substance use. (Petraitis et al., 1995).

### **2.3.5.3. The Theory of Triadic Influence**

The Theory of Triadic Influence will be discussed in the next section.

## **2.3.6. The Theory of Triadic Influence (TTI)**

### **2.3.6.1. Introduction**

Although most of the multivariate theories incorporate multiple constructs, they are not able to adequately explain the aetiology of substance use because they provide a limited or unidimensional view. In some instance, these theories explain remote influences without outlining the factors that are most proximal to behaviour and it is thus difficult to achieve a comprehensive evaluation of a health problem. Health promotion action is more effective when it integrates varied strategies that prioritise health needs in a correlative manner. Theories can be constraining factors to health promotion programmes because the extent of evidence provided drives the boundaries of the interventions developed on the basis of the theory (Flay et al., 2009). Integrative theories such as the TTI are promising in terms of providing a comprehensive appraisal of health related behaviour to shape health promotion intervention.

### 2.3.6.2. Overview of the TTI

The TTI was developed to organise theories and models of health behaviour that explain different aspects of behaviour in a ‘*conceptually meaningful way*’ (Ralph J. DiClemente et al., 2009). The resulting integrative theoretical framework encompasses the interactive influences of intrapersonal, interpersonal and environmental factors on health behaviour.

**Table 2.1. Matrix of theories in TTI showing level and type of influence**

(Adapted from Flay et al 2009)

Levels of Influence	Types of influence		
	Intrapersonal factors (self-efficacy)	Social/Interpersonal context (normative beliefs)	Sociocultural/ Environmental context (Attitudinal)
<b>Ultimate</b>	Biological Psychoanalytic Personality Resilience Self-control	Social Control (Elliot) Family Systems (Brook) Parenting styles Peer Clustering (Oetting)	Class Conflict Low SES Social Disorganisation Strain( Metron) Radical Theories
<b>Distal</b>	Personal Competence Self esteem Self-derogation (Kaplan) Personal Control	Social attachment/bonding Social development (Hawkins) Differential association Social learning	General knowledge Cultural identity Values theories Motivation theories
<b>Proximal</b>	Social skills Self-regulation Self-efficacy	Conformity Social normative beliefs	Expectancy Subjective utility Attitude
Theories of decision making and problem solving Theory of Reasoned Action (Fishbein and Ajzen) Theory of Planned Behaviour (Ajzen)			
<b>Integrative</b>	Social Cognitive Theory ( Bandura), Problem Behaviour Theory (Jessor), Feedback Systems Theories		

The TTI is structured along two key dimensions: the level of influence of a factor and the type of influence as shown in Table 2.1. The level of influence relates to the fact that some variables are closer and have a more direct effect on behaviour than others. The type of influence relates to the fact that factors which influence behaviour can either relate to a person, the social situation or the environment. In the context of substance use, a dynamic interaction between the adolescent’s personal

characteristics, social situations and the environment influence proximal predictors of use (Carvajal and Granillo, 2006, Flay, 1999). While ultimate or distal factors have a large scale effect on a large number of people such as the effect of mass media or a drug control policy, proximal factors are specific to an individual and precedes the intention to use substances (Ralph J. DiClemente et al., 2009).

The TTI divides the context of adolescent functioning into three streams: the intrapersonal stream, the social/normative stream and the cultural/attitudinal stream. These correspond to the triad of personal, behavioural and environmental influences interacting in a bidirectional form described as reciprocal determinism (Bandura, 1989). These streams function at ultimate, distal and proximal levels.

### **2.3.7. Tiers or levels of Influence for TTI**

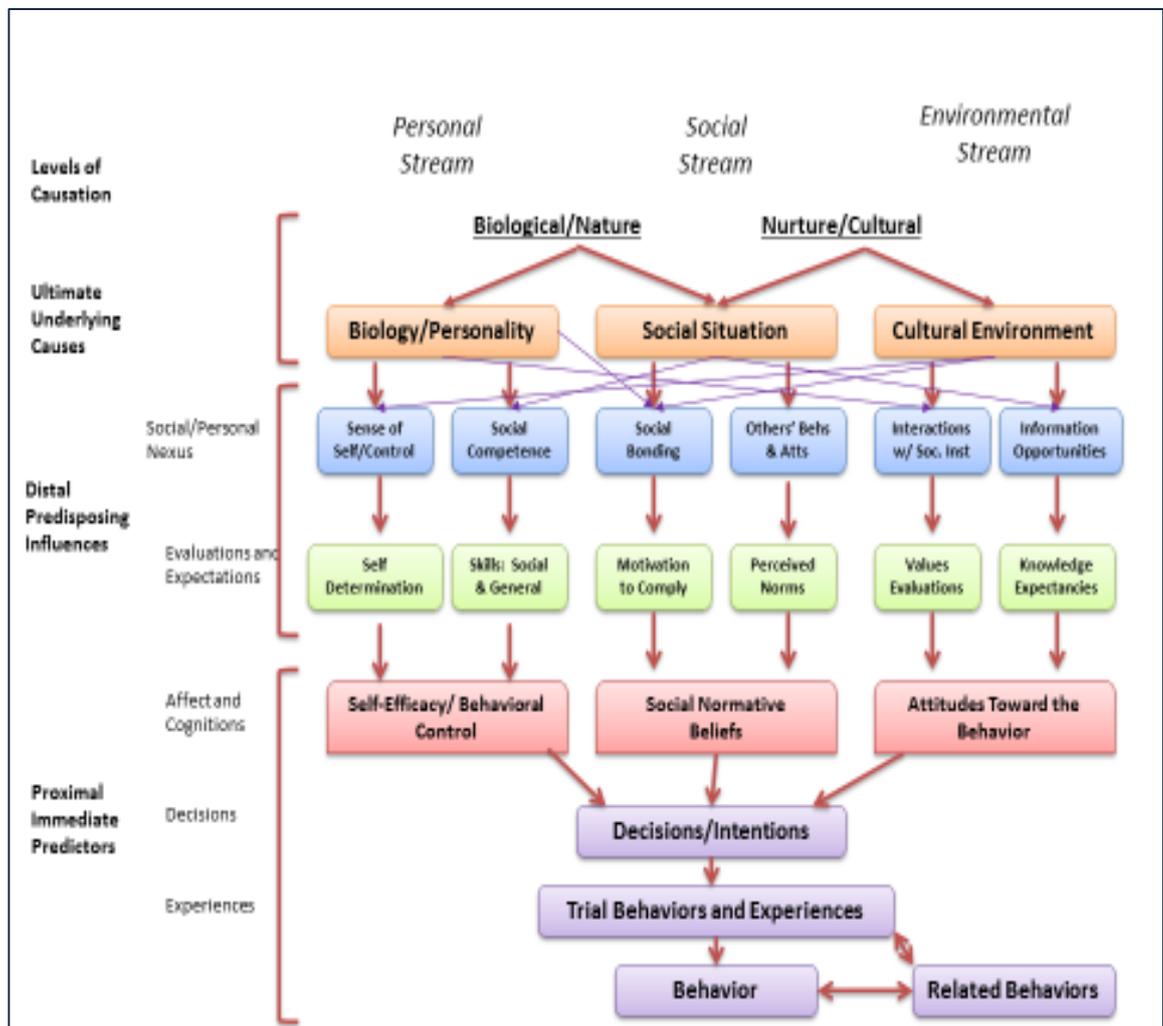
#### **2.3.7.1. Ultimate influences**

Ultimate or underlying influences are usually beyond an individual's scope of control, affects multiple behaviours, are difficult to change and are firmly established in an adolescent's intrapersonal, social or cultural environment as shown in table 2.2 and Figure 2.3 (Flay et al., 2009, Petraitis et al., 1995). Knowledge, expectancies and social values are largely determined by the context of information portrayed by culture, media and environmental perceptions at the ultimate cultural level (Petraitis et al., 1995). At the ultimate social level, the conduct of people in an adolescent's social milieu shapes the subjective perceptions and motivation to comply with substance use behaviour (Bricker et al., 2009). Ultimate intrapersonal factors reflect integral enduring characteristics such as personality and biological factors that make up the adolescent (Ralph J. DiClemente et al., 2009). All these ultimate factors can have the beneficial long term impact on wide range of behaviours if they are addressed in health promotion (Flay et al., 2009).

#### **2.3.7.2. Distal influences**

Distal or predisposing determinants are more behaviour specific, narrower in scope and more modifiable than ultimate determinants (Flay et al., 2009). The distal Influences consist of two sublevels; social/personal nexus and evaluations/expectancies. The social/personal nexus explores the level of engagement a person has

with the various streams and the expectancy nexus explores the beliefs that result from the engagement with that stream (Flay et al., 2009).



**Figure 2.3. Theory of Triadic Influence highlighting some of its mediated pathways**

(Adapted from Flay, Synder and Petraitis, 2009, Pages 455 and 462)

### 2.3.7.3. Proximal influences

Proximal predictors are the closest and most specific to intentions and behaviour thus they have the strongest correlation with behaviour, they are, however, the least stable and most disposed to change. This interestingly implies that although they can be easily targeted during health promotion programmes, the impact may be transient and not be generalizable to other behaviours (Donath et al., 2012, Ralph J. DiClemente et al., 2009).

### **2.3.8. Streams of influence for TTI**

Each stream incorporates ultimate, distal determinants of behaviour which act through proximal predictors to influence behaviour (Ralph J. DiClemente et al., 2009). The interactive nature of the various streams in the TTI implies for example that the effect of social and environmental factors on an adolescent's substance use behaviour will be moderated by his/her psychological or attitudinal vulnerability to be influenced by those factors (Bricker et al., 2009, Ralph J. DiClemente et al., 2009).

#### **2.3.8.1. Intrapersonal stream**

This includes an adolescent's personality or biological predisposition to behaviour. The ultimate intrapersonal influences such as genetic susceptibility or personality traits affect distal factors such as self-esteem and social competence which then affect self-determination or social skills targeted at a specific behaviour and expressed through self-efficacy to predict behaviour (Flay et al., 1998, Petraitis et al., 1998). The details are shown in table 2.2.

#### **2.3.8.2. Interpersonal/Social stream**

This includes situations in the social context and social support system that influence normative beliefs about behaviour. The ultimate social influences create the context in which an adolescent forms social attachments and bonds through the family, neighbourhood, school and peers to varying degrees. The resulting attachments and attitudes shape social normative beliefs about the perceived approval of the intended behaviour by significant others as shown in Table 2.2 (Ralph J. DiClemente et al., 2009, Schofield et al., 2003).

#### **2.3.8.3. Sociocultural/Environmental stream**

This includes situations within the sociocultural environment that influence inclination to behaviour. Ultimate environmental influences stimulate the formation of values through media, access, availability and affordability of substances, policies and neighbourhood factors that facilitate substance use (Petraitis et al., 1998). These influences eventually form positive or negative attitude towards substance use based on the anticipated cost benefit of engaging in the behaviour.

**Table 2.2. A matrix of influence factors of illicit substance use using the TTI**

LEVEL OF INFLUENCE		TYPE OF INFLUENCE	
	<b>SOCIAL/ INTERPERSONAL CONTEXT</b>	<b>SOCIOCULTURAL/ ENVIRONMENTAL CONTEXT</b>	<b>INTRAPERSONAL FACTORS</b>
<b>ULTIMATE</b>	<p><b>Definition:</b> Characteristics of the people who make up the adolescents' most intimate social support system. These characteristics are not specific to Illicit Substance Use (ISU) and are beyond the personal control of adolescents but nonetheless put adolescents "at risk" for succumbing to social pressure to use substances.</p> <p><b>Constructs:</b> Infrequent opportunities for rewards from family members; lack of parental warmth, support, or supervision; negative evaluations from parents; home strain; parental divorce or separation; unconventional values of parents; unconventional values among peers.</p>	<p><b>Definition:</b> Aspects of adolescents' immediate surroundings, neighbourhoods, social institutions, and culture that, although beyond the personal control of adolescents, put them at risk for developing positive attitudes toward ISU.</p> <p><b>Constructs:</b> Local crime and employment rates; inadequate schools; poor career and academic options; infrequent opportunities for rewards at school; negative evaluations from teachers; media depictions of ISU; availability of substances; weak public policies on ISU.</p>	<p><b>Definition:</b> Personality traits and intrapersonal characteristics that, although beyond the easy control of adolescents, might promote some internal motivation to use substances or make them susceptible to the physiological effects of ISU.</p> <p><b>Constructs:</b> Genetic susceptibility to addiction; lack of impulse control; external locus of control; aggressiveness; extroversion; sociability; risk-taking; sensation-seeking; neuroticism or emotional instability; intelligence</p>
<b>DISTAL</b>	<p><b>Definition:</b> Emotional attachments of adolescents and the substance-specific attitudes and behaviours of influential role models who encourage ISU.</p> <p><b>Constructs:</b> Weak attachment to and weak desire to please family members; strong attachment to and strong desire to please peers; greater influence by peers than parents; substance specific attitudes and behaviours of role models.</p>	<p><b>Definition:</b> Personal values and behaviours of adolescents that contribute to their attitudes toward ISU.</p> <p><b>Constructs:</b> Weak commitment to conventional values, school, and religion; social alienation and criticism; weak desire for success and achievement; hedonic values and short-term gratification; rebelliousness; desire for independence from parents; tolerance of deviance.</p>	<p><b>Definition:</b> Affective states and general behavioural skills of adolescents that promote some internal motivation for ISU and that undermine their refusal skills.</p> <p><b>Constructs:</b> Low self-esteem; temporary anxiety, stress, or depressed mood; poor coping skills; inadequate social skill; weak academic skills.</p>
<b>PROXIMAL</b>	<p><b>Definition:</b> Beliefs about the normative nature of ISU and pressures to use substances.</p> <p><b>Constructs:</b> Prevalence estimates; motivation to comply with other users; beliefs that important others (i.e. friends, parents, and other role models) encourage ISU.</p>	<p><b>Definition:</b> Beliefs and evaluations about the costs and benefits of ISU.</p> <p><b>Constructs:</b> Expected costs and benefits of ISU; attitudes toward ISU by others; attitudes toward ISU by self.</p>	<p><b>Definition:</b> Beliefs about one's ability to use or avoid substances</p> <p><b>Constructs:</b> Refusal skills; determination to use substances; use self-efficacy; refusal self-efficacy.</p>
<b>IMMEDIATE</b>	Decision/intentions; trial behaviour and related behaviours		

### **2.3.9. Trial behaviour and actual behaviour in TTI**

The TTI presumes the predictors impact on intentions which then determine the trial of a behaviour and the experiences facilitated by social reinforcement leads to repeated behaviour or the adoption of an alternative behaviour (Flay et al., 2009). Behaviour has the potential to feedback and modify its predisposing factors (Flay, 1999). Social reinforcement, physiological and psychological dependence eventually predisposes a behaviour to become habitual and at this stage, past behaviour becomes a very strong predictor of future behaviour (Ralph J. DiClemente et al., 2009). Causation described in the TTI is 'probabilistic causation' in which a causative factor can increase the likelihood of a consequence depending on the strength of association and the mediating distance between the cause and the behaviour (Ralph J. DiClemente et al., 2009).

### **2.3.10. Applicability of TTI in this thesis**

The value of the TTI is in its comprehensiveness in exploring linkages between broad health promotion determinants. Substance use research in the Nigerian context has been limited to prevalence studies and not theory based. Little is known about the social determinants of cannabis use in Nigeria and thus there is a critical need for research that puts the multidimensional nature of the problem into consideration. The TTI constructs address important aspects of the sociocultural context and policy environment that are critical in the current discourse of cannabis use in Nigeria as highlighted in chapter one.

The TTI has been applied to study the aetiology of health related behaviour, the design of health promotion programmes and to test for the mediating effect of an intervening variable on a TTI predictor (Flay et al., 2009). This theory has been extensively utilised in substance use research and applied to study predictors for substance use initiation, transitions and patterns of use (Bricker et al., 2009, Connell et al., 2010, Donath et al., 2012, Ralph J. DiClemente et al., 2009, Schofield et al., 2003, Sussman et al., 2000a). The TTI domains have been utilised in latent class analysis to classify substance use risk factors according to domains of influence and the findings correlated with variable centred analysis (Connell et al., 2010). Up to 55% of the variance in smoking behaviour

was explained by ultimate, distal and proximal predictors of the TTI in a cross sectional study conducted in USA (Carvajal et al., 2004). In another longitudinal study in USA, distal factors were more predictive than proximal factors and it buttressed the need for intervention programmes that target the different levels of predictors (Carvajal and Granillo, 2006). A recent study successfully utilised the TTI to predict influence factors for exploring cigarette smoking in Nigeria (Egbe, 2013). This was the only TTI study identified in literature that had been conducted in Nigeria.

### **2.3.11. Limitations**

The TTI in an attempt to incorporate all the determinants of health behaviour resulted in complicated model and it is extremely challenging to measure over 40 constructs in one study (Ralph J. DiClemente et al., 2009). Some of the variables though useful in understanding health behaviour are difficult to characterise or measure and demographic variables were omitted from the model (Sussman et al., 2000b). Studies applying the TTI typically focus in different paths within the theory rather than attempting to measure all constructs or items are selected from each of the three streams and measured (Donath et al., 2012). Similarly, integrating all the various TTI factors into a single intervention is also cumbersome (Ralph J. DiClemente et al., 2009). The TTI does not fully incorporate some of the contextual factors that are vital in the study of cannabis use such as the role of social identity and subcultural dimensions relating to use. Future developments of the theory is expected to expand on the role of biological factors, demographic characteristics such as gender and also test the theory in the prediction of positive behaviours (Ralph J. DiClemente et al., 2009).

### **2.3.12. Chapter summary**

This chapter has highlighted the role of theory in health promotion among young people. The TTI was chosen as the theoretical framework in this study because it is highly relevant to providing an integrated perspective to the initiation and use of cannabis in Nigeria.

## **Chapter 3: Review of risk factors and context**

### **3.1. Chapter overview**

This chapter describes a review of the context and factors which influence the use of cannabis utilising the TTI as the theoretical framework. As discussed in chapter 2, the risk factors evaluated under the TTI were viewed in a probabilistic sense to provide a guide for health promotion and not in a deterministic or causal sense. The exploration of risk factors in this chapter is necessitated by the need to evaluate evidence relating to determinants that are important in cannabis use. Although this thesis is about cannabis use, evidence for risk factors cut across multiple substances and thus this review will explore the broader determinants of cannabis use but may incorporate evidence for substances in general where applicable.

Some key aspects of cannabis use research among young people which were considered important but not fully captured under the TTI are discussed separately. These include salient issues relating to how cannabis users are contextually defined, their identity and how young people conceptualise risk. There are wide variations in what constitutes misuse, degree of use, frequency and progression from problematic use to dependence (Hofler et al., 1999, Poikolainen, 2002). Conceptualising the context of cannabis use in this thesis, however, went a step further than risk factors to understand how key issues relating to identity and culture affects young people's decision to use cannabis.

### **3.2. Cannabis use among young people: subculture and identity**

#### **3.2.1. Cannabis subculture**

Young people have been reported to associate on the basis of common interests in style, ideologies, music and values (Pedersen, 2009). These commonalities are sometimes at variance to what is accepted as normal within the mainstream society thus explaining the reference to cannabis users as existing within a subculture. Subcultures are created as a reaction to a relegated position in society and exists

within groups that have their distinct beliefs which are considered unconventional (Sandberg, 2012a). The concept of subcultures, however, classifies members on the basis of characteristics they share although these shared characteristics are sometimes overstated (Sandberg, 2012a).

The fundamental threads of the cannabis culture refers to rituals and meanings which have endured over decades characterised by shared interactive activity and shared language embedded into its use (Sandberg, 2012a). In the 1960s, identification with cannabis in the West was described among young people who were opposed to conventional societal order and inclined to certain types of music (Pedersen, 2009). Music was an important vehicle in the conscription of young cannabis users and popular artists sang about cannabis into the lyrics of their songs (Pedersen, 2009). Similar findings about how Westernisation of African music in 1960s redefined cannabis use in Nigeria were discussed in chapter one. In contrast to alcohol use which was viewed as a rite of passage into adulthood, cannabis symbolised a rite of passage into a subculture that indicated rejection of mainstream societal representations (Pedersen, 2009). The key difference between alcohol and cannabis perceptions may relate to the fact that cannabis use is considered illicit in many countries.

There are arguments that the cannabis subculture is indicative of meanings and not the people who use it implying that the discourse around cannabis culture should focus on the figurative representations of use and not on people (Sandberg, 2012a). A qualitative study in Norway reported that sharing cannabis was an indispensable aspect of its identity and identification was considered the social dividend of mastering use according to the conventions of social networks (Sandberg, 2012a).

Shared narratives about cannabis being a natural plant as opposed to cocaine which is viewed as a chemical substance are passed down within social groups to make it more acceptable (Sandberg, 2012a). There is a consensus that conceptions of cannabis use are socially constructed and thus exploring young people's perspectives should to occur within the level of networks where these are shaped (Becker, 1953, Järvinen and Demant, 2011). Perceptions about cannabis use in Nigeria have varied widely and evolved in the context of policy debates. The context of its use in Nigeria appears to be

subcultural but there is limited evidence that reflects the perspectives of young people about this. The importance of exploring subcultural implications of cannabis use is reflected in the fact that in settings where young people are heavily marginalised, the concept of subcultures becomes relevant in identity formation. The desire for inclusion not just as a smoker but as a member of a subculture becomes a driver of initiation. There is large body of literature that argue that cannabis use in the current reality is experiencing widespread normalisation and this will be discussed in the next section.

### **3.2.2. Normalisation and subculture**

#### **3.2.2.1. Introduction**

According to Parker (2002), normalisation represents a process through which excluded or marginalised groups become accepted by mainstream society (Parker et al., 2002).

*'The concept of normalisation has been used in many contexts but essentially it is concerned with how a 'deviant', often subcultural, population or their deviant behaviour is able to be accommodated into a larger grouping or society'(Parker et al., 1998).*

Normalisation of recreational substance use outlines the process by which young people gradually accept the reality that its use is a part of 'normal' everyday life (Parker et al., 2002). It highlights the transition of illicit substances such as cannabis from subcultural streams to mainstream society (Sandberg, 2012b). In a society where cannabis use is criminalised, normalisation is inconceivable and it may be viewed as a failure of the law enforcement system and societal controls (Parker et al., 2002).

#### **3.2.2.2. Dimensions of normalisation**

Drawing evidence from UK studies, Parker (2002) suggested five fundamental aspects of normalisation. Firstly, access and availability of a substance is presumed to be the foundation for normalisation because without its availability, it cannot be used (Duff, 2003, Järvinen and Demant, 2011, Parker et al., 2002). Increasing financial or physical access to illicit substances by young people indicates greater availability (Parker et al., 2002). Secondly, high rates of experimentation are indicative of normalisation as

shown in a longitudinal study in North England which reported that over half of young people had experimented by age 18 and a quarter were using regularly by age 25 (Parker et al., 1998). There are arguments that normalisation should relate to beliefs about use and not frequency because frequency does not reflect beliefs (Sandberg, 2012a).

Thirdly, recent and regular use of substances is another indicator of normalisation and cannabis is the main illicit substance ever used, recently used or regularly used by young people (Parker et al., 2002). Fourthly, a liberal and tolerant attitude by users and non-users is presumed to indicate social accommodation of 'sensible' recreational substance use within the society (Parker et al., 1998). Finally, the extent to which illicit substances are accepted within the boundaries of normalcy for leisure that does not hinder work, school or related activities is an indication of cultural accommodation (Duff, 2003, Järvinen and Demant, 2011, Parker et al., 2002, Parker et al., 1998). References to cannabis in media and movies, favourable attitudes towards relaxing legislative restrictions and increasing positive reference to it are indications of cultural normalcy (Parker et al., 2002). The transition of cannabis into mainstream society in reality does not imply that cannabis is used by everyone, it may mean that its use by those who decide to use is admissible (Mostaghim and Hathaway, 2013).

Normalisation has been used to explain the marked rise in recreational substance use in the UK, Australia and other Western countries (Duff, 2003, Järvinen and Demant, 2011, Parker et al., 2002, Parker et al., 1998, Shiner and Newburn, 1997). The discourse around normalisation of illicit substances usually refers to cannabis use because young people demonstrate a negative disposition towards harder substances such as heroin (Järvinen and Demant, 2011). Most of the studies about normalisation were done in Western countries and although the situation in Africa may be clearly different, there is limited evidence.

### **3.2.2.3. Normalisation and conceptions about cannabis use**

Although there is consensus about a shift in the conception of cannabis use among young people, it is not agreed that normalisation can account for these changes (Duff, 2003). The reference to normalisation as 'sensible recreational use' has been debated

because the boundaries of sensibility with respect to use are subjective and fluid (Sandberg, 2012b). Normalisation may be better explored at micro social level rather than global level because the nuances of perception can only be assessed at that level (Measham and Shiner, 2009, Sandberg, 2012b, Shiner and Newburn, 1997).

Drug trying rates cannot accurately capture changing patterns of use and data on current use indicates the contrary with most users being occasional users (Measham and Shiner, 2009, Shiner and Newburn, 1997). The rate at which normalisation is reported indicates a trend of users that may keep rising until non-users become the minority, aberrant group (Measham and Shiner, 2009). Although it is acknowledged that the use of cannabis may have moved to mainstream, the process may be slowing evolving and not a sharp transition as claimed by the normalisation thesis (Parker et al., 1998, Sandberg, 2012a). Some other views hold that although the use of cannabis may be increasingly tolerant, this may not be indicative of the prevalent view (Hammersley et al., 2001).

#### **3.2.2.4. Normalisation versus subcultural use**

Normalisation discounts subcultural theories because it posits that illicit substance use previously considered as deviant has shifted from the margins to being accepted in the mainstream (Parker et al., 1998). The widespread use of cannabis underpins the assertion that perspectives about cannabis being a subcultural activity are weak (Moore et al., 2007). Recreational use in the context of leisure is presumed to have ebbed away traditional links with deviance and subcultures (Duff, 2003, Parker et al., 1998). The normalisation thesis posits that subcultural descriptions should be reserved for substances such as heroin and cocaine which are considered highly addictive compared with cannabis which can be incorporated into everyday events without resulting in preoccupation (Parker et al., 1998).

The assertion that the decision to use cannabis is an extension of everyday choices such as camping has been criticised because within the subculture such informed decision making occurs (Sandberg, 2012a). Normalisation is also contested because it treats substance use as generic items whereas meanings and attitudes are highly differentiated (Shiner and Newburn, 1997). Other UK researchers contend that the

concept of normalisation as proposed by Parker does not capture the complexity of use by overlooking the associated diversity and experiences (Shildrick, 2002). Although availability has been known to facilitate increasing use, the drivers of use are far more complex and varied (Shildrick, 2002). The implications of normalisation or subcultural debates in the study of cannabis use relate to how such contextual factors affect young people's perceptions about use

### **3.2.3. Cannabis use and the concept of risk**

Dialogues about substance misuse among young people provoke impressions about potentially damaging behaviours that are detrimental to health and wellbeing (Mayock, 2005). Young people may compare themselves with other cannabis users whose use do not cause problems (Hammersley et al., 2001). The concept of risk taking for young cannabis users may, however, be the allure of adventure and they either diminish risk or find risk taking appealing consequently using cannabis despite societal definitions of risk (Hammersley et al., 2001, Järvinen and Demant, 2011). The motivation for taking these 'risks' should then be understood and considered as critical inputs in policy and interventions (Hammersley et al., 2001).

Issues around criminalisation of cannabis are conceptualised around 'getting caught using it' rather than actually using it because users rationalise that those in authority also use it but are compelled to institute disciplinary measures for young people (Hammersley et al., 2001). This implies that the rationalisation of risk does not directly relate to its use but is about strategies that need to be instituted to avoid being caught. Consequently, it is argued that cannabis use is deliberate and use occurs because the utility surpasses the perceived risks (Järvinen and Demant, 2011).

Arguments about risk and rational decision making assume that young people's actions are devoid of the dynamics of social interaction and context (Mayock, 2005). Although young people are viewed as making rational choices to use illicit substances, it is presumed that they reflect the more acceptable option which is to align with views of significant others (Mayock, 2005). This is because cannabis has diverse implications for users who may desire to integrate to a setting despite their personal inclinations or perceived risk (Hammersley et al., 2001). In an ethnographic study conducted in

Dublin, young people viewed risk unconventionally because it was presumed to be the risk of obtaining pleasure or benefit and were not swayed by portrayals of risk taking behaviour as destructive (Mayock, 2005). Higher goals such as social inclusion and shared identity, were viewed as more salient concerns than the intangible risk of use which was related to social settings or personal issues (Mayock, 2005).

Motivations for cannabis use among young people vary from the need to achieve social identity to personal meanings relating to use (Hammersley et al., 2001). This means that risk factors that are situated within a context that must first be understood. The challenge with using deviance alone to explain cannabis use means that a large proportion of young people will be tagged as nonconforming and opportunities to explore salient issues relating to risk perception may be missed (Hammersley et al., 2001). A broader and more pragmatic approach will incorporate the motivations, transitions and the social milieu in which cannabis is used and sustained (Hammersley et al., 2001).

#### **3.2.4. Cannabis and social identity**

The identity of a 'cannabis user' in contemporary society is still highly debated (Hammersley et al., 2001). Cannabis users were historically associated with deviant subcultures but as an increasing number of young people use, there are contentions relating to the identity of a user (Hammersley et al., 2001). These contentions also originate from how cannabis users are defined in terms of what typifies them as users; by their frequency or duration of use (Hammersley et al., 2001). Research about cannabis use is shaped by perspectives around addiction, deviance and risk but these do not fully capture the motivations and meanings young people attach to it (Hammersley et al., 2001).

Although the frequency and patterns of use are important, the identity of a cannabis user within his society may be a key factor in understanding why young people are drawn to initiate. According to a Canadian study, occasional cannabis users smoked in social settings to fit in and the use of cannabis was linked with an increasing quest for self-identity (Mostaghim and Hathaway, 2013). The extent of acceptance or stigma

faced irrespective of level of use may be a function of the specific context in which use is conceived and defined (Mostaghim and Hathaway, 2013).

Identity within a social group facilitates logistics around using an illicit substance, concealment and use within acceptable social domains (Hammersley et al., 2001). Cannabis users in contemporary society possibly organise their use to ensure they do not isolate themselves completely from mainstream society and to remodel their use to become destigmatised (Hammersley et al., 2001). The need to be identified within their networks and simultaneously in society may explain why they push the boundaries for dual identification between their appraisal of themselves as every day normal citizens and society's appraisal as deviants (Hammersley et al., 2001).

Becker suggested that apart from personal traits that were implicated in cannabis initiation, there were social dimensions that influence conceptualisation and inclination to use (Becker, 1953). He argued that identification was critical because trying and using cannabis required a learning process within a network and the meanings attached are socially constructed because users relay the anticipated experience (Becker, 1953).

Research around cannabis use may be better understood within a context and circumstances relating to use may be more informative than focusing on the 'user' (Hammersley et al., 2001, Hathaway, 2004). This is because parameters that define identification and use may be dependent on the context and these defined parameters make it acceptable or unacceptable (Hathaway, 2004). Young cannabis users are presumed to understand that the social implications of using cannabis includes exclusion from social relationships and privileges if they decide to stop use (Hammersley et al., 2001).

### **3.2.5. Cannabis and context**

Smoking initiation across populations is driven by a complex array of factors; key smoking predictors have been observed to correlate across populations (Botvin et al., 1992, Nichols et al., 2006) with differences being observed in contextual, cultural, environmental and policy factors (Brook et al., 2001, Brook et al., 1998, Conrad et al.,

1992, Hemphill et al., 2011). Contextual differences must be duly taken into consideration to ensure effective culture fit strategies are utilised in planning substance use prevention programmes (Botvin et al., 1992, Landrine et al., 1994). A review of prevention programmes in the USA showed that they did not yield much results in urban minority settings where predominantly black and Hispanic populations were plagued with an array of criminal, deviant and socioeconomic problems (Rhodes and Jason, 1990). This was because although these programmes focused on cognitive influences, they were disconnected from critical environmental and community factors that contributed significantly to life outcomes of adolescents (Bandura, 1989, Rhodes and Jason, 1990). The findings showed that neighbourhood factors could make antisocial or deviant behaviour become so much of a norm that it becomes a real or perceived necessity (Rhodes and Jason, 1990).

Despite the fact that pharmacological effects of substance use are similar across populations, the perceptions of the effects and experiences are not, they are influenced by individual factors, a young person's social milieu and environmental factors (Freeland and Campbell, 1973, Petraitis et al., 1998, WILLS et al., 1996). This implies that In addition to the study of risk factors, substance use must be situated in the socio cultural context that influences its patterns, experiences and meanings to understand how these affect initiation, and sustenance of use (Goode, 1972, Hays et al., 2003, Kendler et al., 2000, Silberg et al., 2003, Swadi, 1999). This underpinned the need to understand contextual factors and situate risk factors in context.

### **3.3. Sociocultural influences**

#### **3.3.1. Introduction**

Sociocultural influences include factors within adolescents' social settings and cultural environment that increase the inclination to use cannabis.

#### **3.3.2. Neighbourhood, crime, poor job and academic opportunities**

The impact of environmental factors on substance use may be dependent on the specific environmental situations unique to an individual and may not be generalizable (Kendler et al., 2003). Disordered neighbourhoods with prominent portrayal of

substance use by role models are presumed to promote use but neighbourhood factors have been understudied (Allison et al., 1999, Elliott et al., 1979, Furr-Holden et al., 2015, Furr-Holden et al., 2011, Petraitis et al., 1998).

Although the risk is presumed to vary with location, perceived neighbourhood disorder has been shown to positively correlate with substance use (Lambert et al., 2004). Neighbourhood disorder also increases youth vulnerability to deviant behaviour, crime and substance use (Botvin et al., 1992, Hofler et al., 1999, Kliewer and Murrelle, 2007). A longitudinal study in USA showed that young people in disordered neighbourhoods had a significantly higher risk in initiating cannabis at two year follow-up than those who lived in good neighbourhoods (Furr-Holden et al., 2011). Environmental factors such as drug laws, availability of substances, economic deprivation and neighbourhood disorganisation act as indirect influences of substance use (Hawkins et al., 1992a). The fact that they act indirectly explains why they are ultimate level factors on the TTI.

Crime, unemployment and poor academic opportunities have been associated with cannabis use and these tend to occur in the setting of neighbourhood disorganisation (de Looze et al., 2015, Reboussin et al., 2015). There is a consensus that the link between cannabis use and crime may be facilitated by the same causal pathway that facilitates disorganisation, inadequate social infrastructure and poverty (Pacula and Kilmer, 2003, Pedersen and Skardhamar, 2010). In a population based longitudinal study conducted in Norway, cannabis use was associated with criminal activity even after confounding factors and the effect of other illicit substances were accounted for (Pedersen and Skardhamar, 2010). A study done in South Africa showed an association between disordered neighbourhood, substance availability, crime and victimisation (Morojele and Brook, 2006). Although no study in Nigeria has explored the link between these factors and cannabis use, many studies documented the dangers of youth unemployment, social exclusion of young people, poverty and crime in congested urban areas (Ajaegbu, 2012, Chukuezi, 2009, Okafor, 2011).

### **3.3.3. School norms and problems**

The adolescent spends a lot of time in the school environment and thus school norms can influence substance use indirectly (Allison et al., 1999, Bidstrup et al., 2009,

Petratis et al., 1998). School factors such as school performance, absenteeism, dissatisfaction and maladjustment in school have been associated with substance use in cross sectional designs (Oetting and Beauvais, 1987). Although evidence is mixed, poor school performance has been linked with smoking experimentation and regular use (Carvajal and Granillo, 2006, Conrad et al., 1992, Derzon and Lipsey, 1999, Flay et al., 1998).

It has been argued that school factors cannot be effectively evaluated in cross sectional designs because poor school performance can be a cause or outcome of cannabis use (Lynskey and Hall, 2000). A longitudinal study in New Zealand showed that after accounting for confounders, cannabis use was associated with poor educational attainment and dropping out of school (Fergusson et al., 2003). A review of longitudinal studies also showed that although cannabis use was associated with poor school performance, there was an overlap between some risk factors for use and those for poor school performance (Lynskey and Hall, 2000). Despite the overlap, there was a significant positive relationship between dropping out of school and cannabis use (Lynskey and Hall, 2000).

There is evidence to suggest that the link between the early use of cannabis and school problems may be related to affiliations with deviant peers and unconventional values that facilitate detachment from school and society (Fergusson et al., 2003) (Lynskey and Hall, 2000). In Nigeria, although cannabis use and poor school performance have not been studied, school problems have been associated with poverty, child labour, peer pressure, poor teaching facilities and restricted opportunities for work or further study (UNICEF, 2012).

#### **3.3.4. Substance availability, media and weak public policies**

Cannabis policy debates have been topical in the past decade in the light of discussions about its medicinal use, normalisation of recreational use among young people and various forms of decriminalisation of its use. Policy debates in favour of cannabis criminalisation are hinged not only on the negative impact on health but also on the possibility that it is a gateway to other illicit substances (Morrall et al., 2002). Counterarguments posit that the harm associated with cannabis is of less public health

significance compared to alcohol, tobacco or other illicit substances because it relates more to personal use (Hall, 2009). These arguments are hinged on the fact that the personal and social harm of cannabis use have not been fully appraised and evidenced (Hall, 2009). There are indications, however, that strict punitive policies do not necessarily reduce the likelihood that young people will be deterred from using cannabis (Erickson, 1976, Lenton, 2000).

Arguments in favour of law enforcement strategies cite the fact that they direct dependent people to treatment as in the USA where the rise in treatment demand was attributed to law enforcement although in Netherlands increase in treatment demand has been reported in spite of decriminalisation (Hall, 2009). This may indicate that there are wider issues that shape the relationship between cannabis policies and initiation of use. Politics plays a major role in shaping the direction of cannabis policy debates regardless of evidence and its interpretation is swayed in the direction of popular inclinations (Hall, 2009).

A review of studies showed that lifetime cannabis use correlated with the availability of cannabis (Petraitis et al., 1998). The availability of cannabis has also been reported to play a key role in strengthening other risk factors for its use (Agrawal et al., 2012, Fergusson and Horwood, 2000, Maccoun, 2006, Petraitis et al., 1998). Perceived availability which measures an adolescent's perception about the level of availability of a substance has been shown to be a key predictor of cannabis use (Gillespie et al., 2009, Hofler et al., 1999). The fact that cannabis is the first illicit substance young people try has been linked to the fact that it is the most widely available and when young people have access to it, they presume its availability is high (Fergusson and Horwood, 2000, Hathaway et al., 2011).

Substance availability may provide both a ready opportunity for use and increases the likelihood that adolescents will be influenced by substance using role models (Gillmore et al., 1990). There is a consensus that restricting access and advertising of substances will reduce substance use (Conrad et al., 1992, Derzon and Lipsey, 1999, Henriksen et al., 2010). Factors relating to cannabis policy and availability have been discussed in chapter one.

### **3.3.5. Unconventional values, tolerance of deviance and alienation**

Problem behaviour theories highlighted in the TTI regard illicit substance use as an extension of the proneness to deviance and antisocial activities (Flay et al., 2009, Sanders, 2012). A review of several studies suggest a link between illicit substance use, tolerance of deviance and unconventional values among adolescents (Hawkins et al., 1992a). Young people who are opposed to conventional society are more likely to be inclined to deviant role models or values that are opposed to conventional societal values (Petraitis et al., 1995). Detachment from conventional societal institutions increases the risk of deviant, non-conforming behaviour by social learning (Agnew, 1991b, Petraitis et al., 1995). In a USA study, cannabis use was strongly associated with dissatisfaction with government and formal institutions (Knight et al., 1974).

Cannabis use has been documented as associated with school absenteeism, deviant delinquent behaviour and lack of commitment to the law and societal norms (Petraitis et al., 1998). Rebelliousness has not been widely studied but has been observed to correlate with substance use (Conrad et al., 1992, Kear, 2002). There is limited evidence that social alienation predisposes to substance use (Petraitis et al., 1998).

## **3.4. Social/interpersonal influences**

### **3.4.1. Family factors**

Familial factors are likely to impact on an adolescents' decision to use cannabis because the family play a critical role in the socialisation process and shapes developmental pathways (Butters, 2002). The role of family factors in substance use has been examined by many studies and factors such as passive parental monitoring, weak bonding, family conflicts and general family dysfunction have been indirectly implicated in use (Fergusson et al., 2008). A wide range of familial factors such as the dynamics of family relationships, parental or sibling substance use, early parental death and stressors within the family have been found to be significantly associated with cannabis use in longitudinal designs (von Sydow et al., 2002).

Some studies, however, show mixed results and it is unclear whether family factors vary in different contexts or if it is due to methodological issues such as evaluating

long term factors in cross sectional designs (Conrad et al., 1992). Another suggestion for the different observations is that the same parenting practices can varied implications for different children (von Sydow et al., 2002). There are also suggestions that associations observed may be as a result of an adolescent's cannabis use negatively impacting on family relationships and thus family conflicts become a consequence and not a cause (Butters, 2002). Family factors are discussed below.

#### **3.4.2. Reward, Motivation and Negative Evaluation by Parents**

Poor communication, conflicts within the family, critical and hostile parents, weak parental monitoring and practices have been documented in reviews of studies as increasing the risk of adolescent substance use but these findings do not appear to be consistent (Hawkins et al., 1992a, Petraitis et al., 1998). Mixed results may be explained by cultural differences in varying contexts (Conrad et al., 1992, Huver et al., 2007).

#### **3.4.3. Parental warmth, support, supervision and discipline**

Strong family bonds, parental religiosity and cordial supportive relationships reduce the risk of substance use but evidence does not support the role of strict discipline (Brook et al., 2001, Brook et al., 1998, Kliewer and Murrelle, 2007, McNeill et al., 1989). Conversely, passive parental monitoring, low level of parental support and weak bonding have been indirectly implicated in adolescent substance use (Carvajal and Granillo, 2006, Chassin et al., 1986, Kliewer and Murrelle, 2007, Parsai et al., 2009). Parental discipline has not correlated with substance use initiation in many studies (Brook et al., 2001, Harakeh et al., 2004, McNeill et al., 1989, Petraitis et al., 1998). Although parental discipline has not been correlated with substance use, poorly monitored kids are, however, at a higher risk for use (Parsai et al., 2009).

#### **3.4.4. Home Strain, parental divorce or separation**

Reviews of several studies have showed that home strain and troubled family relationships put adolescents at risk of cannabis use irrespective of parental separation (Hawkins et al., 1992a, Petraitis et al., 1998). Findings from a Canadian study showed that home strain and disruptions in the family was significantly associated with lack of school connectedness and cannabis use (Butters, 2002). A review of 58 prospective

studies on predictors of illicit substance use reported a link between family disruption, non-supportive or abusive parenting and illicit substance use (Petraitis et al., 1998) . In another review of evidence on family conflict , young people from homes with marital problems had a very high risk of substance use (Hawkins et al., 1992a). Children of divorced or single parents were at increased risk for cannabis use in a review of five prospective studies (Petraitis et al., 1998).

In Nigeria, increasing socioeconomic problems and migration in search of opportunities have negatively impacted cohesive family life resulting in separation or divorce with negative implications for children (Aderinto, 2000). Another Nigerian study showed that children from families experiencing marital conflicts were at least twice as likely to be involved in antisocial behaviour (Animasahun, 2014).

#### **3.4.5. Weak attachment and weak desire to please family**

Strong family ties are sources of restraint from the use of cannabis and strong parental attachment is associated with better outcomes in young people through adulthood (Burkett and Jensen, 1975, Laible et al., 2000). Stable, supportive parental and peer affiliations are invaluable in young people's adaptation to roles and responsibilities (Laible et al., 2000). Adolescents appear to be more predisposed to experimental substance use when positively reinforcing interactions in the family, schools and with peers are absent (Petraitis et al., 1995). Weak family attachments and lenient attitude by parents towards use can predispose an adolescent to initiate substance use although this process may be moderated by peer influence (Allen et al., 2012, Hawkins et al., 1992a). In a Colombian study, cannabis use was observed to correlate with delinquency, weak family attachments and peer /sibling substance use (Brook et al., 1998). Conversely, supportive relationships between young people and their parents in addition to a cordial family environment have been associated with reduced substance use (Hundleby and Mercer, 1987).

#### **3.4.6. Strong attachments and strong desire to please peers**

One of the most important influence factors for substance use that has been widely studied is peer influence and there is a strong correlation between peer influence and substance use onset across studies (Chassin et al., 1986, Conrad et al., 1992, Derzon

and Lipsey, 1999, Farrell et al., 1992, Kliewer and Murrelle, 2007, Leeuwen et al., 2011, Parsai et al., 2009). Peer influence has also been implicated in progression from licit substances such as alcohol to cannabis use (Kaplan et al., 1984). The dynamics of peer influence, however, is not always clear-cut and peer interaction may also be positively relevant in shaping relevant social skills.

Concepts such as friendship selection have been distinguished from outright peer influence because adolescents that share similar characteristics are more likely to select themselves as friends and influence each other subsequently (Aloise-Young et al., 1994, Patton, 1995). This implies that when similarity is observed among friends it may be due to friend selection and not influence (Aloise-Young et al., 1994, Patton, 1995). Consequently, peer influence may occur in a 'bidirectional' manner with adolescents influencing themselves to become more or less deviant and the ultimate determinants of the level of peer influence are personal attributes (Allen et al., 2012).

Adolescents may form strong attachments with deviant peers to escape from family or school problems and this can predispose them to substance use (Kumpfer and Turner, 1990, Petraitis et al., 1995). A longitudinal USA study which examined the vulnerability of adolescents outside and within peer groups to cigarette initiation showed that the desire to fit in prompted group outsiders to initiate smoking in order to conform and possibly gain admittance into a friendship group (Aloise-Young et al., 1994). Although outsiders were twice as likely to initiate to conform than insiders, it was possibly because insiders were already smokers and no more susceptible to influence (Aloise-Young et al., 1994). A major factor with friendship selection is that it may explain these observations as a consequence and not a cause of experimental substance use (Aloise-Young et al., 1994). Another longitudinal USA study of peer influence on cannabis and alcohol use showed that peer influence predicted use in adolescents who lacked social support from their mothers and poor social skills (Allen et al., 2012). The study was, however, unable to differentiate between friendship selection and influence (Allen et al., 2012). There is also a tendency for adolescents to overestimate their peer smoking in terms of the number of peers that smoke and the amount smoked (Parsai et al., 2009, Presti et al., 1992). The quest for peer group identity in adolescence may

not only displace parental norms in favour of peer norms but may also erode an adolescent's critical appraisal of deviant behaviours (Baumrind, 1985).

### **3.4.7. Substance use in peers and family members**

In early adolescence, familial substance use can contribute to initiation either because of exposure to peer deviance as consequence of lack of parenting caused by parental substance use or through direct replication of familial substance patterns (Allen et al., 2012, Brook et al., 2001, Vitaro et al., 2004). Parental and sibling use of substances have been reported as influence factors for initiation in early adolescence and a longitudinal Canadian study showed that parental smoking increased the chance of initiation before the age of 12 years (Vitaro et al., 2004). Another Dutch study correlated these findings in a cross-sectional design but when they were replicated in longitudinal designs, parental and peer influence was the same for age (Harakeh et al., 2004). This may be related to the challenges with reporting age of onset of smoking behaviour retrospectively in a cross sectional study.

Peer cannabis use was shown to be a major predictor of cannabis use in a French study (Chabrol et al., 2006). Peer substance use appears to have a stronger influence than parent substance use in older adolescents (Vitaro et al., 2004). This finding in older adolescents may be associated with the fact that they move out of home and spend more time with peers than parents as they grow older. This has implications for intervention programmes to put the strength of parental versus peer influence during different age periods into consideration.

Sibling use of cannabis was positively associated with cannabis use in a study of young people in Colombia (Brook et al., 1998). Children of parents who use substances are more inclined to use substances because parental use conveys the impression that it is a permissive activity and they do not expect to be reprimanded for doing so (Bauman et al., 1990). A review of studies showed that parental cannabis use is associated with its use among young people and the more tolerant a parent's attitude is towards cannabis, the more inclined their children will be to use (Hawkins et al., 1992b).

A study exploring gender differences in cannabis use showed that its use in females was associated more with sibling use and male cannabis use with peer use possibly because males spent more time with friends and females with family (Brook et al., 1998). The presence of protective factors in one aspect of the family domain could reduce the risk posed by a familial predictor of substance use (Brook et al., 2001). Peer influence is thought to increase as family influence and bonding reduces (Parsai et al., 2009).

### **3.5. Intrapersonal influences**

#### **3.5.1. Genetic Susceptibility to addiction**

Intrinsic genetic differences in personality traits, inherited behavioural temperaments, chronic drug exposure and addiction heritability have been documented as risk factors for substance use (Tarter, 1988). Psychiatric conditions such as attention deficit hyperactivity disorder, antisocial personality disorder and depression have also been associated (Tarter, 1988). The timing of occurrence between the comorbid conditions and substance use is not clear-cut but environmental factors have been observed to play a prominent role in moderating the effects of co morbidities on substance use (Kreek, 2005, Silberg et al., 2003). Prenatal exposure to substances has been linked with early onset substance use (Korhonen et al., 2008, Menezes et al., 2007). Genetic factors have been demonstrated to moderate other risk factors to increase susceptibility to substance use (Mayet et al., 2012).

The influence of genetic and shared environmental factors on illicit substance use is assumed to be considerably nonspecific (Kendler et al., 2003). A review of several studies evaluating the role of genetic factors in cannabis showed a positive relationship (Agrawal and Lynskey, 2006). Genetic and environmental factors can moderate the impact of stressful events in a child's life by aggregating the effect of chronic stress and predisposing them in adolescence to substance use (Enoch, 2011). The impact of moderating factors determine susceptibility to substance dependence as not all children with early life stressors go on use substances (Enoch, 2011).

### **3.5.2. Impulse control, aggressiveness and external locus of control**

Though evidence suggests an association between impulse control disorders and substance use from neurobiological and co morbidity data, the actual relationship is complex and not fully understood (Brady et al., 1998). This is because substance use and impulsive aggressive behaviours are observed frequently to coexist in individuals who are dependent on various substances and neurocognitive mechanisms that affect willpower to resist drugs have been implicated (Bechara, 2005, Brady et al., 1998). Aggressiveness in childhood has been consistently noted to predict subsequent antisocial behaviour and substance use in adolescence though more in men than women (Hawkins et al., 1992a, Petraitis et al., 1998, Swadi, 1999, Windle, 1990). In a longitudinal Finnish twin study, aggressive behaviour was found to predict cannabis use in only males (Chabrol et al., 2006). Evidence for external locus of control and illicit substance use in a review of studies appears to be mixed (Petraitis et al., 1995).

### **3.5.3. Extroversion, risk taking and sensation seeking**

Sensation seeking has been linked with illicit substance use and a wide range of illegal behaviour among young people (Bates and Labouvie, 1997, Malmberg et al., 2010, Stephenson et al., 2003). Socially extroverted, high sensation seeking individuals have also been observed to be at a high risk for adolescent substance use (Petraitis et al., 1998, Weinberg et al., 1998). High sensation seekers are at high risk not only for substance use but also other risk behaviour (Wagner, 2001).

The link between sociability and extroversion is presumed to be as a result of the tendency for these individuals to go in search of social settings where substances and alcohol are used (Sher et al., 2000). Sensation seeking and risk taking are predictive of illicit substance use (Conrad et al., 1992, Fergusson et al., 2008, Kear, 2002).

### **3.5.4. Self Esteem, anxiety, depressed mood, poor coping**

Evidence for low self-esteem as a predictor of substance use is mixed and in some cases negative despite the fact that it has been widely studied in both cross sectional and longitudinal studies (Conrad et al., 1992, Dielman et al., 1987, Petraitis et al., 1998, Swadi, 1999, Wagner, 2001). Evidence for the association between depressed mood, anxiety and substance use is strong though there's the difficulty in distinguishing

whether these affective states share a common aetiology with substance use or co-occur by chance (Carvajal and Granillo, 2006). Studies have suggested that self-medication with cannabis may explain substance use in adolescents with major depressive disorders as it frequently precedes the onset (Deykin, 1987, Swadi, 1999).

Substance use initiation during adolescence is presumed to be a coping strategy to deal with family, peer, school and community stressors (Carvajal and Granillo, 2006, Rhodes and Jason, 1990, Wills et al., 1995), but supportive evidence is lacking from several studies (Petraitis et al., 1995). Cannabis use has been observed to be associated with lack of emotional control and stability (Hawkins et al., 1992a, Petraitis et al., 1998). Studies on the role of intelligence and school performance on substance use have showed mixed results (Hawkins et al., 1992a, Petraitis et al., 1998).

### **3.6. Related behaviour**

#### **3.6.1. 'Gateway hypothesis' and 'marijuana gateway effect'**

The Gateway Hypothesis asserts that substance use follows a sequential pattern typically beginning from licit substances such as alcohol and tobacco and then progressing to cannabis, amphetamines, cocaine and heroin in a ranking order (Morrall et al., 2002). This assumes that young people will necessarily use substances in a staircase manner and this concept has implications for prevention programmes which will target licit substances based on this strategy (Bretteville-Jensen et al., 2008). The relationship between cannabis and other substances was considered important in this thesis as it relates to initiation and continuation of use. Racial differences have been observed which negate this theory as a cross sectional study among high risk African American youth in USA showed that cannabis served as the 'gateway' to dependence with tobacco and other illicit substances (Vaughn et al., 2008). The initiation of cannabis preceding the use of tobacco was also documented in a UK study (Hight, 2004). The Gateway Hypothesis does not explain the complex nature of substance initiation and use which cuts across social, cultural, psychological and environmental domains (Oetting and Beauvais, 1987).

On the other hand, the marijuana gateway effect posits that the use of cannabis increases the propensity for initiation of other illicit substances such as cocaine and heroin (Morral et al., 2002). The key arguments that drive the marijuana gateway effect are that cannabis users rarely initiate cocaine or heroin before cannabis, they have a significantly higher risk of progressing to other illicit substances than non-users and the risk of progression increases with heavy cannabis use (Morral et al., 2002). These arguments have been countered by assumptions that fundamental drivers of the use of cannabis and other substances are facilitated via common factors such as environmental influences or individual inclinations and that the ordering of use is opportunistic based on the substances that are first available to young people (Korhonen et al., 2008, Mayet et al., 2012). The common factor model may not be a convincing explanation because studies that have accounted for the role of other influences have demonstrated that the risk of progression from cannabis is retained after addressing confounders (Morral et al., 2002) .

Other arguments posit that accessibility of licit substances facilitate the initiation of tobacco and alcohol because they are easier to obtain and opportunity to use could explain the sequence of use (Mayet et al., 2012). It has been suggested that substance initiation may actually be an unplanned rather than planned activity because experimentation occurs in unplanned peer or social settings and require little cognitive effort (Kremers et al., 2004, McMillan et al., 2005). This proposition does not align with the timeline of substance use because there is a graduated process between the first attempt and established use highlighting the complex interaction of psychosocial and environmental factors which require the influence of cognitive factors (Fleming et al., 1989). Debates about the veracity of the gateway hypothesis underpin many assumptions regarding drug policies because if the use of one substance increases the tendency to initiate another substance then preventive measures will address multiple substances (Morral et al., 2002).

### **3.6.2. Past smoking behaviour**

Studies have indicated that past cigarette smoking behaviour is a strong predictor of future smoking and the earlier smoking is initiated, the higher the risk of that it will

continue into adulthood (Conrad et al., 1992, Nichols et al., 2006). A longitudinal study examining the relationship between smoking initiation and future smoking utilised a younger sample to mitigate the effect of recall bias that may arise with older substance users (Fleming et al., 1989). Cigarette was the most frequent substance to be initiated first and it significantly increased the likelihood of cannabis use at two year follow-up (Fleming et al., 1989). This finding is supported by evidence from other studies that showed that early initiation of cigarette use was a strong predictor for subsequent cannabis use (Graves et al., 2005, Korhonen et al., 2008). A research study in USA demonstrated that a common route of administration for cannabis and cigarette use explained higher tendency for cigarette smokers in the sample to use cannabis after controlling for confounders (Agrawal and Lynskey, 2009). This finding was supported by a review of studies evaluating the co-occurrence of cannabis and tobacco use (Agrawal et al., 2012). Studies have also demonstrated that the use of cigarette and alcohol predicted future cannabis use (Kaplan et al., 1984, Petraitis et al., 1998). Although alcohol use has also predicted progression to cannabis, it is noted to be at a lesser extent than cigarette smoking (Flay et al., 1998, Korhonen et al., 2008).

Another prospective study of never smoked adolescents aged 11-13 showed previous experimentation was the most significant predictor of future substance use with four times the odds of future smoking over those who had never experimented (McNeill et al., 1989). The exclusion of established substance users from the study at its commencement and the use of biochemical tests increased the objectivity (McNeill et al., 1989). When drug use or experimentation starts in very early adolescence, there is a much higher risk of later use (Parsai et al., 2009).

### **3.7. Proximal Factors**

Proximal factors which consist of the constructs of the Theory of Planned Behaviour and Social Cognitive Theory as highlighted by the TTI are the closest to behaviour and easiest to modify in prevention programmes. Attitude, subjective norms and perceived behavioural control are strongly predictive of intention to use and in some instances, frequency of cannabis use (Armitage et al., 1999, Conner and McMillan, 1999, Conner

and Norman, 2005). A cross sectional survey conducted in USA showed that proximal factors such as self-efficacy, attitudes and subjective norms were all predictive with intention to smoke being the strongest and parental norms being the weakest predictor (Carvajal et al., 2004). In a UK study, although intentions were important in predicting cannabis use, self-efficacy was reported to have expedited use because intention was driven by perceived self-efficacy (Armitage et al., 1999).

A review of studies that evaluated cognitive factors at various stages of cigarette smoking initiation observed that outcome expectancy and intentions predicted experimentation and regular use (Flay et al., 1998). These findings correlated with previous studies (Conrad et al., 1992). In another study of proximal determinants of substance use in USA, intention to smoke, attitude, peer subjective norms favourable to smoking, less perceived risks, less barriers and lower self-efficacy predicted increased vulnerability to smoking initiation (Carvajal and Granillo, 2006). Attitude, subjective norms and self-efficacy constructs have been noted to be excellent predictors of further progression to established smoking (Botvin et al., 1993). Refusal self-efficacy, intentions and attitudes have also been observed to be predictive of smoking onset (Conrad et al., 1992, Petraitis et al., 1998).

Studies have reported attitude, social influence and self-efficacy as being significantly associated with smoking status and life time smoking in cross sectional designs (Bidstrup et al., 2008); these have also been replicated longitudinally (Bidstrup et al., 2009). Measures of cognitive factors could be a cause or effect of smoking experimentation and cross sectional surveys are limited in predicting smoking behaviour but this can be circumvented by following up adolescents who have never smoked longitudinally (Bidstrup et al., 2009).

### **3.8. Rationale for the study**

There is substantial literature on cannabis use initiation globally, but very sparse literature from Africa. Although cannabis is the most widely used illicit substance in Nigeria, the context of its use relating to motivation, settings and situations in which it is used is poorly understood. There is a huge gap in evidence as to how risk factors interact to predispose young people to cannabis use in Nigeria and as highlighted so far, these factors need to be situated in context.

There is historical evidence to show that cannabis use has been shaped by environmental and social influences but there are no studies that explore the relationship of these influences with young people's use of cannabis in a systematic manner. Most of the literature from Nigeria are mainly cross sectional prevalence studies and no risk factor study on cannabis was identified. They provide no context specific description of the problem and cannot be used as evidence for health promotion. The factors that increase the vulnerability of young people to use cannabis have not being evaluated using a theoretical framework. Despite widespread advocacy for qualitative research to facilitate in-depth understanding of substance misuse among young people in Nigeria no qualitative study on cannabis use was identified from literature (L. U. Akah and Emeribe., 2011). A qualitative study will enhance the study of risk factors by providing a description of young people's social milieu.

The study of cannabis use among young people in Nigeria is crucial for many reasons. Firstly, prevalence data show that cannabis is the most widely consumed illicit substance in Nigeria and has consistently accounted for the one of highest volumes of cannabis seizures in Africa (UNODC, 2015). Cannabis is available and affordable across social classes and this indicates that it is readily accessible to those who wish to use it. Secondly, there is evidence from hospital data to suggest that problematic cannabis use exists among young people in Nigeria. Evidence from survey data also suggest trends that reflect greater involvement of young people (Ebie and Pela, 1981b, Isidore S, 1990b, J. Nevadomsky, 1981, Morakinyo and Odejide, 2003, Pela and J. C. Ebie, 1982).

Thirdly, there are significant concerns relating to the use of cannabis by young people because of the increasing THC content and its potential for more severe consequences of use (Murray et al., 2007). Fourthly, the use of cannabis is currently criminalised in Nigeria and the impact on young people's use, perceptions or wellbeing is unknown. Most Western nations that were instrumental to the shaping of Nigeria drug laws have reformed their own laws in favour of harm reduction (Klein, 1999). It is useful to invest in understanding the problem from the perspective of young people in order to be better able to design interventions and inform policy. Finally, prevention and treatment services in Nigeria are currently limited, it is essential that health promotion action and treatment services are driven by an understanding of the problem to guarantee better outcomes.

Not all exposed young people experiment with substances and not all those who experiment go on to continue to use and become dependent which implies that risk factors need to be situated in the context of exposure, use and sustenance (Petraitis et al., 1998). This study is expected to contribute to knowledge about cannabis initiation and use in Nigeria. By exploring the context of use through an integrative approach, it will lay the foundation for understanding the multidimensional nature of young people's health and social needs.

### **3.9. Chapter summary**

This chapter has reviewed the risk factors and context of cannabis use. The debates between the current state of cannabis use in terms of normalisation or its subcultural position in society was discussed. Risk factors for the use of cannabis were also discussed with the TTI framework and the study findings will contribute significantly to understanding the context of cannabis use in Nigeria.

## **Chapter 4: Research aims and methodological approach**

### **4.1. Introduction**

This chapter outlines the aims and objectives of this research and the methodological approach. The methods underpinning this study will be outlined but a detailed discussion of methodological considerations will be contained in the respective methods chapters.

### **4.2. Research aims and objectives**

The overall research aim was to:

Explore the context and factors that are associated with cannabis initiation and continued use among young people in Nigeria with a view to making evidence based recommendations for health promotion.

#### **4.2.1. Research objectives**

- To identify factors associated with initiation and use of cannabis among young people in a Nigerian population.
- To explore the meanings young people attach to the use of cannabis and the context in which it is initiated and sustained.

#### **4.2.2. Research questions**

- Which factors are associated with the initiation of cannabis among young people in Nigeria?
- Which factors are associated with continued or heavy use of cannabis among young people?
- What are young people's motivation for cannabis use, what meanings do they attach to its use? How do perceived negative or positive effects of use affect these meanings?
- In what context does cannabis use occur and how is its use situated within the wider transitions occurring in a young person's life?

- What is the perceived relationship between tobacco and cannabis and how does tobacco use deter or sustain cannabis use?

### **4.3. Philosophical and methodological considerations**

#### **4.3.1. Introduction**

The research methodology encompasses theoretical principles, approaches and methods utilised in the conduct of research (Mackenzie and Knipe, 2006). The philosophical worldview provides the basis for decisions about the entire research (Creswell, 2013, Mackenzie and Knipe, 2006). This worldview or paradigm shapes the conduct and interpretation of research and it is influenced by beliefs, values and experiences (Creswell, 2013, Mackenzie and Knipe, 2006, Morgan, 2007). The nature of reality in terms of what is known or can be known about the real world refers to the ontological position and the epistemological position refers to how this reality can be credibly accessed by the researcher (Guba and Lincoln, 1994). Dialogues about paradigms precede that of methods because paradigms determine the researcher's assumptions in the entire research process including methods (Guba and Lincoln, 1994, Miller et al., 2010, Neale et al., 2005). The tools and strategy utilised in studying reality constitutes the methodology and is guided by the theoretical perspective (Guba and Lincoln, 1994).

Some paradigms commonly used in research include positivism, post positivism, interpretivism and pragmatism (Creswell, 2013). Positivist and post positivist views of research inquiry are deterministic; assume a cause and effect approach and insight is gained through measures of quantifiable phenomena as shown in table 4.1 (Creswell, 2013). Theory driven data is obtained to substantiate or disprove theoretical assertions related to assumptions that only a single reality exists (Creswell, 2013, Feilzer, 2010). The interpretivist worldview uses perspectives as a means of developing insights into contextual meanings of experiences and daily interaction (Creswell, 2013).

**Table 4.1. Research paradigms (Adapted from Wahyuni, 2012)**

	Research Paradigms			
	Positivism	Post positivism	Interpretivism	Pragmatism
<b>Ontology: Nature of reality</b>	Objective , Realism	Objective, critical realism	Subjective, reality is constructed	Multiple , adapted to answer research question
<b>Epistemology: How reality can be credibly known</b>	Causality, facts and Empirical observations	Credible factual, contextual	Subjectivist, multiple realities, meanings	Practical, integration of worldviews to answer the research question
<b>Research methodology: The strategy used to study reality</b>	Quantitative	Quantitative or qualitative	Qualitative	Quantitative and/or qualitative methods

#### **4.3.2. Pragmatism as the epistemological stance**

The pragmatist paradigm underpins this study and it is not bound by the ideologies that place practical restrictions on other worldviews but is inclined towards how a research problem can be understood and addressed (Feilzer, 2010, Mackenzie and Knipe, 2006). This paradigm presumes that social realities cannot be fully explored using scientific methods and thus researchers should have the flexibility to choose approaches best suited to their inquiry (Creswell, 2013, Mackenzie and Knipe, 2006). Pragmatism relates to varied features utilising subjective, objective or an integration of both elements (Feilzer, 2010). Although it is argued that quantitative and qualitative methods originate from different ontological and epistemological perspectives, they share a commonality because they derive from ways of seeking ‘the truth’ (Feilzer, 2010). The adoption of pragmatism in this research was borne out of the overarching need to put the research question at the fore of shaping the research process and apply methods suitable to answer it. Pragmatism provides a rational and

epistemological basis for the flexibility in exploring the use of varied methods that facilitate greater depth in research (Johnson et al., 2007, Mackenzie and Knipe, 2006).

Pragmatism has been heavily criticised because the concept of 'what works' appears defective as the outcome is presumed to vary in time and orientation resulting in unreliable conclusions (Howe, 1988). Although pragmatism is inherently adapted to 'problem solving' which is critical in research, it goes beyond this to incorporate a broad philosophical framework that is applicable to social research (Morgan, 2014). The inquiry process addresses the how and why of a research problem by reviewing beliefs and action in a contextual and pragmatic manner (Morgan, 2014). Pragmatism has been advocated for use in social research both as an empirical and philosophical tool with applications that extend to qualitative, quantitative and mixed methods (Morgan, 2014). Although post positivist and constructivist views claim to focus on empirical observations in the world and constructions of reality respectively, pragmatism views both discourses as two facets of the same continuum whose applicability is ultimately determined by the research question (Morgan, 2014, Wahyuni, 2012). This is because it recognises that reality and its conceptions have practical dimensions both for its empirical value as a philosophical approach in conceptualisation of the research and inquiry decisions (Creswell and Clark, 2011, Greene, 2008, Morgan, 2014). This research about cannabis use required a flexible and adaptable approach to suit the dynamic issues that were anticipated while exploring context or patterns and this informed the use of pragmatism.

#### **4.4. Research approach: quantitative and qualitative methods**

In order to address the aims of this study, it was necessary to utilize qualitative and quantitative research methods. Two studies were considered suitable because they were needed to examine different aspects of the research aim using the TTI as a framework. While the quantitative study investigated the patterns and associated factors relating to cannabis use, the qualitative study explored the context and meanings attached to cannabis use. The TTI framework may not capture all the constructs that are needed in the evaluation of contextual factors and that made a

qualitative approach imperative. In order to ensure that the risk factors identified were situated in context, a survey which explores patterns and associated factors was considered inadequate. While the quantitative study focused on measurable parameters, the qualitative study was expected to break these barriers to capture the meanings and experiences that define a cannabis user in the Nigerian context.

The option of conducting a mixed methods study was considered but it was not deemed feasible as the practical approach to addressing the research question in context required two separate studies in different sample populations (Johnson et al., 2007). Conceptually, both studies were chosen to explain different aspects of the research in order to paint an overall picture of issues relating to cannabis use in Nigeria. The need to understand the risk factors and contextualize them informed the use of two research methods to ensure that findings were situated within the Nigerian context.

#### **4.4.1. Quantitative research and its evidence**

Quantitative research investigates causal associations using objective measures to determine reality (Sale et al., 2002). The approach to linking theory with research is deductive and emphasis is placed on testing of theories and the sample size in quantitative studies takes representativeness into consideration (Bryman, 2008). Quantitative designs utilise structured data collection methods to obtain information on trends and outcome measures in cross sectional and longitudinal designs and consist mainly of experiments and surveys which utilise structured interviews or questionnaires (Creswell, 2013). Surveys are frequently used to obtain quantitative data on patterns and frequency of illicit substance use within and across populations (Harrison and Hughes, 1997). A cross sectional survey design was used to evaluate cannabis use in this study and the details are discussed in chapter five.

#### **4.4.2. Qualitative research and its evidence**

Qualitative research explores the meanings attached to actions and experiences with a view to understanding social phenomenon within natural settings (Creswell, 2013, Liamputtong, 2009). Unlike quantitative research, the researcher is the tool for collecting the data usually from varied sources and integrating multiple perspectives

(Creswell, 2013, Dickson-Swift et al., 2007). Qualitative research assumes that multiple realities exist and the approach to linking theory and research is inductive (Bryman, 2008, Sale et al., 2002). Data collection is done in participants' natural settings in order to speak directly to or observe them within their context (Creswell, 2013). This research method does not seek measures but meanings, perceptions and perspectives of issues within a given context which do not have appropriate measurable parameters (Creswell, 2012, Liamputtong, 2009, Sale et al., 2002). Qualitative research has contributed immensely to the study of substance use using participant observation, interviews and focus groups (Nichter et al., 2004). Paired interviews, focus groups and telephone interviews were used in this study and the details are discussed in chapter six.

#### **4.5. Chapter summary**

This chapter highlighted the research aims and methodological approach adopted in this study utilising a pragmatic approach. Quantitative and qualitative methods were employed in the conduct of the research among young people in Nigeria.

## **Chapter 5: Quantitative methods**

### **5.1. Chapter overview**

This chapter describes methodological considerations, measures and the analytical approach used in the survey. The study aimed to identify factors associated with initiation and use of cannabis among young people in a Nigerian population. Although the study limitations are outlined at the end of this thesis, they are described in detail within the sections of this chapter where applicable. This chapter aims to:

- Describe the study population, sampling strategies and design of survey. Strengths and limitations of various approaches within the context of this study are discussed.
- Discuss psychometric issues in substance use measurement, measuring instruments and accuracy of self-report measures.
- Outline the survey administration process, data management and analytical approach.

### **5.2. Study population and location**

#### **5.2.1. Study population**

Participants could potentially be sampled from schools, households, hospitals or community settings and the feasibility of each option was considered. Year groups clustered within classes are more feasible to sample in schools than age groups but in other settings such as households, hospitals or community specific ages can be sampled.

##### **5.2.1.1. Considerations for sample population**

###### **School**

School based substance use surveys are the most commonly used approach because they are economical, there is a sampling frame and a large proportion of sampled students complete surveys (Clark et al., 2011, Hemphill et al., 2011). They are easy to

administer in schools to a considerable number of students, data on risk factors and multiple substance use can be obtained and anonymity guaranteed (Johnston and O'Malley, 1985). School surveys provide a convenient means of obtaining a fairly representative population of young people with varying demographic characteristics (Onwuegbuzie and Collins, 2007). A school based survey may, however, exclude a large proportion of the target group who have graduated from school or are out of school as a result of academic or personal problems (Bidstrup et al., 2009, Clark et al., 2011, Hemphill et al., 2011, Oshodi OY, 2010). Difficulties could arise in obtaining active parental consent or approvals from school authorities. Private schools rarely give permission for surveys so most school surveys in Nigeria are undertaken in public schools.

### **Household surveys**

Household surveys are useful for research designs which incorporate parents and family members (Brook et al., 2011b). School absentees or dropouts may be sampled at household level (Estroff, 2008). Higher rates of substance use observed in school compared to household samples may indicate that young substance users avoid participation in household surveys (Estroff, 2008). A sampling frame is difficult to obtain in Nigeria because of poor urban planning and a dysfunctional postal system. This approach is more resource intensive, excludes street or institutionalised youth and the researcher may be at risk conducting interviews in homes. Young people may be unwilling to discuss their substance use patterns in the presence of family members from whom they wish to conceal their use (Atkinson and Flint, 2001). Anonymity cannot be guaranteed and participants may not want to admit to criminal behaviour in an environment where they can be traced and identified.

### **Hospital**

Hospital based studies in Nigeria have mainly examined treatment demand, demographic and psychiatric profiles of substance users (Adamson et al., 2010, Ohaeri and Odejide, 1993, T. A. Adamson 2010). They are economical and a sampling frame can be derived by enumerating treatment centres. Hospital surveys may not capture factors influencing regular cannabis use because it is mainly problematic cannabis

users with co-occurring psychiatric morbidities that seek treatment (Boys et al., 1999, Boys, 2000). Perceptions about cannabis may change as result of treatment and this further limits the inferences that can be made.

### **Community settings**

In-school and out of school adolescents can be sampled through informal settings such as community centres but a sampling frame is not obtainable (Boys et al., 2001). Studies in these settings are useful in evaluating a wide range of substance use and demographic patterns (Boys et al., 1999, Highet, 2003, Morakinyo and Odejide, 2003). Recruiting participants from community settings may enable the researcher to reach all categories of young people including those who have dropped out of school (Highet, 2003). Participants can engage directly with the researcher, but it is challenging, time consuming and expensive to recruit from the community because of the need to recruit one person at a time for a large sample size.

Given these considerations, the school setting was the most appropriate because it was the most cost effective and ethical way to recruit and administer the survey to about 1000 young people. A large proportion of young people who may constitute users of cannabis with a wide range of attributes can be sampled during a school survey.

### **5.2.2. Considerations in determining the age of the target group**

The target age group of 16-19 years was chosen because it was anticipated that they would constitute final year students within the public secondary school system. The average age of the students in that class level obtained informally from a school teacher was reported to be 17.3 years. Participants in a hospital based study reported that the age of onset of substance use was predominantly between 15-19 years and to a lesser extent, 10-14 years (Adamson et al., 2010). Despite the limitation in terms of terms of patients' ability to recall of past events after treatment, this study provides a guide on age of onset because alternative data sources in Nigeria are not available. For the purpose of this study, it was assumed that by age 16-19 years, initiation of substance use may have occurred in those at risk. Young people at this age are also expected to reflect the cumulative influence of the family and school sociocultural

environment in line with the aims of this survey (Johnston and O'Malley, 1985). Students in the highest secondary school class were presumed to have the skills needed to comprehend and answer survey questions with limited assistance (Johnston and O'Malley, 1985).

Class levels are logistically easier to sample than age groups in Nigerian schools and students within the same class levels tend to belong to similar age groups. Age group was utilised in defining the target group for the study because this allows for comparison across data as risk behaviours are more related with birth cohorts than school grade levels (Abuse, 2003). The minimum of 16 years chosen in this study was also in line with the legal age for research consent in Nigeria. Consequently, the target population for this study was young people aged 16—19 years enrolled in Lagos state public secondary schools in 2013. During survey administration, the upper age limit was extended to 20 years to include students in classrooms who were 20 years old.

### **5.2.3. Study location**

The study was conducted in Lagos state and this has been described in Chapter one.

#### **5.2.3.1. Allocation of the education district**

There were six education districts in Lagos state with a total of 661 secondary schools and approval for school surveys was coordinated by the department for Planning, Research and Statistics (DPRS) of the Ministry of Education. The preference for Education District III for this study was based on the consideration that it was logistically more feasible to conduct the qualitative and quantitative studies within the same geographical area and the researcher was familiar with the area. In addition, a network of walk-in clinics within the district were planned as interview centres during the qualitative study. Mobilisation for research in unfamiliar territory was considered more expensive and time consuming considering the limited funding available for this research. The limitation of conducting research in familiar territory as opposed to exploring new locations that could result in new perspectives and knowledge was acknowledged. Application to use the Education District III was approved by the Lagos state Ministry of Education.

### **5.2.3.2. Education District III**

The Education District III consisted of four zones that contained a mix of the most affluent and one of the most deprived areas in the state. The public schools in this district served diverse communities and this provided an invaluable opportunity to explore cannabis use in varying socio demographic context.

## **5.3. Sampling strategies**

### **5.3.1 Sampling method**

The research objectives and design are the key determinants of sample size and sample technique (Onwuegbuzie and Collins, 2007). This quantitative study aimed to elicit from participants, risk factors associated with initiation and use of cannabis and this required comparable information from a diverse group of users and non-users. Non-probability sampling methods were considered cumbersome because of the fairly large sample size required and the need for confidentiality and anonymity. Probability sampling was considered suitable for obtaining an inclusive sample of cannabis users and non-users representing a broad range of characteristics to be studied.

### **5.3.2 Sample size**

The sample size calculation took the minimum number of participants required in the cannabis user and non-user categories for comparative analysis into consideration. The rule of thumb of 10 events per variable (EPV) is recommended in sample size determination to ensure precise regression coefficients are obtained and avoid inferences based on spurious associations (Peduzzi et al., 1996). The EPV refers to the number of subjects or events expressed as a ratio per variable evaluated in a study (Peduzzi et al., 1996). Simulation studies show that too few events per independent variable affect the validity of regression models leading to biased odds ratio estimates and invalid significance tests (Courvoisier et al., 2011, Peduzzi et al., 1996). Other simulation studies suggest that errors are common between 2-4 EPV, infrequent between 5-9 EPV and still detectable between 10-16EPV (Vittinghoff and McCulloch, 2007). These studies suggested that statistically significant results should not be disregarded in 5-9EPV because the confidence interval coverage and bias were satisfactory (Vittinghoff and McCulloch, 2007).

There is evidence to suggest that in addition to the EPV, the hypothesized magnitude of coefficients and predictor correlations are important in sample size determination for regression models (Courvoisier et al., 2011). Limitations common to simulation studies on EPV is that they do not exhaustively explore all potential data configurations and inferences differ for continuous and binary predictors (Courvoisier et al., 2011, Peduzzi et al., 1996, Vittinghoff and McCulloch, 2007). There is a consensus, however, that more reliable the parameter estimates are obtained as the number of events or sample size increases (Courvoisier et al., 2011, Peduzzi et al., 1996).

Based on this, 10 EPV provided the guide for sample size estimation and predictor correlations were observed cautiously in planning the analysis. Based on seventeen variables initially planned to be evaluated in this study, a minimum of 170 cannabis users were required in a sample of cannabis users and non-cannabis users. To obtain at least 170 adolescent cannabis users guided by the rule of 10 EPV, the 14.3% annual prevalence rate of cannabis use in Nigeria was used as a reference (UNODC, 2015). The annual prevalence of cannabis use in Nigeria provided a useful guide on the minimum proportion of cannabis users that can be found within any given sample surveyed. The minimum sample size required to obtain 170 cannabis users was calculated to be 1189.

### **5.3.3. Sampling design**

#### **5.3.3.1. Sampling the schools**

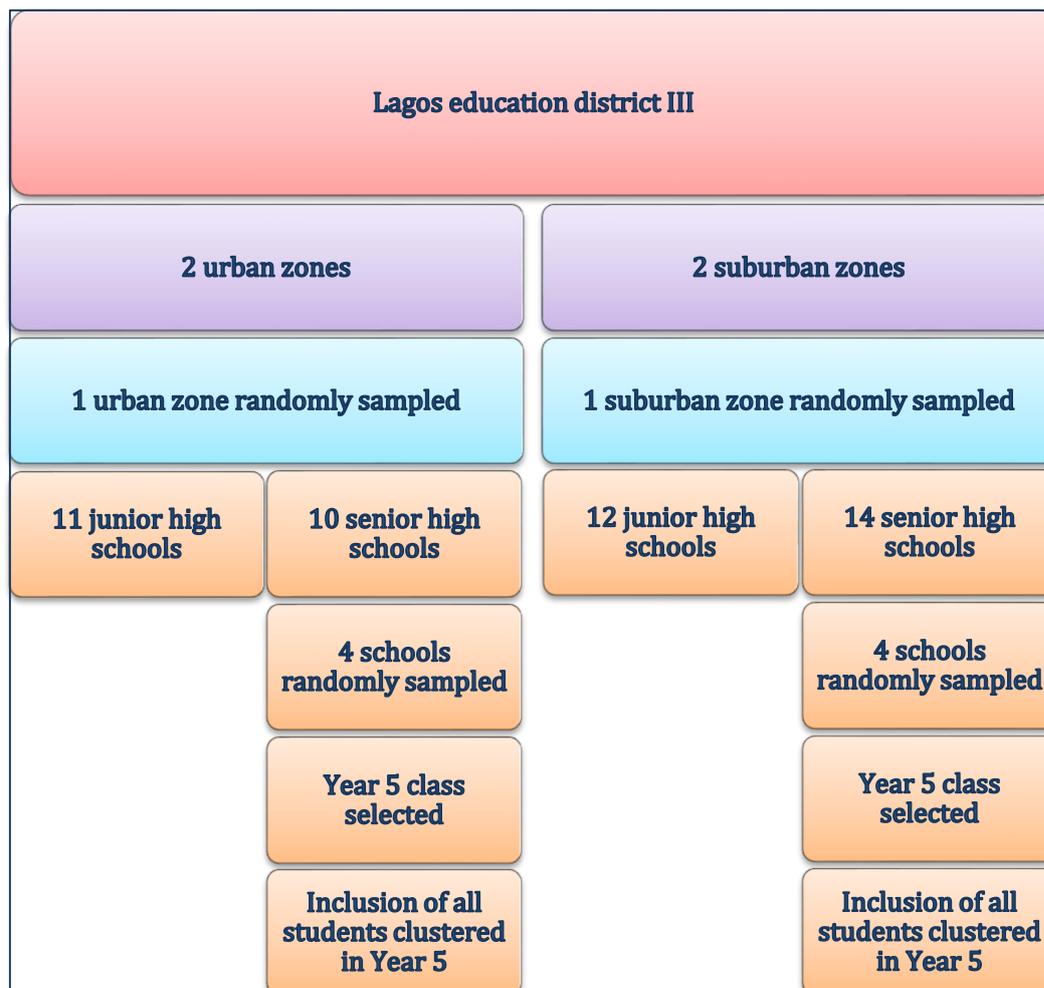
There were 127 secondary schools with a total of 42,711 students in District III. A stratified cluster sampling design was used to stratify the district into two urban and two suburban zones based on zoning information obtained verbally from the ministry officials as shown in table 5.1. No formal document on a proposed reclassification of Lagos state into urban and suburban areas was available when this survey was conducted. One zone was randomly selected from each category using a table of random numbers to obtain zones 3 and 4. They were further stratified into junior and senior secondary schools; four senior secondary schools were randomly sampled in each zone. The girls' only and boys' only schools were excluded from the schools to be sampled in the urban zone because there were no comparable schools in the suburban zone.

**Table 5.1. Distribution of schools within the four zones in education district III**

Zone	Type of area	Number of senior secondary schools	Girls only schools	Boys only schools	Number of schools sampled
1	Suburban	25	1	-	-
2	Urban	12	2	-	-
3	Suburban	14	-	-	4
4	Urban	10	1	1	4

#### **5.3.3.2. Sampling the students**

The plan to sample final year six students was not feasible because they had recently graduated after their final exams and year five students were sampled instead as shown in figure 5.1. In the participating schools, all the students clustered in the year five classes and present in school on the day of the survey were included in the survey. Cluster sampling in which an entire classroom is sampled tends to be less precise than sampling individual students because estimates are more accurate as sampling units become smaller (CRIME, 2003, Henry, 1990). This is because there is a greater tendency for students clustered within classrooms to have comparable substance use patterns than when they are randomly sampled across classes (Abuse, 2003, CRIME, 2003). Cluster sampling was however more methodologically practicable because it was logistically easier to sample an entire class than to select students from different classes (CRIME, 2003). Selecting individual students from classes may result in them being stigmatised by others who perceive they were selected based on negative characteristics and anonymity cannot be guaranteed.



**Figure 5.1. Sampling design for the school survey**

### **5.3.3.3. Absentee students**

Up to date class registers could not be obtained from the school authorities because the schools collate and update absentees retrospectively. No information was available on those who had dropped out of the school as this was collated at the end of the school year. Estimates of absentees and dropouts are important because substance use rates are presumed to be higher among them than in-school students (Estroff, 2008, Swaim et al., 1997). Therefore, it is important not only to estimate the proportion of absentees but also the prevalence of substance use among them (Swaim et al., 1997). Though substance use is presumed to be higher among absentees and drop outs, it may not significantly affect the survey results if they represent a small percentage of the total sample (Johnston and O'Malley, 1985). Absenteeism and dropping out of school could also be as a result of broader issues such as illness,

socioeconomic hardship and teenage pregnancy (Johnston and O'Malley, 1985). The limitation of the estimates from this thesis which could not capture data on absentees is acknowledged.

## **5.4. Overview of survey measures**

### **5.4.1. Psychometric considerations in substance use measurement**

Tools for evaluating adult substance use measures may not be suitable for adolescent studies without validity testing because both groups differ in characteristics (Leccese and Waldron, 1994, Martin et al., 2006). Due to its multifaceted nature, the evaluation of substance use in young people should characterise the patterns, context and associated effects of use (Leccese and Waldron, 1994). A structured questionnaire was developed to collect demographic data, substance use information and risk factor measures in this thesis.

### **5.4.2. Questionnaire design**

The questionnaire which is contained in appendix A combined existing scales and measures that have been validated and used in other adolescent substance use studies. Consideration was given to instruments that have been validated and used within the Nigerian context but studies evaluating substance use risk factors are sparse in Africa. In the absence of instruments from Nigeria, instruments that were considered best suited within similar context were adapted. Most of the studies evaluating predictors and correlates of substance use in Africa have been conducted in the country of South Africa (Brook et al., 2006a, Brook et al., 2006b, Brook et al., 2006c). Though Nigeria obtained independence from British colonisation in 1960, decades of military rule, corruption and poor infrastructural development mirror the post-apartheid socioeconomic inequalities, violence and youth delinquency still thriving in South Africa (Irobi, 2005, Morojele and Brook, 2006). Racial conflicts in South Africa compare with ethnic rivalry in Nigeria although South Africa appears more politically and strategically determined to resolve their issues (Irobi, 2005). Cultural similarities exist more across countries in Africa than across developing countries in

other continents. In the absence of other instruments, instruments that have been validated and widely used were adapted in this study.

There were ten sections in the survey questionnaire.

- Demographic information
- Substance use history
- Peer attachment
- Parental attachment
- Aggression
- Perceived availability of substances
- Attitude, behaviour and intention to use cannabis
- Sensation seeking
- Peer delinquency and substance use
- Parental substance use

#### **5.4.2.1. Demographic information**

Information was obtained on participants' age, gender, parents' marital and educational status, living conditions and family wealth. The questions utilised discrete response categories to reduce missing data and facilitate ease of data entry. Demographic questions were adapted from the WHO and UNODC student drug use surveys (Abuse, 2003, Smart et al., 1980). The WHO student drug use questionnaire was piloted in seven countries including Nigeria and has subsequently being used in Nigerian substance use studies (Adelekan and Odejide, 1989, Smart et al., 1980).

#### **5.4.2.2. Substance use history**

In order to determine the level of substance use among participants, self-report measures of lifetime, 12 month and 30 day use were assessed for tobacco, alcohol, cannabis, heroin and cocaine. Age of onset of substance use and severity of cannabis dependence were also assessed. A clear description of the measures and important considerations for prioritising measures to be used are described in section 5.5.

## **5.5. Measuring substance use**

Substance use can either be measured through self-report or biochemical assessments (Day and Robles, 1989). Though biochemical tests tend to be more precise, they can only measure current use but survey questions have the advantage of ascertaining duration and patterns of use (Day and Robles, 1989). Frequency, quantity and duration of use are important parameters that need to be evaluated in measuring substance use (Day and Robles, 1989). There is no consensus on the best approach to measuring substance use; however, there is a consensus on the need to assess the possibility that a participant has ever used a substance and how recently that use occurred (Boys, 2001). There are several standardised measures that are specific to alcohol use and cigarette smoking but they were not considered in this study because the focus is on cannabis use.

### **5.5.1. Recall periods and substance use measures**

Cross sectional surveys on substance use depend significantly on participants' ability and willingness to recall past behaviour and instruments need to capture the events that occurred within the desired recall period (O'Malley et al., 1983). One of the most frequently used measures is the estimate of number of times within lifetime (ever used), past 12 months (past year) and past 30 days (past month) a substance was used (Fuller, 2011, Johnston et al., 2010, Smart et al., 1980). Less commonly, a recall period of three months (90 days) is used as an estimate of current or recent use (Boys et al., 2001, Boys, 2001). In other instances, substance use in the past week (7 days) is used to estimate current use (Boys, 2001). Sometimes binary responses such as 'Yes or No' to questions about lifetime or 12 months frequencies are used; alternatively, questions are asked about the number of days a substance is used (Smart et al., 1980). Data from shorter recall periods may be more accurate than those from longer periods and when 30 day prevalence rates are multiplied by 12 in some studies, they exceed rates reported for 12 months substance use (Brener et al., 2003, O'Malley et al., 1983). The measure of current use in this research was past 30 day use as it is most commonly used; the use of 90 days as a recall period may be limited as some users may have initiated within that period (O'Malley et al., 1983).

### **5.5.2. Lifetime or 'ever' used**

Lifetime or cumulative prevalence of estimates instances of prior substance use as a result of the decision to use or experiment (Estroff, 2008). Lifetime use is measured in this cross-sectional study as an indication of participants who have ever used a substance (Abuse, 2003, Johnston et al., 2010, O'Malley et al., 1983). It is reported to be a good measure of experimental substance use and is useful as a longitudinal measure of population trends in initiation (Raynor et al., 2012). Lifetime use measures cannot be interpreted as current, future or continued use (EMCDDA, 2012).

### **5.5.3. Age of first use/duration of use**

The 'age of first use' serves the dual purpose of estimating the duration of substance use and as a proxy measure of lifetime use (Smart et al., 1980). Duration of substance use highlights how long it has been used and long term use may account for social, psychological and biological variations between participants (Day and Robles, 1989, Johnson and Mott, 2001). This can be measured by asking participants to choose the correct response from a range of ages or simply 'how old were you when you first used cannabis?' (Abuse, 2003, Smart et al., 1980). It may be useful to reduce the likelihood of missing data by asking participants to choose from a range of ages than asking them to state an exact age (Shillington et al., 1995). Participants were asked in this thesis to choose from a range of ages or select the option of 'never used before' if they have never used the substance.

### **5.5.4. Annual or 12 month use**

Annual or 12 month use is a reflection of a participant's decision to continue rather than discontinue use after trying to use substances and it was measured in this study as an indication of current use (Estroff, 2008),(Abuse, 2003, Johnston et al., 2010). It is also known as recent use and is a better reflection of recent use than lifetime use (Estroff, 2008). It can indicate which substances young people within a population are more likely to continue to use after initiation and constitutes a part of lifetime use ((EMCDDA), 2012, Estroff, 2008). For example if the 12 month use of a substance is half of lifetime use, it reflects the fact as much as 50% have stopped using.

### **5.5.5. Past 30 day use or current use**

Substance use in the past 30 days or current use, measures use within the past month and provides one of the most accurate estimates of substance use frequency (Estroff, 2008, Raynor et al., 2012). Recall of past 30 day use is presumed to be more precise than recall of longer periods (Estroff, 2008). When estimates of past monthly use were compared with annual use in a USA study, discrepancies reported were due to underestimation of annual use (O'Malley et al., 1983). Heavy use may indicate the likelihood of dependence or problems associated with use ((EMCDDA), 2012). Regular use or heavy use may be inferred from this measure and substance use on 20 or more occasions in the past month indicates daily use ((EMCDDA), 2012, Estroff, 2008). A proportion of participants in a survey reporting current use may have recently commenced use before the survey administration (Raynor et al., 2012). This measure was used in this study as an indication of participants who were currently using a substance (Abuse, 2003, Johnston et al., 2010).

### **5.5.6. Frequency of substance use**

Frequency of substance use indicates how regularly a substance is consumed within a defined period and it indicates the extent to which substance use is integrated in a person's routine or functioning (Day and Robles, 1989). Frequency is commonly reported as the number of occasions a substance has been used such as : never used, 1-2 times, 3-5 times, 6-9 times, 10-19 times, 20-39 times and 40 or more times (Abuse, 2003, Johnston et al., 2010). Sometimes participants are asked the number of days they have used a substance within the past 30 days instead of the number of times (Smart et al., 1980). Frequency can also be estimated using a 5 point scale ranging from never used to everyday or regular use (Botvin et al., 1990, Stacy et al., 1990). Open ended questions in which participants fill in the number of times they have used a substance within the period in focus can also be used (Stacy et al., 1990). Frequency measures are unable to capture seasonal variations in use that occur during the period being evaluated (Day and Robles, 1989). Frequency of use is measured in this study by providing options on the number of times a substance was used within the period being evaluated (Abuse, 2003, Johnston et al., 2010).

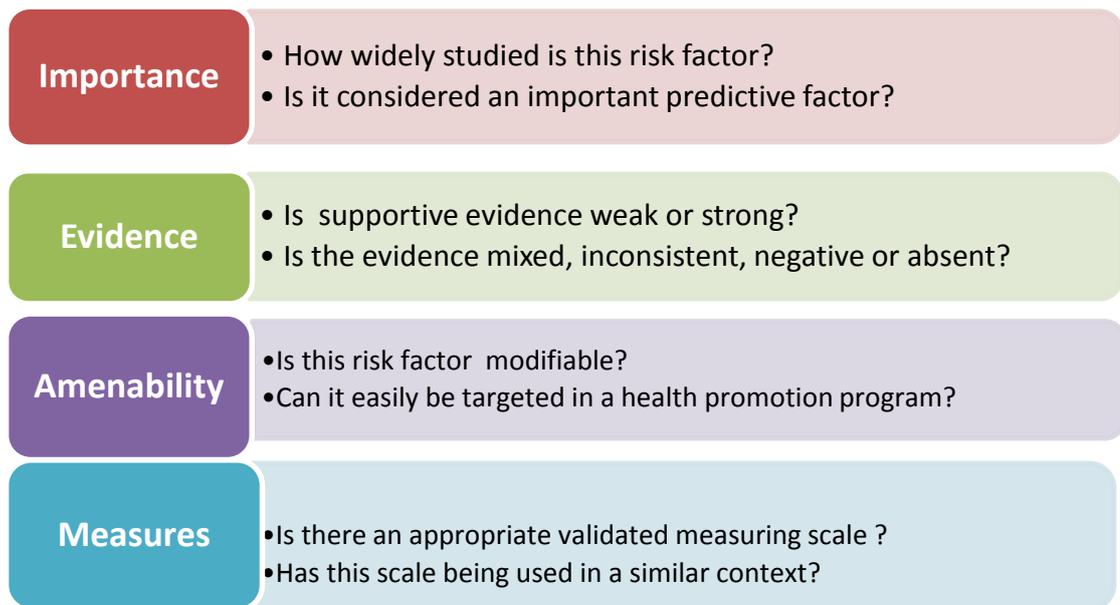
### **5.5.7. Quantity of substance used**

This measure estimates the amount of a substance consumed per event (Day and Robles, 1989). The quantity of illicit substance used is difficult to measure because of varying content, purity or strength and young people are unable to discern the presence of contaminants or counterfeits (Day and Robles, 1989). In studies where measures such as ‘number of cannabis joints used in a typical day’ were assessed, the limitations of these measures were acknowledged (Boys et al., 2001, Boys, 2001). The quantity of cannabis used was not assessed in this study as the difficulty in estimating quantity which may be a function of the strength was anticipated because cannabis is illegally grown and processed in Nigeria.

## **5.6. Measuring risk factors in this study**

### **5.6.1. Introduction**

The importance of risk factors in the aetiology of substance use has been previously described in the literature review using the TTI as a guide. Individual differences and complex risk factor causal pathways account for initiation and continued use (Farrell et al., 1992, Higgins and Conner, 2003, UNODC, 2015). The forty two risk factors identified in the TTI could not all be measured in this study and it was considered more feasible to focus on modifiable risk factors that can be targeted in health promotion (Chakravarthy et al., 2013, Ralph J. DiClemente et al., 2009). Some modifiable variables though useful in understanding health behaviour are difficult to characterise and measure (Sussman et al., 2000b). The focus of this research was thus to evaluate modifiable risk factors with suitable and accessible measuring instruments. The relative importance of a risk factor and supportive evidence available was also considered to prioritise risk factors to be measured in this study. Figure 5.2 shows a summary of the criteria utilised for evaluating the risk factors. The full list of variables and the evaluation criteria is contained in appendix B.



**Figure 5.2. Evaluation criteria for substance use risk factors**

## **5.6.2. Risk factor measures**

### **5.6.2.1. Peer deviance and peer substance use**

The measures assessed adolescents' report of their peers' involvement in substance use and deviant behaviour as shown in table 5.2. This was evaluated using items from measures developed and used in the USA which have been applied to South American adolescents (Brook et al., 1997). These measures were adjusted grammatically and culturally to fit the South African context; they have been used in several studies in South Africa (Brook et al., 2006b, Brook et al., 2006c, Morojele and Brook, 2006). Internal consistency for some of the items when used in a scale ranged from 0.76 to 0.83 (Brook et al., 2006c, Morojele and Brook, 2006). The measures asked questions about peer substance use, peer stealing and cheating. Other measures of peer deviance are composite scales that assess a wide range of peer related issues with up to 36 items which will be too cumbersome to use in this study (Agnew, 1991a).

**Table 5.2. Summary of survey measures and instruments**

Variables		Assessment Tools	Items/ Reliability
Personal measures	Age	Questions were adapted from the UNODC and WHO student surveys (CRIME, 2003, Smart et al., 1980). The family affluence items were adapted from the material affluence scale (Doku et al., 2010) and perceived family wealth from the HSBC youth survey (Boyce et al., 2009).	Most measures have one item except MAS with 2 items.
	Gender		
	Parents' marital status		
	Living conditions		
	Religion		
	Parents educational status		
	Material affluence (MAS)		
	Perceived family wealth (PFW)		
Peer deviance	Peer cheating	Adapted from peer deviance measures (Brook et al., 2006a, Brook et al., 2006b).	2 items. Scale: 0.80
	Peer stealing		
Peer and Parental Attachment	Peer Attachment	Inventory of Parental and Peer Attachment (IPPA) (Armsden and Greenberg, 1987)	53 items Scale: 0.92
	Parental attachment		

**Table 5.3. Summary of survey measures and instruments contd**

Variables		Assessment Tools	Items/ Reliability
Peer and Parental substance use	Peer substance use	Single item parental and peer substance use measures {Brook, 2006 #32513;Morojele, 2006 #29596}	10 Single items
	Mother's substance use		
	Father's substance use		
Aggressiveness		The aggression scale (Orpinas and Frankowski, 2001)	11items Scale: 0.88
Sensation seeking		Brief Sensation Seeking Scale (Stephenson et al., 2003)	8 items Scale: 0.74
Perceived substance availability		WHO student survey (Smart et al., 1980)	4 questions
Theory of Planned behaviour constructs	Attitude	Measures of theory of planned behaviour designed for legal and illegal substances (Armitage et al., 1999).	4/0.88
	Subjective Norms		3/0.89
	Perceived behavioural control		3/0.81
	Self-Efficacy		4/0.94
	Behavioural Intentions		3/0.93
	Behaviour		3/0.94
Severity Dependence Scale		Cannabis dependence scale (Martin et al., 2006).	5/0.83

### **5.6.2.2. Peer and parental attachment**

The Inventory of Peer and Parental Attachment (IPPA) was used to measure attachment which relates to the strength of the emotive bond to parents and peers (Armsden and Greenberg, 1987). A breakdown of affectionate trusting bonds cultivated in childhood could result in psycho-social and physiological problems (Bowlby, 1977). Affectionate bonds formed in childhood keep adolescents self-assured and secure in their parents' dedication even in their absence (Armsden and Greenberg, 1987). Adolescents attach to peers as a means of adjusting to circumstantial issues that arise as they mature and these attachments have implications for their self-worth and wellbeing (Armsden and Greenberg, 1987).

The IPPA is a self-report assessment of how adolescents perceive the value or significance of their associations with peers and parents to their lives (Armsden and Greenberg, 1987, Armsden and Greenberg, 2009). Psychological and behavioural aspects of parental and peer attachment are assessed using the attachment theory as a framework to determine 'the degree of mutual trust, quality of communication and extent of anger and alienation' (Armsden and Greenberg, 1987). The measure was developed and tested among young people aged 16-20 years and though initially developed among Caucasians, it has been successfully applied to African American adolescents with internal consistency of 0.92 (Gonzales et al., 1996, Laible et al., 2000). It has shown good reliability and validity in several attachment studies (Armsden and Greenberg, 1987, Gonzales et al., 1996, Lyddon et al., 1993). Test retest reliability over three weeks was found to be 0.93 for parents and 0.86 for peers while the internal reliabilities was 0.87, 0.89 and 0.92 for mother, father and peer attachment sections of the revised measure (Armsden and Greenberg, 2009). It has been applied to the study of peer and parental factors in relation to substance use (Harakeh et al., 2004).

Though peer and parental measures of attachment can be evaluated, patterns of attachment cannot be characterised using this using this scale (Lyddon et al., 1993). The original version which assesses parents and peers consist of 53 items and the revised version which separates the parent scale into mother and father sections

contains 75 items (Armsden and Greenberg, 1987). The original version was used in this study because the revised version has too many items. The West and Sheldon's measure of insecure attachment is a reliable 40 items self-report measure of attachment but it is better suited for adults (Lyddon et al., 1993). The Parental Bonding Instrument is a 25 item measures that has shown good internal consistency and reliability in several studies but it, however, only assesses attachment to parents but not peers (Lyddon et al., 1993, Parker et al., 1979).

#### **5.6.2.3. Substance use by parents**

This was assessed using single item measures about parental cannabis use, cigarette smoking and alcohol use for parents. These items were drawn from measures that were developed and used among different ethnicities in USA and South America (Brook et al., 2005, Brook et al., 2006d) These items have been adapted and used in several South Africa studies (Brook et al., 2006b, Brook et al., 2006c, Morojele and Brook, 2006).

#### **5.6.2.4. Aggression Scale**

The Aggression scale which consists of 11 self-report items was developed to evaluate aggressiveness among adolescents aged about 11- 14 years, though it has been successfully applied to older adolescents (Malete, 2007, Orpinas and Frankowski, 2001). Measures of anger, verbal and physical aggression within the previous seven days are assessed in order to mitigate bias that arises from recounting long term events (Orpinas and Frankowski, 2001). The application of this scale to multifarious groups of adolescents did not result in significant changes in internal consistency across diverse age, class levels, gender or ethnic groups (Orpinas and Frankowski, 2001, Orpinas et al., 2003). There is a positive correlation between scores on the aggression scale and substance use with higher scores among alcohol or cannabis users than non-users (Orpinas and Frankowski, 2001). A positive relationship has been reported between mean scores obtained on the aggression scale and other self-report measures of violence and aggressive behaviour hence demonstrating excellent construct validity (Malete, 2007, McMahon and Watts, 2002a, McMahon and Watts, 2002b, Orpinas and Frankowski, 2001).

When teachers rated their students' aggressiveness, the scores obtained was positively related with students' scores (Orpinas and Frankowski, 2001). Internal consistency of the measure among diverse ethnic groups in the United States of America ranges between 0.85-0.92 and in a study in Botswana it was 0.84 supporting its applicability in an African setting (Malete, 2007). Intra-class correlation coefficient during scale development was found to be 85% and stability over time was good (McMahon and Watts, 2002a, McMahon and Watts, 2002b, Orpinas and Frankowski, 2001). The scale, however, measures observable aggressive behaviour as it is much more difficult to measure introspective or covert aspects of aggressiveness (Orpinas and Frankowski, 2001). Though inferences from this self-report measure of aggression may be limited, it is a convenient way of evaluating aggression (Orpinas and Frankowski, 2001). Other scales such as the aggression inventory is for younger children and the aggression questionnaire is a 29 item questionnaire not specifically designed for adolescents (Buss and Perry, 1992).

#### **5.6.2.5. Brief sensation seeking scale (BSSS-8)**

This 8 item self-report measure of sensation seeking was developed from the original sensation seeking scale for use as a quick assessment in adolescents as shown in table 5.3 (Hoyle et al., 2002, Stephenson et al., 2003). Several shorter versions of the original 40 item sensation seeking scale have been developed and most versions maintain the four domains in the original version (Stephenson et al., 2003, Zuckerman and Link, 1968). These domains include: experience seeking, boredom susceptibility, thrill and adventure seeking and disinhibition (Hoyle et al., 2002, Stephenson et al., 2003, Zuckerman and Link, 1968). Thrill, adventure seeking and boredom susceptibility are considered more culturally admissible patterns than disinhibition and experience seeking (Hoyle et al., 2002). The original scale was considered cumbersome to use because of the number of items and the wordings and structure were not adapted for adolescents (Hoyle et al., 2002, Stephenson et al., 2003).

This brief sensation seeking scale is worded in modern English language and tested among adolescents with varied demographic characteristics (Stephenson et al., 2003). Internal consistency was 0.76 and it has been found to correlate with substance

related behaviour with higher sensation seekers being more liberal towards substance use (Hoyle et al., 2002). There is a significant positive relationship between sensation seeking and cannabis use (Hoyle et al., 2002, Stephenson et al., 2002, Stephenson et al., 2007). It exhibits good psychometric properties in diverse age, racial and gender groups among adolescents (Hoyle et al., 2002).

African Americans appear to have slightly less sensation seeking scores ascribable to lower scores on the thrill and adventure seeking subscale (Hoyle et al., 2002). This finding has been corroborated by other studies and it is presumed that though the relationship is significant, sensation seeking may be less predictive of deviance in African Americans than in Whites (Stephenson et al., 2007). Ethnicity is recommended as a moderating factor when diverse populations are sampled (Hoyle et al., 2002). The brief sensation seeking scale was utilised in this study as a measure of sensation seeking. Two other derived measures of sensation seeking namely, brief sensation seeking scale-4 (BSSS-4) and sensation seeking-2 (SS2) with 4 and 2 items respectively have slightly less predictive power than BSSS-8 and don't capture all the domains in the original scale (Stephenson et al., 2003).

#### **5.6.2.6. Availability of substances**

The WHO student drug use survey evaluates perceived availability of substances (Smart et al., 1980). The survey questions were developed and subsequently tested for reliability and validity in seven countries including Nigeria (Smart et al., 1980). The items consist of questions about how difficult participants felt it was to obtain cannabis, cigarettes, alcohol and cocaine. The options ranged from probably impossible to obtain substances to very easy to obtain substances. In a study assessing perceived cannabis availability, internal consistency was found to be 0.80 (Gillespie et al., 2009). The question items have been adapted in several studies evaluating perceived availability of substance use (Adelekan et al., 1993, Kokkevi et al., 2000). This measure evaluates perceived, instead of actual, availability and an interpretation of this measure has to put that into consideration.

### **5.6.2.7. Proximal constructs of TTI**

The proximal constructs outlined in the TTI are adapted from the Theory of Planned Behaviour and Social Cognitive Theory and have been measured by scales developed in line with the theories and used in previous studies (Armitage et al., 1999, Bandura, 1989, Icek Ajzen, 1991). Attitude, subjective norms, self-efficacy, perceived control of behaviour, behavioural intentions and behaviour were assessed by scales with internal consistency of items ranging between 0.81 and 0.94 designed for use in a cannabis study (Armitage et al., 1999). These items were used in this research and they have been reported to be predictive of illegal and legal substance use intentions and behaviour (Armitage et al., 1999).

### **5.6.2.8. Severity of cannabis dependence**

The severity of dependence scale is a five item screening measure of severity of dependence across illicit substances (Gossop et al., 1995). It demonstrated a high diagnostic utility when applied to adolescent cannabis users with an internal consistency of 0.83 and a test retest coefficient of 0.88 (Martin et al., 2006). It is reported to be a reliable scale for evaluating cannabis dependence among varied populations of young people (Martin et al., 2006) It was utilised in this study to evaluate participants' perception of the severity of their dependence to cannabis.

## **5.7. Reliability and validity of self-report**

### **5.7.1. Introduction**

Validity is the capability of a test to precisely estimate what it was designed to measure and examines the link between reality and the accuracy of a self-report measure (Johnston and O'Malley, 1985, O'Malley et al., 1983). Reliability refers to the replicability or predictability of a score in multiple or repeated measures (Johnston and O'Malley, 1985, O'Malley et al., 1983). The consistency between two measures is known as test-retest reliability and inter-rater agreement measures the level of comparability between observers (Johnston and O'Malley, 1985). The extent to which a scale's items correspond to each other is known as internal consistency and is represented by the Cronbach's coefficient alpha (Johnston and O'Malley, 1985). Challenges with obtaining reliable substance use self-report may be due to the

presumption that substance use is illicit during adolescence (Shillington and Clapp, 2000). Results from large scale health risk behaviour surveys among adolescents show that discrepancies in prevalence estimates exist mainly with respect to illegal and socially stigmatised behaviours (Kann et al., 2002).

### **5.7.2. Factors affecting validity of self-report**

Validity of adolescent self-report can be affected by problems with recall of past events, misinterpretation or the sensitive nature of the survey questions (O'Sullivan, 2008). It may be socially desirable or undesirable to report substance use and this may result in over-reporting or under-reporting respectively (Adams et al., 2008, Brener et al., 2003, Murray et al., 1987, Patrick et al., 1994). Differences in risk perception or risk denial may influence the perceived need to accurately report frequency and pattern of use (Buchan et al., 2002). Issues with self-report validity can be understood from cognitive and situational models (Brener et al., 2004). Cognitive models presuppose that the ability to understand a question, think interpretively about its contextual application and decisively answer it within a time frame can affect validity (Brener et al., 2004). Situational models presuppose that extrinsic factors within the survey setting rather than intrinsic cognitive factors affect validity (Brener et al., 2003).

The perceived confidentiality and anonymity of the survey administration process can influence how adolescents respond to surveys (Brener et al., 2003). Concerns about incentives or deterrents to report illicit behaviour within a setting can affect validity as adolescents are inclined to avoid risk of sanctions (Brener et al., 2003). In settings where the likelihood of stigma is high, the tendency may be to inaccurately report substance use (Shillington and Clapp, 2000). Higher substance use prevalence in school based surveys than households mirror the impact of confidentiality on self-reports (Brener et al., 2003, Kann et al., 2002). Self-reports of substance use obtained from households are presumed to be less valid than school surveys (Bauman and Ennett, 1994). When self-report surveys are utilised in adolescents, the frequency of substance use obtained especially for illicit substance use is higher than frequencies obtained in interview administered surveys (Harrison et al., 1993). Self-report

questionnaires were used in this research because it was more convenient, more cost effective and confidential than interview administered surveys.

### **5.7.3. Evaluating validity of self-report**

Self-report validity in this context can be evaluated in three ways. Firstly, external validity examines the agreement of self-report data with more precise measures of behaviour (O'Malley et al., 1983, Pedersen, 1990). Though biochemical measures can corroborate self-report, they do not resolve issues relating to participants providing an honest plausible account of their pattern of substance use (O'Malley et al., 1983, Shillington and Clapp, 2000) Secondly, construct validity examines the agreement of self-report evaluation tools with theory driven evidence of substance use (O'Malley et al., 1983, Pedersen, 1990). When features of substance users and non-users are compared, the observed differences correspond to theoretical predictors of substance use (O'Malley et al., 1983, Pedersen, 1990). Predictors of substance use and delinquent behaviour have been demonstrated to concur with self-reports and show construct validity (O'Malley et al., 1983). Thirdly internal validity measures the extent to which answers to identical survey items show reliability within the survey or over a period. When the consistency of a participant's answer to similar questions within a survey are assessed in a cross sectional data, internal validity can be used as measure of reliability (Shillington and Clapp, 2000).

### **5.7.4. Self-report consistency: Global data**

The cost effectiveness of self-report measures of adolescent substance use facilitates their frequent use in large scale surveys globally (O'Malley et al., 1983, Shillington and Clapp, 2000). Population studies examining the validity of adolescent self-report have mainly been carried out in developed countries (Shillington and Clapp, 2000). Although studies evaluating the efficacy of self-report are mainly longitudinal designs, inferences are useful in understanding cross sectional designs.

In a national longitudinal survey conducted in the USA, discrepancies in the report of lifetime substance use at two year follow-up were 18.5% for cigarette, 5.8% for alcohol and 17.8% for cannabis (Shillington and Clapp, 2000). Some adolescents who reported current use also reported that they had never used when asked about the frequency of

use, the level of logical inconsistency was 16.6% for cannabis, 9.9% for cigarettes and 7.6% for alcohol (Shillington and Clapp, 2000). The agreement between the reported age of substance initiation at the initial survey and two year follow-up was 70.2% for cigarettes, 80.1% for alcohol and 87.5% for cannabis (Shillington and Clapp, 2000). Though inconsistently reporting substance use patterns may be intentional, inaccurate reporting of the age of initiation may be a function of forgetting over time (Brener et al., 2003, Harrison et al., 1993, Shillington and Clapp, 2000). Cannabis has been reported to diminish logical judgement thus limiting comprehensibility and recall especially when under its influence (Brener et al., 2003, Buchan et al., 2002) . Adolescents may perceive themselves as non-users if they regard their substance use as very limited (Harrison et al., 1993). Problems with recalling the use of a substance is presumed to be more serious than recall of age of initiation which relates to timing of the occurrence (Shillington and Clapp, 2000).

A three stage national survey among high school students in USA compared inconsistencies in past month and past year substance use (O'Malley et al., 1983). Discrepancy ratio, calculated as  $1/12^{\text{th}}$  of the reported 12 month use was found to be 3.0 or higher in those using cannabis implying that cannabis users underestimated past year use by reporting three times as much use for the past month than expected (O'Malley et al., 1983). Self-report inconsistency was not associated with personal characteristics such as gender, grades, parental education and race (O'Malley et al., 1983). Other longitudinal studies have reported between 85-95% consistency in reporting lifetime use (Harrison et al., 1993, Shillington et al., 1995). Higher inconsistencies for illicit substances may be because they are not socially acceptable (Pedersen, 1990).

A 4 year review which showed that 13.9% and 20.5% inconsistently reported cannabis and cocaine use respectively also reported that inconsistencies were higher in males than females (Harrison et al., 1993). Consistency of cross sectional substance use measures between 0.73 and 0.91 have been considered acceptable (O'Malley et al., 1983, Shillington and Clapp, 2000). The UK smoking, drinking and drug use survey among young people conducts surveys in schools rather than homes to improve

disclosure and guarantee confidentiality (Fuller, 2011). The results have consistently supported self-report estimates with few inconsistencies being reported using biochemical validation and the use of a fictitious substance (Fuller, 2011).

#### **5.7.5. Self-report consistency: data from Africa**

Substance use trends in Africa have been poorly documented and the true magnitude of the problem is unknown (Affinnih, 1999, UNODC, 2005). Studies documenting reliability and validity of self-report are sparse and lack of standardised data collection methods are presumed to account for inconsistent data in Nigeria (Isidore S, 1990b, Nwhator, 2012). Studies among African Americans which may not reflect the situation in Africa show that blacks are more likely to underreport substance use than whites while whites are more likely to over report (Bauman and Ennett, 1994). Ethnic differences in smoking prevalence, however, cannot be accounted for by only considering reporting factors (Wills and Cleary, 1997).

A WHO mental health household survey which was conducted in 17 countries including Nigeria showed that underestimation of substance use was significantly more likely in developing countries and this could be due to social stigma or the law enforcement strategy in countries sampled (Degenhardt et al., 2008). Cross national differences in countries with completely different social and legal frameworks for substance use were considerations for interpretation of results (Degenhardt et al., 2008). Measures taken to reassure participants about confidentiality may not eliminate the fear of stigma and future cross national surveys may include bio assays (Degenhardt et al., 2008)

In a five wave longitudinal South African study, inconsistencies in reporting lifetime alcohol, cigarette, cannabis and inhalant use were between 17-24% (Palen et al., 2008). The assistance rendered by the researchers who helped participants to complete the survey was cited as a reason for increased inconsistencies due to reduced privacy (O'Sullivan, 2008, Palen et al., 2008). Inconsistencies were presumed to be associated with reluctance to disclose socially sensitive information and no association was found with poor school grades or personal characteristics (O'Sullivan, 2008, Palen et al., 2008).

## **5.7.6. Checking for the accuracy/consistency of self-report**

### **5.7.6.1. Fictitious drugs/repeated measures**

Fictitious drugs can be used to determine if participants exaggerate or over report substance use (Fuller, 2011, Pedersen, 1990). When several questions capturing the same concept are asked in a survey, the answers can be analysed to determine if they are logically consistent and the greater the inconsistency between responses, the lower the internal validity (Abuse, 2003, Pedersen, 1990). When repeated measures are used to validate self-report, it is sometimes unclear whether previous or subsequent reports reflect the 'truth' and responses may be consistent but false (Brener et al., 2002, O'Malley et al., 1983, O'Sullivan, 2008, Palen et al., 2008, Pedersen, 1990). Consistency is thus a vital component of accuracy of substance use reports but it does not guarantee accuracy (Harrison et al., 1993, Pedersen, 1990).

### **5.7.6.2. The bogus pipeline method**

The bogus pipeline method is a technique used to increase self-report accuracy by making participants assume the researcher will use an objective measure to verify their socially undesirable behaviour (Adams et al., 2008, Murray et al., 1987, Patrick et al., 1994). Bogus pipelines can provide a cost effective and practical alternative to biochemical measures in increasing the validity of smoking self-report (Adams et al., 2008). To utilise this method, the participant must assume that the researcher has a valid method to ascertain self-report for a socially undesirable behaviour (Murray et al., 1987). The usefulness of the bogus pipeline is limited for socially desirable behaviour where the pressure to underreport is eliminated (Murray et al., 1987). Standardised bogus pipeline techniques using video or live demonstrations are recommended because the results obtained can be affected by the quality of the process (Adams et al., 2008, Murray et al., 1987, Patrick et al., 1994).

### **5.7.6.3. Biochemical measures**

Biochemical measures of substance use are considered to be objective means of validating self-report measures (Buchan et al., 2002, Patrick et al., 1994). Though they are difficult to relate to self-report data in terms of frequency, duration and amount of substance used, they have been used to provide objective point prevalence smoking

estimates (Buchan et al., 2002, Jarvis et al., 2008, Patrick et al., 1994). Urine test strips can screen and provide presumptive results but gas chromatography or molecular fingerprinting is the gold standard for substance identification (Buchan et al., 2002, Wolff et al., 1999).

The agreement between self-report and urine testing in a study evaluating cannabis use was 75.4% while the agreement between self-report and gas chromatography was 65.7% (Buchan et al., 2002). The urine test had a 10% false positive rate relative to the confirmatory test and also missed some participants who reported cannabis use (Buchan et al., 2002). Biochemical studies have rarely been conducted in Africa (Jagoe et al., 2002). In a South African workplace study of miners, biochemical measures were used to validate interviewer administered questionnaires and current cannabis use was reported to be 2.3% from the interviews and 9.1% using a urine drug test (Pick et al., 2003). The fear of losing their jobs may be responsible for the low estimates from the interviewer administered survey compared with the urine tests. The only biochemical validation of smoking in Africa identified in literature was a Tanzanian survey on cigarette smoking which reported a 7.3% to 27.3% variance in survey and biochemical measures with higher inconsistencies in women (Jagoe et al., 2002).

There are challenges with interpretation of biochemical measures, duration of detectability and cut off points (Bauman and Ennett, 1994, Buchan et al., 2002, Wolff et al., 1999). Hair analysis may be useful because substances are present in it for much longer but it is still a developing aspect of substance testing (Wolff et al., 1999). Biochemical testing is also laden with ethical and logistic challenges such as cost, time and there could be a greater tendency for refusal among participants (Adams et al., 2008, Patrick et al., 1994).

#### **5.7.7. Implications of self-report consistency**

It is critical to understand the reasons for data inconsistency because it impacts on policy and practice. Lower rates of cannabis use may either reflect an actual decline in use or less incentive among young people to report actual levels of use (Harrison et al., 1993). There is overall support for the continued use of self-report data in the evaluation of adolescent substance use (Brener et al., 2003, O'Malley et al., 1983,

Shillington and Clapp, 2000). Inconsistencies, however, need to be acknowledged, analysed and documented. The strategies used in this study to maximise validity are detailed below.

### **5.7.8. Strategies to increase self-report accuracy in this research**

#### **5.7.8.1. Measuring Instruments**

The ages of onset of substance use was included as a duplicate item to measure both the age of onset and check the consistency of responses to lifetime use. Theoretical correlates of substance use were measured in this study using the TTI and they served as a means of linking self-report measures with risk factors. Bogus pipeline or biochemical measures could not be used to validate self-report measures due to challenges with cost, expertise and coordination. The questionnaire was pretested and its wordings adapted to suit the target population and improve comprehensibility. Diverse issues were addressed in the questionnaire and the diversity was to provide reassurance that the study would capture a broad range of issues in addition to substance use.

#### **5.7.8.2. Data collection process**

The students were repeatedly assured that the survey was anonymous and their identities would not be disclosed at any time. They were not required to indicate their names on the questionnaires and though sealed envelopes could not be provided due to cost reasons, they were asked to drop their completed survey face down in a large box. The students were spaced out as much as possible to ensure they were not able to discuss and arrive at a consensus on answers with peers. Class teachers were excluded from the entire survey despite their willingness to help in order to reduce the pressure on participants to wrongly report substance use in the presence of their teachers. The research assistants did not walk round during the survey but stood in front of the class unless their attention was required. Most of the surveys took place during midday to ensure optimal concentration and it was unlikely that the effect of smoking would cloud a participant's ability to answer survey questions at midday because they had been within the school premises for at least four hours.

## **5.8. Administering the survey**

### **5.8.1. Ethical approval**

Initial approval for the research was obtained from University of Leeds Research Ethics Committee (REF: HSLTLM/12/035) as shown in appendix C. The application for ethical approval was reviewed by the Lagos University Teaching Hospital ethical review board and the Nigerian Institute for Medical Research on behalf of the Nigerian Health Research Ethics Committee (REF: ADM/DCST/HREC/990). Only one approval was required for the research but application was made to both institutions due to delays anticipated in the approval process. The Lagos University Teaching Hospital approval (appendix D) process took one month and the Nigerian Institute for Medical Research approval process took five months. Salient comments made by the reviewers include the inclusion of the age limit of participants in the information sheets and the issue of confidentiality in the research process considering the fact that cannabis use is a punishable offence in Nigeria. After ethical approval had been obtained, approval was also obtained from the Lagos State Ministry of Education (appendix D) to conduct the school survey. The legal age for consent is 16 years in Nigeria and each participant provided written consent as required by the ethical review board.

### **5.8.2. Planning the survey**

The research was discussed with the principals of sampled schools and they designated teachers to provide the required support. Discussions about the research took place between the research team, teachers and the students and survey dates were fixed. The research was explained to the students, discussed the survey information sheet (appendix E) and they had opportunities to ask questions. In addition to the two research assistants recruited during fieldwork, three additional people were recruited during the survey to help maintain calm as administering the survey with senior secondary school students was challenging due to large class sizes. As anticipated, apart from the students who did not participate on the basis of age, it was difficult to seek voluntary participation though no student expressed any objection to filling out the questionnaire.

### **5.8.3. Pretesting the survey questionnaire**

The survey was pretested among ten final year students to determine the appropriateness of the questionnaire. The average completion time was 28.5 minutes and they answered all questions. Eight participants felt the questions were easy to understand but two of them suggested that the wordings should be simplified. The terminology 'bungee jumping' in the sensation seeking scale was changed to 'jumping from a tall building' because bungee jumping is not a familiar phrase in the Nigerian context. Seven of them suggested shortening the questionnaire and this informed the removal of the depression scale initially included. This informed the need to simplify the survey headings, provide full explanation at the time of survey and provide additional explanation in the information sheet.

### **5.8.4. Survey administration**

On the day of the respective surveys, the information sheet was discussed again with the students and they all filled the consent forms (appendix G) as outlined in figure 5.3. A pilot was conducted in the first school with a total of 51 year five students. Feedback from that school informed the need to go through the whole questionnaire with the students before the survey to ensure the instructions were well understood. The schools had very poor data on student enrolment and the numbers did not seem to match, for example the first school had 46 students documented in their enrolment board but 51 students were sampled. Most of the schools promised to make detailed statistics available at the end of that term but repeat visits to obtain updated records were not feasible.

## **5.9. Data entry and data cleaning**

### **5.9.1. Data entry**

A data entry template was set up in SPSS by coding the survey questions and data was entered manually. The data from the eight schools that participated in the survey was entered and coded by school to facilitate a multilevel exploration of risk factors at individual and school level. Data entry was carried out over a period of ten weeks and

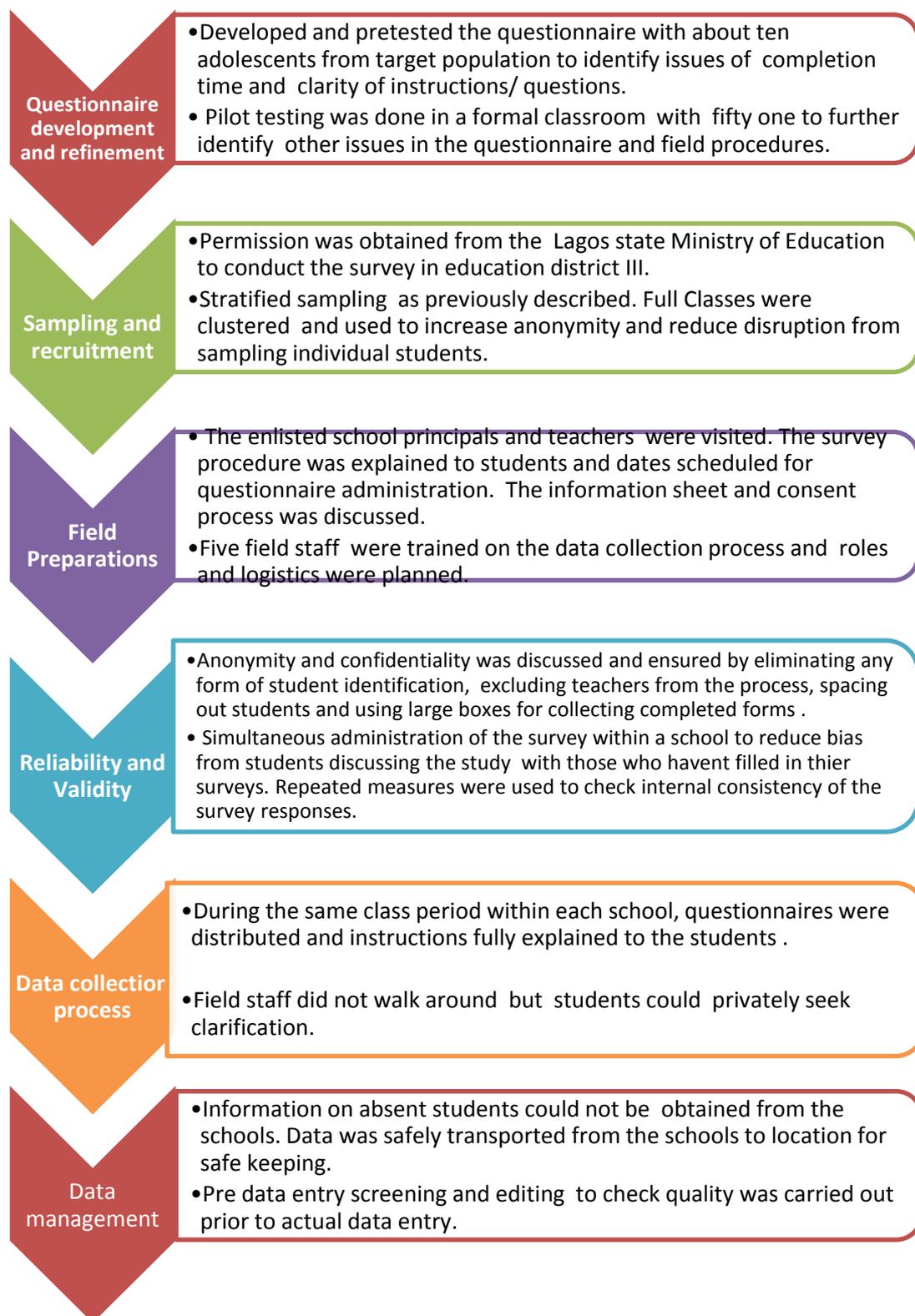
total of 909 questionnaires were entered into SPSS. All questionnaires irrespective of how incomplete were entered into the data entry template.

Data entry errors could have arisen from:

- Entering data into the SPSS template: entering the data slowly was valuable in minimising errors. Familiarity with the questionnaire facilitated ease and accuracy of entry by the researcher.
- Misrepresentation of missing data: A value of 99 was assigned in SPSS to record missing values. This value was converted to a period (.) after the data was imported to STATA.

### **5.9.2. Data cleaning**

Data cleaning commenced during data entry and each entry was cross checked before proceeding to the next one. Spot evaluation was carried out after data entry and the paper survey data was compared with the electronic entry in the SPSS template. Logical consistency with respect to the expected range of survey responses was also checked. Blank fields, double responses and responses with incoherent patterns were treated as missing observations. In instances where the questionnaire did not capture appropriate responses for participants, a new column labelled 'other' was created. An example was the situation in which both parents of participants were 'late' and the participant had become an orphan a new response column was created and labelled 'other'.



**Figure 5.3. Summary of school survey activities and processes**

## **5.10. Managing missing data**

### **5.10.1. Introduction**

Missing data can affect data analysis by negatively impacting on statistical power and biasing estimates generated during analysis (Roth, 1994, Tsikriktsis, 2005). List wise deletion can result in loss of about 35% to 98% statistical power depending on the level of missing values in the scales (Tsikriktsis, 2005). Measures of central tendency, dispersion and correlation become biased in the process (Roth, 1994, Tsikriktsis, 2005). It is important to undertake missing value analysis to evaluate why data are missing and determine the best techniques in addressing the problem of missing data. Errors in data entry, refusal to complete questions perceived as sensitive or incomplete questionnaires are common reasons why missing data occur (Brick and Kalton, 1996). The pattern and amount of data missing is important; if it is between 5-10% of the data set, it is considered to be small but as this amount increases, it becomes a more significant especially if it is an important variable (Brick and Kalton, 1996). The fraction of missing responses on a variable, the number of variables and distribution of missing responses within the data determines the impact of data loss on analysis (Kim and Curry, 1977).

### **5.10.2. Types of missing data**

Missing data can be differentiated into two broad categories, namely unit nonresponse in which a sampled participant does not fill out the survey and item non-response in which the participant does not complete certain survey items (Schafer and Graham, 2002). When data is 'missing at random' (MAR), it means that chance accounts for the difference between participants with missing responses and those with complete responses. This also implies that results obtained from this data can be generalised across the data set (Brick and Kalton, 1996). When data is missing completely at random (MCAR), the missing data is not associated with participants' characteristics relating to a particular variable and all other variables across the data (Brick and Kalton, 1996). When data is 'not missing at random' (NMAR), there is an association between scales with missing data and those without missing data. No inference from the data can be made unless the pattern of missing data is understood

and results from the analysis of data not missing at random is subject to bias (Brick and Kalton, 1996).

### **5.10.3. Strategies for managing missing data**

Missing value analysis and frequency values evaluating missing data are presented in Chapter 7. Techniques used in handling missing data may weaken inferences that can be made from data (Schafer and Graham, 2002). List wise deletion will remove all cases with missing data from the data set and this may be useful handling missing values on dependent variables (Schafer and Graham, 2002). List wise deletion can drastically reduce the total sample size especially when scores are fitted into a regression model resulting in significant loss of power (Katz, 2011). Deleting missing items from a multiple item scale is not a realistic option because the scale becomes unreliable afterward (Tsikriktsis, 2005).

Pairwise deletion removes a case only when it is needed for a specific analysis and it preserves as much data as possible and much more data than list wise deletion (Roth, 1994). In order to minimise loss of data and maximise inferences that can be made from data analysis, pairwise deletion was considered in this research. The drawback of pairwise deletion is that correlation results may be biased, inconsistent and difficult to interpret because different parts of different cases are used for the correlation analysis (Kim and Curry, 1977, Tsikriktsis, 2005).

Replacement procedures are also available for handling data and have the advantage of maintaining sample size and consequently statistical power. Replacement procedures were not considered feasible in this research because of the complexity of procedures involved. When missing data exists, it is better to drop variables than to drop subjects because dropped subjects will bias a study and decrease analytical power due to systematic differences in subjects missing different variables (Katz, 2011). In instances where pairwise deletion was not considered feasible due to the drawback to its use, excluding a variable with a large amount of missing data was the other option considered in this research (Miles et al., 2001).

## **5.11. Data analysis**

The data analysis process is categorised into four aspects:

- Description of the socio-demographic data, substance use patterns and cannabis use risk factors.
- Bivariate analysis exploring the relationships between cannabis as the dependent variable and risk factors.
- Binary logistic regression to show the relationship between cannabis use and independent variables assessed in the study (Hosmer et al., 1991, Svend and Morten 2014).
- Latent class analysis to evaluate participants based on characterisation of cannabis use patterns and to explore the relationship of these latent classes with factors associated with cannabis use (Reboussin et al., 2006).

### **5.11.1. Dependent variable**

Cannabis use was dichotomised into use and non-use categories for the purpose of analysis. Lifetime use was utilised as the indicator of initiation and current use was utilised to evaluate factors associated with continued use of cannabis.

### **5.11.2. Descriptive analysis**

Tabular descriptive summaries of the data using measures of central tendency, frequency distributions and measures of spread were used.

### **5.11.3. Bivariate analysis**

This explored the strength and significance of the relationship between independent variables and cannabis use utilising cross tabulations, chi square statistics, analysis of variance and logistic regression. Fisher's exact test was utilised instead of the chi square statistic when the frequency in a variable category was less than 5.

### **5.11.4. Binary logistic regression**

The association of independent variables with cannabis use was explored using logistic regression to model the association between a binary dependent outcome and

continuous or categorical independent variables within a model (Archer and Lemeshow, 2006).

#### **5.11.4.1. Assumptions and considerations for logistic regression**

##### **Clustering of data**

In order to ensure that model inferences are plausible, a model should satisfy assumptions associated with the use of logistic regression (Hosmer et al., 1991). The sampling of individual students aggregated within classrooms and schools creates a multilevel structure that disrupts the expectation that participants are distinct entities within data because they tend to be more similar within clusters (Rodriguez and Goldman, 1995). Clustering breaches the presupposition that observations are not associated and resulting regression models miscalculate standard errors leading to invalid inferences (Guo and Zhao, 2000, Rodriguez and Goldman, 1995). If the relationship between variables is nonlinear and adjustments are not made to correct for clustering, model estimates may be conflicting (Rodriguez and Goldman, 1995).

Multilevel modelling can be utilised to balance clustering effects at group level in stratified data to ensure that inferences are valid (Guo and Zhao, 2000). A minimum of 50 groups with 30-50 units per group are required to yield valid multilevel estimates (Maas and Hox, 2004, Peduzzi et al., 1996). Though the average school size in this study was greater than 50, there were only eight schools thus it did not meet the minimum criteria of 50 groups for multilevel modelling. An alternative method of analysing the data was to utilise robust standard error estimates in the model using school as the cluster variable to adjust for the effect of clustering in the data (Guo and Zhao, 2000).

##### **Number of variables for the model**

Limiting the number of variables in a model ensures that it is stable numerically and results are generalizable (Hosmer Jr and Lemeshow, 2004). A minimum of 10 events per parameter is required to ensure appropriate estimates of variance, Wald confidence intervals and coefficient are obtained from analysis (Hosmer Jr and Lemeshow, 2004). The epidemiological argument for including all variables that appear

theoretically relevant in the model irrespective of their statistical significance is to ensure that the effect of confounding is controlled for within the data (Hosmer Jr and Lemeshow, 2004). This implies that both the statistical and scientific significance of a variable are important in a regression model (Hosmer et al., 1991, Hosmer Jr and Lemeshow, 2004). The maximum number of variables in the model in this study was determined by the rule of 10 events which superseded other considerations because of limitations of sample size.

### **Model evaluation and model fitness**

Models are well-suited to explain the effect or association of the independent variables with the dependent variable when they are fit (Archer and Lemeshow, 2006, Hosmer et al., 1991). The overall model effectiveness, goodness of fit tests, area under the ROC curve and individual model predictors were assessed to determine the efficacy of the models in this study (Archer and Lemeshow, 2006). Goodness of fit describes the degree to which observed sample data is consistent or at variance with the model results (Hosmer et al., 1991, Peng et al., 2002),(Hosmer et al., 1991, Hosmer Jr and Lemeshow, 2004). Errors in singular units and in the overall data were evaluated using the Pearson's chi square or Hosmer Lemeshow goodness of fit (Hosmer et al., 1991, Hosmer Jr and Lemeshow, 2004). Though the probability of the outcome can be inferred from pseudo  $R^2$  values, these inferences are difficult to define and  $R^2$  values in logistic regression are usually small (Freese and Long, 2006). The Pearson's chi square infers model fitness from the covariate patterns; if predictor variables are continuous, the covariate patterns will be as many as the sample size making the test unreliable (Archer and Lemeshow, 2006, Hosmer Jr and Lemeshow, 2004). The Hosmer lemeshow test is a better test because it estimates chi square values for subgroups created based on the estimated likelihood of the predicted outcome (Hosmer Jr and Lemeshow, 2004, Katz, 2011). The data is usually split into ten equal sized groups predetermined by the odds of an expected result though it may sometimes miss groupings that depart from the expected pattern (Katz, 2011). Graphs were also plotted to assess how well the models fit and when a model has no predictive power, the area under the curve is 0.5 and for a perfect model, the area is one (Freese and Long, 2006).

#### **5.11.5. Latent class analysis**

Inferences from logistic regression with cannabis use as a dichotomy is limited in defining varying patterns of use especially as it relates to estimates of frequency and quantity used (Reboussin et al., 2006). Substance use patterns in cross sectional data can be evaluated using latent class analysis to independently classify categorical variables using 'latent' parameters (Chung et al., 2006, Uebersax, 1994). Inconspicuous features which are not obvious in variable centred analysis but create diversity within a sample can be uncovered by an appropriately fitted latent class model (Chung et al., 2006, Feingold et al., 2014). Latent class models accommodate logical inconsistencies which are common features in substance use data and can be used to compute errors arising from self-report measures (Chung et al., 2006). The model presumes that class structures determine the co-existence and inter dependence of behaviours associated with substance use patterns or problems (Reboussin et al., 2006). This implies that individuals are differentiated into classes on the basis of distinct characteristics as opposed to a continuum (Chung et al., 2006). In substance use research, it is useful in categorising users who share homogenous attributes in order to meaningfully explore differences between groups (Trenz et al., 2013).

The process of determining the appropriate number of classes to use commences from fitting one or two classes and successively increasing the number of latent classes until the model that satisfactorily fits the data is obtained (Feingold et al., 2014, Sutfin et al., 2009). The Akaike Information Criteria (AIC) measures model fitness based on model parameters and the Bayesian Information Criterion (BIC) evaluates the fitness using both the model parameters and the number of observations (Dziak et al., 2012). BIC is generally considered a better measure of model fitness and the class with the least BIC is considered the best fit latent class (Dziak et al., 2012, Feingold et al., 2014). Entropy evaluates the usefulness of a model with the utility of the classes increasing as the entropy value increases from zero to a maximum of one (Trenz et al., 2013).

In addition to the measures of fit, theoretical and perceptive evaluation of the data and variables should also guide model selection (Dziak et al., 2012, Sutfin et al., 2009). The number of classes chosen should explicably account for the relationships between

variables being explored (Sutfin et al., 2009). Latent class analysis was conducted in this study to categorize participants according to levels and patterns of cannabis use in order to gain insight into other features of users that were not captured by the use and non-use dichotomy. More importantly, it provided an opportunity to account for logical inconsistencies and determine the impact if any of these inconsistencies on the regression analysis. Finally, it was useful in determining if there were characteristic differences between non-users, mild, moderate and severe cannabis users. Data was exported to MPLUS for latent class analysis, descriptive and bivariate analysis of the latent classes was done in SPSS to explore class characteristics and associations. Multinomial logistic regression was carried out in STATA to explore the association between the latent classes and predictor variables using one of the classes as the base outcome (Feingold et al., 2014).

## **5.12. Chapter summary**

The quantitative methods entailed a stratified cluster sampling of young people aged 16- 20 years in eight schools within Education District III in Lagos state. A survey questionnaire was designed using risk factor measures from the TTI. The risk factor measures chosen for this study were selected using criteria that assessed their importance as predictive factors, supportive evidence, amenability to health promotion and existence of validated measuring scale. Confidentiality and anonymity underpinned the strategy used to increase self-report accuracy. Binary regression models with cannabis use as the dependent variable and multinomial regression of latent class models constituted the analytical approach.

## **Chapter 6: Qualitative methods**

### **6.1. Chapter overview**

This chapter outlines the methods used in obtaining qualitative data in this study. This qualitative study explored the meanings young people attach to the use of cannabis and the context in which it is initiated and sustained. Although the study limitations are outlined at the end of this thesis, they are described within the sections of this chapter where applicable. This chapter aims to:

- Describe the study population, location and design of the study. Discuss the strengths and limitations of approaches to data collection.
- Discuss the sampling and recruitment strategy for the study.
- Outline the interview process, topic guide and approach utilised in data transcription and analysis.

### **6.2. Study population and location**

#### **6.2.1. Target population**

The target population included young cannabis users aged 16—19 years living within the study area. Inclusion criteria:

- Young people aged 16- 19 years old within the study area.
- Current cannabis users defined by cannabis use within the past 30 days.

#### **6.2.2. Study location**

The qualitative study was initially planned to take place in the Lagos Island area of Lagos state. Following a raid by drug law enforcement agents that disrupted the study in Lagos Island, it was extended to Mushin area of Lagos state. Lagos Island which has already been described was chosen for the qualitative study because of the researcher's familiarity with the study setting. Due to the highly volatile nature of settings where illicit substances are sold and used, it was considered precarious to conduct the qualitative study in an unknown territory. The illicit substance setting in most communities in Lagos state appear similar with central areas where activities are

coordinated known as drug joints and then pockets activities scattered around the community. The extension of this project to Mushin was incidental but it introduced the opportunity to explore varying perspectives relating to both locations in the interviews. In both locations, there were established primary care clinics that served as conducive venues for the interviews.

### **6.3. Study design**

In Lagos Nigeria, the procurement and use of cannabis takes place discreetly in a wide range of settings such smoking joints, sports centres, beaches, clubs and street corners. Frequent raids by law enforcement officers and gang activities have slowly transformed neutral social settings to unpredictable violence prone areas where mistrust is pervasive. The sampling and interview process took this into consideration to ensure the safety of the research team and interviewees.

#### **6.3.1. Researching sensitive issues: illicit cannabis use in Nigeria**

Illicit substance users are categorised as vulnerable because they are hard to reach, stigmatised and unseen by society (Liamputtong, 2006). They have limited opportunities to express themselves and face socio economic disadvantages as they conceal their identities to avoid stigma (Liamputtong, 2006). When research probes into private lives with respect to deviant or culturally unacceptable activities, such disclosures carry the risk of incriminating sanctions and the research is regarded as sensitive (Lee and Renzetti, 1990, Liamputtong, 2006). A group is considered hidden if they can't be identified and sampled based on defined parameters and any attempt to access their private space without invitation or permission is perceived as an intrusion (Liamputtong, 2009). The process of researching sensitive issues presents unique challenges for the researcher and the researched as the moral, ethical and legal implications must be incorporated into the research process (Dickson-Swift et al., 2007, Lee and Renzetti, 1990).

Snowball sampling using an initial contact that is trusted by potential participants is a crucial step in gaining and establishing trust (Liamputtong, 2006). The entire process requires careful planning from sampling, establishing trust to informed consent and

choosing interview venues (Liamputtong, 2006). Establishing a cordial relationship that will facilitate openness and disclosure is vital although the relationship has to be tactfully managed to ensure it does not go beyond the research (Dickson-Swift et al., 2007). A flexible approach using multiple methods is recommended during research with sensitive subjects (Liamputtong, 2009). Some key issues for consideration include; the use of incentives to induce participation, legal age of consent, handling sensitive or criminal information, safety of the researcher or researched and the ethical, legal or moral obligation to disclose information. A decision was made during the planning stage of this research not to elicit criminal information and not to probe further if it was volunteered. These considerations and how they were addressed in this research are discussed in other sections in this chapter.

### **6.3.2. Study setting: considerations for sample population**

The lack of a sampling frame makes conventional sampling techniques unsuitable for reaching young cannabis users in this research (Faugier and Sargeant, 1997). Conventional institutions such as school and healthcare settings are not channels that can reach users because they are typically described as floating populations (Faugier and Sargeant, 1997). Even if they are within these settings, they are not likely to disclose cannabis use in such formal settings (Hight, 2004). During the planning phase for this research, the option of interviewing young people who indicated cannabis use during the school survey was explored. This was, however, not feasible because the survey was conducted with guarantees about confidentiality and anonymity. Furthermore, recruitment from formal settings or households may hinder openness due to the fear of sanctions. Young people in treatment may have altered perspectives about cannabis use as result of treatment. When young people are recruited from community settings, their interactions are more factual and can enrich the understanding of the context in which they live. Voluntarily enlisting in a study at community level may empower young people not only to participate but to bring their friends along to do so and this was the research strategy in this study.

### **6.3.3. Approaches to data collection**

#### **6.3.3.1. Interviewing**

Qualitative interviewing as earlier described can be useful in gaining interviewees' perspectives and range from informal discussions to structured interviews (Turner, 2010). Interviews have to be planned with consideration for the best suited approach for the study population (Turner, 2010).

#### **Focus groups**

Focus groups utilise general group sessions to elicit experiences relating to lifestyle with interviewees expressing views in their own vocabulary (Amos et al., 2004, Kitzinger, 1995, Milton et al., 2008). Interaction within the group is critical to clarifying knowledge, experiences and perspectives to bring about new dimensions of understanding (Kitzinger, 1995). The suitability of focus group in this research was established by the need to create a good environment for data on social norms, values and perspectives to emerge. There are diverse perspectives about homogeneity or heterogeneity in membership in focus groups (Freeman, 2006). Heterogeneous groups may facilitate the emergence of a wide range of perspectives but interactions may be more down to earth in homogenous groups especially for sensitive topics (Freeman, 2006, Kitzinger, 1994).

Focus group recruitment for substance use research among young people commonly occurs within homogenous groups (Amos et al., 2004, Milton et al., 2008). When there is at least one trusted friend within focus groups, it is presumed that interviewees are more open to discuss sensitive issues (Amos et al., 2004). Homogenous groups foster the expression of views better than groups composed of interviewees from dissimilar socio cultural context (Kitzinger, 1994). For a group to be homogenous members don't have to know each other despite having similar backgrounds and homogeneity does not rule out individual diversity (Kitzinger, 1994). Homogeneity or diversity within a focus group may influence the emergence of shared or varied perspectives respectively (Kitzinger, 1995). Though in some instances, confidentiality issues in focus groups undermine individual freedom, extroverted interviewees can initiate discussions on sensitive topics for hesitant ones to join in (Kitzinger, 1995). In

anticipation of the fact that female cannabis users will not be disposed to share perspectives when males are present, focus groups were planned according to gender. Similar studies have separated genders into different focus groups (Amos et al., 2004). Six interviewees were planned per focus group as controlling discussion within larger groups may be problematic (Heary and Hennessy, 2002).

Complementary discussions produce concepts that reflect shared experiences, perceptions and consensus (Kitzinger, 1994). Consensus beliefs can emerge within groups as interviewees modulate discussions by stimulating others to speak up on important issues (Akre et al., 2010, Rich and Ginsburg, 1999). Consensus in focus groups may also be as a result of dominant views within the group and not necessarily agreement and expressions that appear to be the group norm can hinder individuals with opposing views from speaking up (Kitzinger, 1994, Sim, 1998), (Kitzinger, 1995). Argumentative interactions, however, explore differing perspectives and mirror opposing views (Kitzinger, 1994, Sim, 1998). The expertise of the moderator is important in modulating the discussion and discerning the emerging views (Sim, 1998). In planning focus groups, it has been recommended at least two are conducted within a study to compare consensus during analysis and improve reliability (Sim, 1998). The number of interviewees expressing a view may not be a reflection of the strength of that view; the importance of a concept is situational and may be related to the pattern of discussions emerging from data (Sim, 1998).

### **Paired interviews**

Research has advanced that paired interviews can provide in-depth information with interviewees sharing their personal lives with the interviewers in company of trusted friends (Amos et al., 2004). A paired interview with a trusted friend provides a more spontaneous setting than individual interview and will provide a deeper exploration of sensitive issues (Amos et al., 2004). Discussions tend to be more frank in pairs because they both modulate sensitive information and complement each other's perspectives in greater depth than focus groups (Amos et al., 2004, Hight, 2003). It is presumed that self-selected friendship paired interviews mirror young people's congenial, natural social nexus (Amos et al., 2004, Hight, 2003). The decision to combine focus groups

and paired interviews in this research was informed by the need to establish social perspectives through focus groups and in-depth meanings through paired interviews to facilitate triangulation.

Most paired interview interviewees in this research were initially scheduled for focus groups but requested to be interviewed as pairs because they felt more comfortable discussing cannabis use with a trusted friend. The first paired interview was conducted with two friends who were initially enlisted for a focus group but opted out and asked to be interviewed together. Interviewees felt more comfortable with being involved in how they participated because they were disclosing sensitive information. Similar findings were documented in a qualitative study in the UK where a lot more adolescent cannabis users opted for paired interviews with friends than individual interviews (Hight, 2003). Different interview methods provide varying levels of interactions and young people express themselves better when interviewed in the way they are most comfortable with (Akre et al., 2010).

### **Telephone interviews**

Documentation about the utility of telephone interviews in qualitative research is limited (Novick, 2008). For sensitive issues, telephone interviews appear to improve frank, honest discussions since identities are concealed though some interviewees may be severely distressed as they recount experiences (Sturges and Hanrahan, 2004). Young people can feel at ease to discuss sensitive topics and provide valuable data while anonymity and confidentiality is guaranteed (Novick, 2008). Telephone Interviews also provide the opportunity to conduct interviews when safety concerns, logistic problems or time constraints exist (Novick, 2008, Sturges and Hanrahan, 2004). Facial expressions and body language can't be assessed in telephone interviews but sighs or silence can provide clues (Sturges and Hanrahan, 2004). Although evidence relating to reduction in data quality with telephone interviews compared to face to face interviews is mixed, telephone interviews could lead to the inclusion of interviewees that may have been otherwise excluded (Sturges and Hanrahan, 2004).

The trade-off between using telephone interviews for hidden populations and not interviewing females at all was a major consideration in this research. The

presumption that telephone interviews are lower in quality to face to face interviews stems from the fact that visual cue, body language, the interviewee's setting and other situational information can't be assessed (Carr and Worth, 2001, Novick, 2008). It has been argued that even when contextual information is collected in other forms of interviews, their use and inference is not consistent (Novick, 2008). In addition, attempts to engage interviewees for face to face interviews may not yield much data if they don't feel comfortable to disclose sensitive information using that means (Novick, 2008). In this research, most female interviewees recruited in person didn't want to be interviewed using a face to face approach. Recruiting them in person, however, provided an added opportunity to obtain some information about their circumstances and build rapport prior to the telephone interviews (Novick, 2008).

#### **6.3.4. The Topic guide**

The topic guide (appendix H) was designed in a semi structured format to allow for discussions to emerge around six topical areas. Firstly, interviewees' lives and social networks were explored through accounts of daily activity, leisure and goals. Questions followed on challenges of adolescence and coping strategies though this was largely driven by answers to the first question. The topic guide then focused on the experiences and meanings relating to cannabis initiation and use. Cigarette smoking, the motivations for dual use of cannabis and cigarette or other smoking preferences were explored. Finally it addressed a wide range of environmental context specific factors and the influence on their lifestyle choices. The topic guide comprehensively provided a basis to contextualise cannabis use within the wider background of interviewees' lives. The use of topical areas provided the flexibility needed to explore emerging issues. In order to manage the interview time more efficiently, a brief questionnaire comprising background information on each interviewee was available before each interview session began. This was useful in matching interviewees with their characteristics during analysis.

### **6.3.5. Snowball sampling**

Snowball sampling which entails purposively recruiting interviewees or contacts and using them to refer others to the researcher to be enlisted was utilised in gaining access to interviewees in this study (Atkinson and Flint, 2001, Sadler et al., 2010). The initial contacts or 'seed' were identified based on their attributes and ability to refer identical respondents within their social network (Sadler et al., 2010). They were then expected to refer others through a chain referral system until the required sample size and diversity required was obtained (Sadler et al., 2010). This strategy was not focused on yielding a representative sample from the general population of young people but an in-depth exploration of the context of cannabis use (Boys and Marsden, 2003, Boys, 2000, Spooner et al., 1993). Participation was to be tailed off when little or no new additional information was obtained to answer the research question as a result of saturation (Sandelowski, 1995, Ulin et al., 2004).

Critical issues in snowball sampling include getting suitable contacts to start the chain referral system, compliance to the selection criteria and varying the chain to ensure balance (Faugier and Sargeant, 1997). The use of snowball sampling presumes that the behaviour being explored occurs in shared social networks as a result of communal interests (Faugier and Sargeant, 1997). This presupposes that the initial interviewees identified are connected with others and can link the researcher to a broader network of people with the potential to be enlisted (Atkinson and Flint, 2001, Sadler et al., 2010). Snowball sampling strategies can affect data quality because interviewee characteristics may be swayed by the nature of initial interviewees in the study and 'isolates' not within interviewees' social networks are excluded (Atkinson and Flint, 2001). Gatekeepers can also introduce bias because they decide who to allow or restrict access to within the community (Atkinson and Flint, 2001).

Recruitment using only one initial contact may result in most interviewees sharing similar characteristics (Atkinson and Flint, 2001). This may not be desirable in instances where diverse characteristics across the target population need to be explored. Recruiting from multiple sites with multiple contacts was planned to ensure that interviewees with diverse attributes were sampled in this research. The use of

documentation provided by the police or healthcare providers about substance use settings has been recommended to guide the recruitment process but this does not exist in Nigeria (Faugier and Sargeant, 1997). In this research setting, most smoking settings are unknown to law enforcement because substance users rarely make contact with local health facilities on account of illicit substance use. Health workers are also not in contact with users because it is considered a law enforcement issue in Nigeria. The researcher recruited interviewees from areas known to have illicit substance users based on extensive field experience.

## **6.4. Recruitment of interviewees**

### **6.4.1. Research assistants**

Two research assistants, a medical doctor and a social worker who had previously worked in a drug rehabilitation and outreach centre were enlisted to assist in the field work. They were trained on the ethical and practical requirements of this study. Their background experience and skills in working with substance users in community and clinic settings proved invaluable for managing the research process and handling challenges faced during fieldwork.

### **6.4.2. Initial contact or 'seed' for Lagos Island**

The initial contact enlisted grew up in Lagos Island, had served as a key opinion leader in behaviour change programmes among substance users locally and was regarded as a mentor by other young people. He assisted the team in identifying four major areas in Lagos Island where young cannabis users could be found. These included a football field popular with young people, a community centre which doubles as sports viewing centre and two popular streets young people hang out to play indoor games. Drug joints were not considered and for the safety of the research team, no recruitment took place from or around them.

### **6.4.3. Recruitment of interviewees in Lagos Island**

The initial contact recruited five people to start the chain from three of the settings identified and assisted with verifying eligibility to participate. Repeated visits were made to the areas to familiarise with potential interviewees and establish trust.

Facilitating trust was based on accepting them as they were and providing clarification that the research was not aimed at changing their life styles but obtaining perspectives. This initial process of recruitment was successful and the referral chain continued until nineteen people were recruited and interviews commenced.

The interviews were conducted in a primary care clinic within the community and clinics were chosen because they are safe neutral places that provide a wide range of services for children, young people and adults. Other settings such as community centres, clubs, and sports centres were too noisy and disruptive because of episodic outbreaks of fighting. Although a clinic may be perceived as too formal for informal discussions, it was the safest and most appropriate setting for the interviews. Households were not considered appropriate for research as previously described. Interviewees were allocated to focus groups or paired interviews based on a balance between friendship groups, interviewees' preferences for paired interviews and diversity within groups. Some of the interviewees referred by friends were above 19 years of age and the highest age interviewed was 21 years. The decision to interview interviewees aged 20 and 21 was taken because it was a difficult to recruit younger interviewees in the community setting. The older interviewees were bolder and more willing to participate than the younger ones.

#### **6.4.4. Lagos Island law enforcement raids**

After two focus groups, two triad interviews and one paired interview had been conducted, law enforcement agents raided strategic locations in Lagos Island seizing drugs, arresting drug dealers and substance users. Those who had not been interviewed immediately withdrew fearing that the coincidence between the timing of the research and raids could indicate collaboration between the research team and law enforcement. The initial contact advised a brief suspension of interviews to evaluate the situation but a decision was taken to stop interviews completely in Lagos Island. This was because there were rumours that law enforcement officers were given a tip off before the raids and the research team did not want to be linked. This setback was, however, viewed as an opportunity to vary interviewees from a new location and possibly recruit females.

#### **6.4.5. Challenges with recruiting female interviewees**

None of the initial nineteen people recruited in Lagos Island were female and this prompted an inquiry into the reasons why. Some male interviewees wanted to be interviewed with their girlfriends but the girls declined. Those who declined reported doing so on the basis that speaking out increased their vulnerability. Others wanted to participate if there were guarantees of help in terms of rehabilitation and opportunities for a new life. They were afraid that speaking out would result in shame and ostracism from school, family and society. There were deeply embedded beliefs that smoking among females was not culturally acceptable and it was more permissible for males to be seen smoking or speaking about it. They were also aware that female who used cannabis were generally assumed to be prostitutes and this meant they were carrying out two illicit activities namely cannabis use and prostitution.

When the referrals within the chain were almost exhausted, it became apparent that female cannabis users could not be recruited and interviewed the same way as males. A paired interview with two female cannabis users had to be terminated almost immediately it started because they became distressed. Female users constitute a more hidden population than males and are more vulnerable to being assaulted in settings where cannabis is used. Some females shared their experiences informally but were unwilling to commit to an interview or wanted to do so without face to face contact. This informed the decision to use telephone interviews after discussion with the researcher's supervisory team. Five girls were subsequently recruited and participated in telephone interviews as described in section 6.4.10. Studies have used telephone interviews as an alternative in cases where a face to face interview was rejected by interviewees to enhance participation (Sturges and Hanrahan, 2004).

#### **6.4.6 Initial contact for Mushin**

The initial contact grew up in Mushin and had served as a key opinion leader and mobiliser in the community. He understood the area and was popular among young people who nicknamed him 'Biggy' because he viewed as role model among them.

#### **6.4.7. Recruitment of interviewees in Mushin**

Identifying specific smoking settings was not feasible because substance use activities were deeply embedded in homes and streets. Substances were sold and used openly on the streets across many parts of Mushin in contrast to Lagos Island where specific areas were popular for the sale and use. This implied that a law enforcement raid of Mushin would involve homes and streets as opposed to Lagos Island where the raids were localised to drug joints and popular hotspots. To vary interviewees, three contacts were recruited from two major streets in Mushin. Though they had heard about the raids in Lagos Island, interviewees agreed to participate. A female interviewee was recruited and she referred friends to be interviewed.

#### **6.4.8. Mushin law enforcement raids**

An early morning raid by law enforcement agents disrupted scheduled interviews in Mushin and the team had to take refuge in a bank while the raid lasted. Observation of the raids from the bank security room provided a fresh perspective on the role of law enforcement and the general impact of 'drug raids' on the society. The market was shut down, armed personnel cordoned off streets in an operation that lasted at least over two hours. Young people were seen running out of fear of being arrested and the major streets were chaotic. Immediately after the raids, interviews were suspended and at this time, one focus group and one paired interview had been carried out in addition to a female interview. In subsequent days, the raids continued and made newspaper headlines and details of the raids were also reported on the NDLEA website. Despite the fact that recruitment was taking place in 'neutral' settings, there was apprehension about a link between this research and the raids. The plan to recruit in community settings was abandoned completely.

#### **6.4.9. Recruitment of interviewees in a Mushin clinic**

The clinic used for the interviews also offered counselling services to young people. Permission was obtained from the clinic director to recruit interviewees who were willing to participate. A social worker asked young people interested in participating in interviews to indicate privately to members of the research team. Those who did so were screened and three potential interviewees were enlisted and asked to enlist

others to participate. Three girls were scheduled for a triad interview but two of them opted out shortly after the interview commenced because they were too distressed to continue. The third girl opted to continue but her interview was discontinued when she became distressed. Two male paired interviews took place successfully and although rich and detailed discussions had taken place with male interviewees, female perspectives were still lacking.

#### **6.4.10. Telephone interviews**

The phone interviews with female interviewees were conducted after the interviewer returned to the UK. The research assistant collected basic information about the interviewees and explained the research to them before they were recruited. After they agreed to participate, the researcher spoke with them and a date was fixed. To further protect their confidentiality, the interviews were conducted using the research assistant's phone to assure them that their phone numbers were not being stored for future use. The research assistant noted that a particular interview was delayed because the interviewee smoked cannabis prior to the scheduled interview time and had to be interviewed later when she was more comprehensible. Some of the female interviewees felt so comfortable speaking with the researcher on the phone that they volunteered a subsequent face to face discussion.

#### **6.5. Ethics considerations in the research process**

A risk assessment form (appendix F) was completed detailing measures to safeguard the wellbeing of the interviewees and research team on the field. As previously discussed, ethical approval for the research was obtained from University of Leeds and the Nigerian ethical review board. Some issues raised by the ethical review board in Nigeria were addressed. There were concerns about putting young people at risk because the interviews sought to elicit information about the use of cannabis which is a punishable offence in Nigeria. Clarifications were made about measures taken to recruit interviewees from low risk settings, interview them in neutral settings and ensure confidentiality. The interviews also did not seek to elicit any information about criminal or trafficking activities. The research was designed for interviewees who were

at least 16 years old and able to comprehend verbal and written information in English. This was to ensure they could comprehend the information sheets, decide on participation and provide informed consent.

The use of pseudonyms ensured that interviewees did not disclose their identity and they had the option of discontinuing the interviews at any time in addition to being offered information about getting support. The ethical review board suggested that refreshments be provided for interviewees and an increase of the participation incentive from 250 naira to 350 naira (from £1 to £1.4) to facilitate generous transportation costs. Clarifications were made on the fact that the incentive of 250 naira took the proximity of the clinics to interviewees into consideration. The recommendation on refreshments was adopted and this was provided as interviewees settled in for the sessions. The participation incentives were kept moderate to prevent interviewees from viewing them as the basis for participation. Ethical amendment was obtained from University of Leeds Ethical Review Committee for the conduct of telephone interviews as shown in appendix K.

## **6.6. Managing the interviews.**

### **6.6.1. Piloting the topic guide: pilot interviews**

All interviewees read the interview information sheets (appendix I) and had extensive discussions with the research team about their participation in the study. A pilot focus group was planned for the first five interviewees recruited. Two of them opted out and insisted on being interviewed as a friendship pair because they were best friends and shared common interests. A pragmatic decision was taken to interview three people when the situation arose due to practical problems with recruiting additional people to make up a focus group. Two pilot interviews took place, a triad interview and a paired interview. The pilot provided insight into the aspects of the topic guide that required more or less focus in order to keep the sessions between 45- 60 minutes. The brief questionnaire was further shortened to collect only basic information because interviewees were more eager to get on with the interview and saw completing a questionnaire as a waste of time. The option of filling the brief questionnaire a few

days prior to the interview was not feasible for logistic reasons. Questions were added to the topic guide to capture broader issues relating to cannabis availability and law enforcement.

The pilot interviews did not necessitate any major changes in the research so they were analysed with other interviews. Throughout the interviews, emerging issues that were considered important were explored in subsequent interviews. During the pilot interviews, it was identified that obtaining detailed information on cigarette use would waste valuable time needed to explore cannabis use in depth and it was explored only in relation to the use of cannabis.

### **6.6.2. The interviews**

All the interviews were conducted and recorded by the researcher; notes were taken by a research assistant while the second research assistant coordinated interviewees and timing of the sessions. The Interviewer explained the research and interviewees had the opportunity to ask questions before the interviews commenced. The most commonly asked question was the researcher's motivation for the research. Most of the males viewed the interview as an opportunity to speak out about a topic they considered important to them. There were two triad interviews that resulted from interviewees failing to turn up or turning up too late for a session. The option of rescheduling was avoided for cost reasons and to avoid the burden of repeated visits. Interviewees appeared to be more comfortable participating when they were satisfied with how they were being interviewed.

Interviewees chose pseudonyms they were comfortable being addressed by during their interview and no real names were obtained or used. The interviewees were not anonymous to the researcher but they clearly understood that the research team had no personal records of them. It was agreed that individual issues raised within the interviews were not to be discussed outside the interview out of respect. Interviewees also clarified that the audio device had no video component. They were reminded that they could withdraw at any time during the interview or indicate if they didn't want to answer a question. Consent forms (appendix G) were signed before the interviews commenced and ground rules were agreed upon relating to respect for others' views.

The interviews typically commenced with questions about school, work, leisure and goals and progressed to discussions about their social lives. Initial issues arising such as dropping out of school or expectations led into discussions about the challenges young people in their context face and how they coped. Their discussions widened to include family situations, relationships and the impact of the wider society. Experiences that led to the use of cannabis, the meanings they attach to it and the context in which they use it were discussed. The focus groups were more general and the paired or individual interviews were more in-depth. The interviews climaxed with discussions about the impact of neighbourhood factors, dependence and stopping of cannabis.

The use of a flexible topical framework modulated by the interviewer facilitated the emergence of diverse perspectives. Shared views were reinforced and differing opinions expressed formed a basis to discuss diversity. Disagreements were used by the interviewer as opportunities to elicit deeper interactions and further explore interviewees' views. At the end of each session, interviewees were allowed to make final comments and the interviewer summarised the session to ensure that everyone agreed with the discussion. The interviewees were thanked for their participation, informed about counselling services and received 250 naira (£1) each.

## **6.7. Ensuring quality and rigour**

The concept of rigour and its terminologies within qualitative research has been widely debated because of tensions between validation within realist paradigms and its extension to naturalistic domains (Mays and Pope, 1995, Morse et al., 2008, Tobin and Begley, 2004, Whitemore et al., 2001). The intricate involvement of the researcher as an insider and research instrument in qualitative research results in the perceptions that it is weak, subjective and not reproducible (Mays and Pope, 1995, Tobin and Begley, 2004). Although there is still no unified agreement on the yardstick for quality and rigour, tremendous progress has been made (Tobin and Begley, 2004). Rigour relates to the efficiency and probity of the research and needs to be situated within the philosophical framework guiding the design of a study (Fossey et al., 2002, Morse et al., 2008, Tobin and Begley, 2004). This process begins with ensuring the

research design, sampling, data collection, analysis and reporting of findings follows a thorough, well documented and reflexive approach (Mays and Pope, 1995, Tobin and Begley, 2004). Techniques synthesized from research evidence were adopted to guide the process of ensuring rigour in this study (Whittemore et al., 2001).

### **6.7.1. Triangulation**

Triangulation entails utilising multiple methods of data collection or data sources and making comparisons of the results for linkages or complementarity (Creswell and Miller, 2000, Mays and Pope, 2000). In this research, data was obtained from two sites and different interview methods such as paired interviews and focus groups were used. The data analysis process incorporated a synthesis of themes from the different sources to explain the data (Creswell and Miller, 2000).

### **6.7.2. Audit trail**

A clear documentation of the entire research process including resolutions made and actions taken from the study design to analysis of data was undertaken (Creswell and Miller, 2000, Mays and Pope, 2000). The analytic process detailed the coding process and quotations from interviewees were used generously in reporting the results. Though an audit trail ensures that the decision making process guiding the research is documented, it does not endorse the quality and soundness of those decisions (Morse et al., 2008). This provided a basis to review the research with reference to the processes involved.

### **6.7.3. Deviant case analysis**

Interviewees' accounts or themes within the data that seemed to be at variance with emerging themes within the data were analysed and reported (Creswell and Miller, 2000). The analytical strategy entailed presenting the spectrum of findings within a concept to explore diverse instances in which it occurs (Seale and Silverman, 1997). This not only enriched the findings but improved overall data quality by facilitating a thorough analysis of concepts within the data.

#### **6.7.4. Reflexivity**

The relationship between the researcher and the researched in terms of views, assumptions and past experiences impact on the research process (Mays and Pope, 2000). This frame of reference influences the researcher's inclinations within the research and when the researcher's role is clearly documented, the integrity of the research process is improved (Creswell and Miller, 2000). Reflexivity ensures that the dynamic process of constructing knowledge acknowledges the interests and inclinations that influence how research is planned, implemented and interpreted (Creswell, 2013, Guillemin and Gillam, 2004). The interpretative nature of qualitative research makes it important to reflexively consider the role the researcher's background and inclinations (Creswell, 2013).

The researcher was aware and acknowledged the fact that her age, gender, career experience and position regarding cannabis criminalisation in Nigeria may have influenced the research process. The researcher's experience in working with young substance users in community and treatment settings implied that she had an understanding of the research context and strategies for recruiting interviewees. Prior understanding of the problem may have influenced the strategies the researcher chose to carry out the study. The fact that she was well known to the initial contacts was a critical success factor in recruiting interviewees because they were only willing to be interviewed by someone they perceived was an insider. This was useful because they needed to clarify her motivation for the research and her relationship with law enforcement agencies before committing to an interview. Although this 'insider' perspective was utilised as a leverage to gain trust, interviewees still viewed the researcher as an 'outsider' because she did not have experiential knowledge about cannabis use.

The tensions created by the researcher oscillating between these two perspectives related to the fact that they expected that she was in a better position understand their views but needed reassurance that she did not judge them or their use of cannabis as bad. The researcher's experience with problematic cannabis users in treatment settings made it difficult for her view her interviewees as just people to be

interviewed as opposed to young people needing help. This view was complicated by the fact that the interviewees viewed her as a motherly figure because she was female and older. The researcher's age and gender facilitated openness in the interviews because the females found it easier to be open to a female and the males were more comfortable with the fact that it was less likely for a female to have links with law enforcement compared to a male interviewer. The perception that she was able to directly offer assistance in terms of rehabilitation and counselling was held by some interviewees and it was clearly reiterated that the researcher had nothing to do with the referral centres. These issues clearly warranted the need to clearly assume the role of a researcher and not therapist throughout the duration of the project including data analysis.

The researcher was not positively disposed to the law enforcement strategy of cannabis control in Nigeria and her approach was more inclined to public health in terms of bridging gaps in providing information and access to intervention for young people. This position was heightened by her personal experience of being in the Mushin drug raids. Her understanding of the problem of cannabis use may have been influenced by her views about the law enforcement strategy of substance use prevention in Nigeria.

Although these positions may have shaped the data collection and analytical process, recognising they existed helped the researcher to consciously put them aside and critically analyse the multifaceted issues in this study. In this research, a journal was kept to document viewpoints, biases and interpretation of issues based on personal experience during the entire research process. Issues, concepts and the decision making process were captured and documented throughout the thesis.

## **6.8. Analytical process**

### **6.8.1. Data preparation for analysis**

Immediately after each interview, the audio recording was securely transferred to a folder provided by the University of Leeds Information Systems Services for safe storage. All audio recordings were labelled serially and saved using interviewees'

pseudonyms and the type of interview. The audio recordings of the entire interview data was manually transcribed verbatim by the researcher and checked for errors through a process of repeatedly listening to the audio files. The process of transcribing, reading and re-reading the transcripts facilitated familiarisation with the data (Braun and Clarke, 2006). Interviewees' pseudonyms were retained in transcribed individual and paired interview transcripts but it was not feasible to transcribe the focus groups interviews using pseudonyms. This was due to challenges with consistently matching speech from focus groups with identity as the notes taken during the interviews did not capture all the conversations.

### **6.8.2. Data analysis**

The analytical process entailed exploring patterns and themes within the data to answer the research question using thematic analysis which is a versatile, adaptable approach that can be applied across diverse philosophical and theoretical domains (Braun and Clarke, 2006, Braun). In this research, it was used to illustrate patterns relating to constructed meanings of cannabis use within the data. Utilising this perspective, the theming process extended beyond meaning and motivation to explore underlying social and contextual situations that underpin expressed concepts (Braun and Clarke, 2006). Thematic analysis conveniently integrates analysis of meanings and experiences at individual or group level (Braun and Clarke, 2006). This is viewed as an entry analytical strategy useful for novice researchers and the approach used in this study draws mainly from the thematic framework described by Braun and Clark (Braun and Clarke, 2006).

Considering the fact that little is known about the context of cannabis use in Nigeria, this research explored broad thematic areas that describe the patterns and context of cannabis use. Though this approach limits in-depth focus on any specific theme, it ensures that a broad understanding of the research question is achieved. Opportunities for theory development or applied policy research reflected in grounded theory and framework analysis approaches may be considerations for future study. A fundamental description of cannabis use among young people in Nigeria has to be advanced before progressing to conceptual and policy frameworks.

As outlined in table 6.1, after data familiarisation, the data was coded manually and the transcripts were transferred to Nvivo to increase the thoroughness of the coding process. The resulting codes both from the manual and coding in Nvivo were similar but their categorisation was too cumbersome to use and apply to the research question. Some examples of initial categories include cannabis use experiences, smoking perceptions, career, personal life and neighbourhood factors.

**Table 6.1. Process of thematic analysis as applied in this thesis**

*(Adapted from Braun and Clark, 2006 page 87)*

	Phase	Description of Process
1	<b>Familiarisation with data</b>	Repeatedly reading the transcripts and listening to audio files to facilitate immersion in the data.
2	<b>Initial Codes.</b>	Manual coding highlighting patterns within the entire text which summarise chunks of data and capture underlying data.
3	<b>Searching for themes</b>	Themes were organised and collated using the theory of triadic influence as a framework.
4	<b>Reviewing Themes</b>	Themes were compared with the coded extracts and the entire data set to produce a thematic map of the analysis.
5	<b>Defining and naming themes</b>	The themes were reviewed, refined and defined within their categories.
6	<b>Analytical report</b>	Examples were chosen from each category that conveys key findings. These findings were reviewed with the research questions to document the results. The results were synthesised with other aspects of the study and literature to produce the discussion.

The process of coding can be guided both by the data and a theoretical framework (Braun and Clarke, 2006, Howitt, 2010, Joffe, 2011). In order to explore the data more efficiently, the TTI was utilised as a framework that separated concepts around the broad sociocultural, interpersonal and intrapersonal influences relating to the initiation and continued use of cannabis. Although the TTI model was useful in

categorising themes, the codes were generated from the data and those categories that did not fit the model were discussed separately in the analysis. This process of coding from data and using a framework to categorise them positioned the research in the middle of the continuum of inductive and deductive thematic analysis.

The recurrence of a theme in the data set was viewed as an indication of its importance within the research but the critical significance to the research question was also considered irrespective of frequency (Braun and Clarke, 2006). 'Substantive significance' of theme which takes its occurrence and the level of additional insight provided into consideration was used as a guide (Buetow, 2010, Floersch et al., 2010). A thematic map was produced from reviewed themes and the linkages and relationships within the data were explored in relation to the research question to document the results.

## **6.9. Chapter summary**

The qualitative methods entailed a snowballing sampling strategy to recruit male and female cannabis users aged 16-21 years in Mushin and Lagos Island areas of Lagos state. Focus groups, triad, paired and telephone interviews were conducted based on the interview type considered suitable or feasible using a topic guide that explored context and meanings related to cannabis use. Establishing trust, confidentiality, safety of the researchers and interviewees were critical considerations in the qualitative study design. Thematic analysis using the TTI as a guide to organised themes constituted the analytical approach.

## Chapter 7: Quantitative results

### 7.1. Chapter overview

This chapter outlines the results for 16- 20 year olds sampled from eight schools with the aim of identifying risk factors associated with initiation and use of cannabis. Cannabis use was dichotomised into cannabis user and non-cannabis user categories for the purpose of defining the dependent variable. Lifetime and 30 day use of cannabis were used as the measures of lifetime and current use of cannabis respectively as defined in section 5.5. All results are reported at significance level of  $p < 0.5$ . Significance level marked (\*) represents  $p < 0.05$ , (\*\*) represents  $p < 0.01$  and (\*\*\*) represents  $p < 0.001$ .

The following are detailed in this chapter:

- A description of participants' demographic characteristics, their substance use profiles and risk factors.
- Bivariate analysis evaluating the nature of the association between reported cannabis use and the independent variables.
- Binary logistic regression modelling the association between lifetime and current use with risk factors of cannabis use.
- Latent class analysis used to independently classify respondents into 'latent' groups based on cannabis use patterns and multinomial logistic regression evaluating the association between latent classes and independent variables.

### 7.2 Demographic characteristics and substance use profiles

#### 7.2.1. Demographic characteristics

There were more males (61.70%) who completed the survey than females. The participants sampled from urban schools (60%) were more than those from suburban schools. Participants' ages ranged from 16 to 20 years, with a mode of 16 years, median of 17 years and mean age of 17 years (SD: 1.10) as shown in table 7.1.

**Table 7.1. Demographic characteristics of the survey participants**

Variable	Male (n= 559)	Female (n = 347)	Total (n= 906)
<b>Age</b>	Mean (SD)	Mean (SD)	Mean (SD)
Mean age	17.04 (1.13)	16.86 (1.05)	16.97 (1.10)
	N (%)	N (%)	N (%)
<b>District Zone : Urban</b>	329 (58.9)	213 (61.4)	542 (59.8)
Suburban	230 (41.1)	134 (38.6)	364 (40.2)
<b>Living conditions: Live alone</b>	28 (5.1)	10 (2.9)	38 (4.2)
Lives with mother	121 (21.9)	96 (28.2)	218 (24.4)
Lives with father	44 (8.0)	27 (7.9)	71 (7.9)
Lives with both parents	329 (59.5)	184 (54.4)	514 (57.4)
Other	31 (5.6)	22 (6.5)	54 (6.0)
Unknown	6 (1.1)	7 (2.0)	14 (1.5)
<b>Religion: Christianity</b>	202 ( 36.7)	127 ( 37.4)	329 ( 37.1)
Islam	349 (63.3)	212 (62.4)	561 (62.8)
Other	0 (0)	1 ( 0.3)	1 ( 0.1)
Unknown	8 (1.4)	7 (2.0)	15 (1.7)
<b>Family car: No</b>	230 (41.7)	155(44.7)	385(43.1 )
Yes, one	188 (34.1)	125 (36.8)	314 (35.1)
Yes, two or more	134 (24.3)	60 ( 17.6)	195 (21.8)
Unknown	7 (1.3)	7 (2.0)	15 (1.7)
<b>Personal bedroom: No</b>	336 (61.3)	228 ( 67.3)	566 ( 63.6)
Yes, one	212 (38.7)	111 (32.7)	324 (36.4)
Unknown	11 (2.0)	8 (2.3)	19 (2.1)
<b>Family wealth: Well off</b>	245 (45.6)	170 (50.3)	417 (47.4)
Average	220 (40.9)	128 (37.9)	349 (39.7)
Not well off	73 (13.6)	40 (11.9)	113 (12.9)
Unknown	21 (3.8)	9 (2.6)	30 (3.3)

The analysis of variance of the mean difference between participants ages by gender was statistically significant ( $F_{(1,902)} = 5.42, p=0.020$ ). A little over half of the participants lived with both parents, about one quarter live with their mothers and others lived alone, or with other people. A higher proportion of males (5.1%) than females (2.9%) lived alone. About two thirds of participants practised Islam and one third practiced Christianity. Socio economic status of participants was assessed based on reported family ownership of a car, participants having their own bedrooms and the perceptions of how well off their families were. Majority of the participants reported that their families were at least average or well off and the findings were similar in both sexes. Majority of participants' parents were married as outlined in Table 7.2. About half of the parents in the sample had at least attended primary or secondary school.

**Table 7.2. Parents' marital and educational status**

Characteristic	Mother N (%)	Father N (%)
<b>Current marital Status</b>	<b>Total = 909</b>	<b>Total =909</b>
Single	43(4.8)	29 (3.2)
Married	711 (78.7)	742(82.5)
Separated	78 (8.6)	62 (6.9)
Divorced	20 (2.2)	23 (2.6)
Widowed	38 (4.2)	9 (1.0)
Other	13( 1.4)	34 (3.8)
Unknown	6 (0.7)	10 (1.1)
<b>Educational Status</b>		
Completed primary school or less	114 (13.1)	76 (8.8)
Secondary school	370(42.4)	312(35.9)
University	244(27.9)	317(36.5)
Don't know	145 (16.6)	163(18.8)
Unknown	41 (4.5)	36 (4.0)

### 7.2.2. Mean age at initiation and mean age of cannabis users

The mean age of cannabis users was higher than non-users. The mean age of lifetime and current cannabis users was 17.5 and 17.6 years respectively compared to non-users which was 16.9 years. Participants were asked to indicate the age they first used a substance and this information was used in determining the mean age of first use for each substance. The mean ages and confidence intervals are presented in table 7.3. Cannabis had the lowest mean age of onset at 14.2 years (SD= 2.20) and heroin had the highest mean age of onset at 14.9 years (2.71).

**Table 7.3. Mean age at which substances were first used**

Substance	Mean (SD)	95% CI	median
Tobacco	14.32 (2.45)	13.89-14.75	14
Alcohol	14.25 (2.23)	14.01- 14.49	15
Cannabis	14.15 (2.20)	13.76- 14.54	14
Cocaine	14.34 (2.60)	13.73 – 14.95	14
Heroin	14.88 (2.71)	14.20 -15.55	15

### 7.2.3. Mean age of cannabis users and substance use frequencies

The frequency of lifetime alcohol use (38.7%) was the highest among participants, followed by cannabis (14.8%), tobacco (12.7%), cocaine (8.0%) and heroin (6.0%). These findings were similar among current cannabis users. Substance use frequencies were higher among males than females as shown in table 7.4. The association between gender and substance use was statistically significant for all measures of alcohol, cannabis and tobacco except past 12 months tobacco use. The lifetime and current use of cannabis was 14.8% and 12.7% respectively. The continuation rate for cannabis use which refers to the proportion of lifetime users who continued to use cannabis as current users was 85% and this rate was similar for both genders. This implied that at least 85% of participants who had used cannabis in their lifetime continued to use and were current users.

**Table 7. 4. Substance use frequencies by participants' gender**

Description	N (%)	N (%)	$\chi^2$ (df=1)	N (%) Total
	Males	Females		
<b>Tobacco</b>				
Lifetime use	85 (15.4)	29 (8.5)	9.18**	114 (12.7)
Use in the past 12 months	83 (15)	36 (10.6)	3.66	119 (13.3)
Use in the past 30 days	81 (14.7)	32 (9.4)	5.31*	113 (12.6)
Age of first use estimate	95 (17.3)	32 (9.5)	10.54**	127 (14.3)
<b>Alcohol</b>				
Lifetime use	244 (44.4)	101 (29.6)	19.29**	346 (38.7)
Use in the past 12 months	234 (42.3)	93 (27.4)	20.04**	328 (36.6)
Use in the past 30 days	197 (35.7)	75 (22.1)	18.22**	273 (30.5)
Age of first use estimate	235 (43.0)	99 (29.3)	16.79**	334 (37.7)
<b>Cannabis</b>				
Lifetime use	97 (17.6)	36 (10.5)	8.50**	133 (14.8)
Use in the past 12 months	85 (15.4)	35 (10.2)	4.90*	120 (13.4)
Use in the past 30 days	82 (14.9)	31 (9.1)	6.36*	113 (12.7)
Age of first use estimate	89 (16.2)	37 (10.9)	4.71*	126 (14.1)
<b>Cocaine</b>				
Lifetime use	46 (8.4)	25 (7.3)	0.31	71 (8.0)
Use in the past 12 months	46 (8.4)	26 (7.6)	0.18	72 (8.1)
Use in the past 30 days	52 (9.5)	18 (5.3)	5.09*	70 (7.9)
Age of first use estimate	53 (9.6)	20 (6.0)	3.74	73 (8.2)
<b>Heroin</b>				
Lifetime use	36 (6.6)	18 (5.3)	0.60	54 (6.0)
Use in the past 12 months	47 (8.5)	20 (5.9)	2.18	67 (7.5)
Use in the past 30 days	51 (9.3)	19 (5.6)	3.86*	70 (7.8)
Age of first use estimate	42 (7.7)	23 (6.8)	0.22	65 (7.3)

## **7.2.4. Consistency of substance use reporting among participants**

### **7.2.4.1. Disparities in lifetime, 12 months, past 30 days and age of first use estimates**

Measures of lifetime use obtained indirectly from data about age of participants' first substance use were labelled 'age of first use estimate' and are presented in table 7.4. It was expected that these measures would be the same because participants who indicated the age they first used a substance implied that they had used that substance in their lifetime. These age of first use estimates were, however, not consistent with lifetime use. Similarly, the measures of lifetime use were expected to be higher than past 12 months use and past 12 months use measures were expected to be higher than past 30 days use. The measures for lifetime, past 12 months and past 30 day use frequencies for alcohol and cannabis followed this expected pattern. The fact that they followed the expected pattern did not necessarily imply they were consistent. Inconsistencies were observed in the frequency patterns for tobacco, heroin and cocaine as shown in table 7.4.

### **7.2.4.2. Disparities between reported 'use at any point' and lifetime use**

A new variable, 'reported use at any point' was created to capture instances within the data that participants admitted to using a substance at least once. This was necessitated by the fact that some participants, who did not report lifetime use of a substance, reported that they had used it in the past 12 months or past 30 day use. In addition, some participants who did not indicate that they used a substance reported the age they first used a substance. This variable provided insight into the frequency of those who reported the use of a substance across the data and was useful for evaluating inconsistencies. 'Reported use at any point' was higher than lifetime use in every instance as shown in table 7.5. The proportional difference between 'reported use at any point' and lifetime use was 10.7% for cannabis, 34.1% for tobacco, 13.7% for alcohol, 29.7% for cocaine and 43.8% for heroin. This implied that 16 participants or 10.7% of cannabis users who reported cannabis use at any point in the data reported their use of cannabis inconsistently. Heroin was the most inconsistently reported substance and cannabis was the least inconsistently reported.

**Table 7.5. Disparities between reported ‘use at any point’ and lifetime use<sup>1</sup>**

Description	Participants reporting lifetime use.	Participants reporting ‘use at any point in the data’.	Proportion of those who reported use at any point that also reported lifetime use.	Disparity between ‘use at any point’ and lifetime use.
<b>Cannabis</b> N=896	14.8% (133)	16.6% (149)	89.3% (133)	10.7% (16)
<b>Tobacco</b> N=898	12.7% (114)	19.3% (173)	65.9% (114)	34.1% (59)
<b>Alcohol</b> N=894	38.7% (346)	44.9% (401)	86.3% (346)	13.7% (55)
<b>Cocaine</b> N=893	8.0% (71)	11.3% (101)	70.3% (71)	29.7% (30)
<b>Heroin</b> N=893	6.0% (54)	10.8% (96)	56.2% (54)	43.8% (42)

### 7.3. Missing data management

The variables with the highest proportion of missing data were the scales of parental attachment made up of 28 items and peer attachment made up of 25 items. The item with the highest proportion of missing data for parental attachment had 7.3% of responses missing and the item with the second highest proportion of missing data for peer attachment had 7.0% of responses missing. When the full parental and peer attachment scores were computed from the component items, the amount of missing data increased to 24.2% because incomplete cases had to be excluded from the total score. The respondents with random missing data on the scores may have valid responses for other variables evaluated in the survey. List wise deletion would reduce the sample size from 909 to 689 further decreasing when these scores are fitted into a regression model resulting in significant loss of power. The analysis of other variables will also be significantly impacted and deleting a number of items from multiple item

---

<sup>1</sup> The frequencies differ because of differences in sample size due to missing data.

scales may result in unreliable scales (Tsikriktsis, 2005). The result of the little MCAR test showed a chi square of 417.45 (df 681; p-value 1.000) suggesting that missing data was missing completely at random. Pairwise deletion was used in descriptive and bivariate analysis to remove specific cases and in regression analysis variables with large amounts of missing data such as parental and peer attachments were excluded from the model.

## 7.4. Descriptive results: Independent variables

### 7.4.1. Perceived availability and severity of cannabis dependence

Approximately half of the participants reported that they perceived it was probably impossible to obtain cannabis (51.8%) as shown in Table 7.6. The frequency of those reporting that it was probably impossible to obtain a substance was highest for cocaine (56.4%) and lowest for alcohol (43.3%). Conversely, the frequency of participants who reported that it will be easy to obtain a substance was lowest for cocaine (11%) and highest for alcohol (28.4%). Only 16.2% of participants reported that it was easy to obtain cannabis. Almost half of lifetime cannabis users (45.9%) reported that their dependence on cannabis was nil-negligible, 51.1% reported mild-moderate dependence and 3% reported substantial- severe cannabis dependence. Findings were similar for current use and the results showed that the perception of the severity of dependence was not significantly related to the pattern of use.

**Table 7.6. Perception of substance availability among participants**

Substance	Probably impossible N (%)	Difficult N (%)	Easy N (%)	Total N (%)
Cigarette	473 (52.7)	200 (22.3)	225 (25.1)	898 (100)
Alcohol	389 (43.3)	254 (28.3)	255 (28.4)	898 (100)
Cannabis	464 (51.8)	286 (32.0)	145 (16.2)	895 (100)
Cocaine	505 (56.4)	292 (32.6)	99 (11.0)	896 (100)

#### **7.4.2. Mean scores for continuous independent variables**

Parental and peer attachment scales from the inventory of peer and parental attachment (IPPA) were each divided into three subscales; trust, communication and alienation. The alienation subscales were reversed to create a subscale that indicated affection or endearment to parents or peers. The three subscales within each category namely trust, communication and reversed alienation were added to form the total scores as previously described. The mean total parental attachment score was higher in males (98.64, SD=15.89 vs 96.39, SD=16.59) and the mean total peer attachment score was higher in females (84.16, SD=15.21 vs 83.60, SD=14.68). These findings were not statistically significant as presented in table 7.7. Peer communication was higher in females (26.45, SD=7.58) than males (83.60, SD= 14.68) and this was statistically significant. Endearment to peers and parents as measured by reversed peer and parental alienation scores significantly higher in males than females.

Males (18.83, SD=6.46) were significantly more likely to score higher on the sensation seeking scale than females (17.28, SD=6.20). Aggression scores were also significantly higher in males (13.31, SD=12.47) than females (9.59, SD=9.76) as shown in table 7.7. Parental and peer attachment measures were positively correlated with each other and this finding was significant ( $r=0.46$ ,  $p<0.000$ ). This implied that participants who had strong attachment to parents were more likely to have strong attachment with peers and vice versa.

**Table 7.7. Mean scores by gender for continuous independent variables**

Description /Range of scores from lowest to highest values in the scale.	Male scores. Mean/SD	Female scores Mean/SD	Total mean scores. Mean/SD	ANOVA df/F- statistic
Parental trust subscale of IPPA ( 11-50)	36.05 (7.62)	36.20(7.87)	36.10(7.71)	(1,780) 0.071
Parental communication subscale of IPPA (10-50)	34.87(6.99)	34.82(7.48)	34.86 (7.17)	(1,805) 0.01
Reversed parental alienation subscale (8-40)	27.42(7.28)	25.28(7.30)	26.61(7.37)	(1,809) 16.80***
Total parental attachment score (36-139)	98.64(15.89)	96.39(16.59)	97.81(16.17)	(1,687) 3.11
Peer trust subscale of IPPA ( 11-50)	34.04(8.39)	34.33(8.63)	34.17(8.47)	(1,790) 0.22
Peer communication subscale (8-40)	26.45(7.58)	27.95(7.76)	27.02(7.67)	(1,838) 7.64**
Reversed peer alienation subscale (7-35)	23.10(5.59)	21.87(5.60)	22.60(5.62)	(1,813) 9.34**
Total peer attachment score (32-125)	83.60(14.68)	84.16(15.21)	83.82(14.86)	(1,722) 0.24
Aggression scale scores (0-66)	13.31(12.47)	9.59(9.76)	11.90(11.66)	(1,862) 21.44***
Sensation seeking scale scores (8-40)	18.83(6.46)	17.28(6.20)	18.23 (6.40)	(1,840) 11.77***

**7.4.3. Peer delinquency measures and parental substance use**

The most common delinquent activity reported among participants' peers was cheating in an examination and 62.8% of all peers were reported to have done so. Peers of male participants were significantly more likely to use substances, steal and cheat than peers of female participants as shown in table 7.8. Males were significantly more likely to report that their peers had cheated than females (62.8% vs 52.2%,  $p < 0.000$ ).

**Table 7. 8. Peer delinquency and parental substance use by gender**

Description	(%) male participants	(%) of female participants	$\chi^2$ (df=1)	(%) Total for male and female
Peer alcohol use	55.5	34.7	37.04***	47.3
Peer cannabis use	34.0	22.3	14.11***	29.4
Peers cigarette use	39.1	20.6	33.16***	31.9
Peers other drug use	21.5	12.5	11.66***	18.0
Peers stealing	48.9	34.1	18.94***	43.0
Peers cheating	62.8	52.2	9.87***	58.5
Mother's cigarette use	10.9	5.5	7.60**	8.8
Father's cigarette use	15.9	12.6	1.91	14.6
Mother's alcohol use	18.3	11.1	8.34**	15.5
Father's alcohol use	30.9	18.1	17.90***	25.9
Mother's cannabis use	12.3	5.2	12.24***	9.5
Father's cannabis use	11.8	8.1	3.03*	10.3

## 7.5. Bivariate relationships

The relationship between independent variables and the likelihood of cannabis use was explored using cross tabulations for categorical variables and logistic regression for continuous variables.

### 7.5.1. Cross tabulation of cannabis use and demographic variables

Male participants were significantly more likely than females to be lifetime and current users of cannabis shown in table 7.9. The proportion of lifetime cannabis users within each age category was 8.91% of those aged 16 years, 15.56% of those aged 17 years, 17.56% of those aged 18 years, 30% of those aged 19 years and 40% of those aged 20 years. The results were similar for current users and showed that a larger proportion of the older participants used cannabis than those that were younger. These findings were significant for lifetime ( $\chi^2= 39.50$ ,  $p=0.000$ ) and current use ( $\chi^2= 44.21$ ,  $p=0.000$ ).

There was no significant association between the use of cannabis and professed religion. Participants' views about their family wealth were not significantly associated

with cannabis use. Over half of lifetime and current cannabis users who lived alone used cannabis. The relationship between participants living conditions and cannabis use was statistically significant.

Almost one third of lifetime and current cannabis users perceived that cannabis was easy to obtain and two thirds perceived it was difficult or probably impossible. The relationship between perceived availability of cannabis and its use was statistically significant. The marital status of participants' mothers was significantly associated with lifetime and past current cannabis use. Approximately 40% of participants whose mothers were divorced and 25% of those mothers were single were lifetime and current cannabis users. Mother's marital status was significantly associated with lifetime (Fisher's exact= 0.025) and current cannabis use (Fisher's exact= 0.016).

Father's marital status was not significantly associated with lifetime (Fisher's exact= 0.068) and current cannabis use (Fisher's exact= 0.164). The educational status of participants mothers was not significantly associated with lifetime ( $\chi^2= 8.83$ ,  $p=0.164$ ) and current ( $\chi^2= 11.39$ ,  $p=0.077$ ) cannabis use. At least 60% of lifetime cannabis users reported that their fathers completed secondary school or university education. Fathers educational status was significantly associated with lifetime use ( $\chi^2= 20.03$ ,  $p<0.003$ ) but not with current use ( $\chi^2= 12.38$ ,  $p<0.052$ ).

The peer delinquencies measures evaluated in this survey were all significantly associated with lifetime and current cannabis use except for peer cheating as shown in table 7.10. The use of cannabis, tobacco or alcohol by participants' parents was significantly associated with lifetime and current cannabis use as shown in table 7.10.

**Table 7.9. Cross tabulations between cannabis use and demographic variables<sup>2</sup>**

Independent variables	Dependent variables			
	Lifetime cannabis use		30 day cannabis use	
	Yes (N=133)	No (N=758)	Yes (N= 113)	No (772)
<b>Gender**</b>				
Male	97 (72.9)	453 (59.6)	82 (72.6)	468 (60.2)
Female	36 (27.1)	307 (40.4)	31 (27.4)	309 (39.8)
<b>Religion</b>				
Islam	81 (63.8)	475 (63.0)	71 (66.4)	484(62.8)
Christianity	46 (36.2)	279(37.0)	36 (33.6)	287(37.2)
<b>Family wealth</b>				
Well off	16 (13.1)	10 (9.7)	57 (55.3)	352 (46.2)
Average	41 (33.6)	303 (40.6)	36 (35)	308 (40.4)
Not well off	16 (13.1)	96 (12.9)	10 (9.7)	102 (13.4)
<b>Living conditions***</b>				
Lives alone	20 (15.3)	17 (2.3)	19 (17.0)	18 (2.3)
Lives with mother	31 (23.7)	183 (24.4)	24 (21.4)	189 (24.6)
Lives with father	21 (16.0)	50 (6.7)	16 (14.3)	55(7.2)
Lives with both parents	52 (39.7)	455 (60.6)	48 (42.9)	458 (59.6)
Other	7 (5.3)	46 (6.1)	5 (4.5)	48 (6.3)
<b>Perceived cannabis availability ***</b>				
Probably impossible	42 (32.1)	419 (55.6)	33 (29.7)	428 (55.6)
Difficult	55 (42)	224 (29.7)	47 (42.3)	231(30)
Easy	34 (26)	110 (14.6)	31 (27.9)	111 (14.4)

<sup>2</sup> The total number of participants in each category may vary slightly due to missing data.

**Table 7.10. Cross tabulation of cannabis use with peer and parental measures<sup>3</sup>**

Independent variables		Dependent variables			
		Lifetime cannabis use		30 day cannabis use	
		Yes (N=133)	No (N=758)	Yes (N= 113)	No (772)
Peer cannabis use :	Yes	82 (61.7)***	178(23.5)	70 (61.9)***	187(24.1)
	No	51 (38.3)	580 (76.5)	43 (38.1)	588 (75.9)
Peer stealing:	Yes	85 (64.9)***	296(39.2)	74 (66.1)***	305(39.6)
	No	46 (35.1)	459 (60.8)	38 (33.9)	466 (60.4)
Peer cheating:	Yes	87 (65.9)	431 (57.0)	75 (66.4)	440 (57.0)
	No	45 (34.1)	325 (43.0)	38 (33.6)	332 (43)
Peer other drug use:	Yes	60(45.1) ***	99 (13.1)	52(46.0) ***	104 (13.4)
	No	73 (54.9)	658 (86.9)	61 (54)	670 (86.6)
Peer alcohol use:	Yes	93 (69.9) ***	327(43.1)	82 (72.6)***	337(43.5)
	No	40 (30.1)	431 (56.9)	31 (27.4)	438 (56.5)
Peer tobacco use :	Yes	76( 58.9) ***	205(27.2)	64( 58.2)***	215(27.9)
	No	53 (41.1)	549 (72.8)	46 (41.8)	556 (72.1)
Mothers' cannabis use:	Yes	43 (32.3) ***	40 (5.3)	37 (32.7)***	46 (5.9)
	No	90 (67.7)	718 (94.7)	76 (67.3)	730 (94.1)
Fathers' cannabis use:	Yes	46(50.0) ***	46(6.1)	41(36.3)***	50 (6.5)
	No	87(65.4)	711 (93.9)	72(63.7)	724 (93.5)
Mothers' tobacco use:	Yes	38 (28.6) ***	39( 5.2)	33 (29.2)***	42( 5.4)
	No	95 (71.4)	717 (94.8)	80 (70.8)	731 (94.6)
Fathers' tobacco use:	Yes	48 (36.4) ***	82(10.9 )	40 (35.7)***	88(11.4 )
	No	84 (63.6)	673 ( 89.1)	72 (64.3)	684 ( 88.6)
Mothers' alcohol use:	Yes	51(38.2) ***	85(11.3)	42(37.2) ***	92(11.9)
	No	82 ( 61.7)	670 (88.7)	71 ( 62.8)	681 (88.1)
Fathers' alcohol use:	Yes	55( 42.3) ***	173 (22.9 )	45( 40.5)***	182 (23.6)
	No	75 (57.7)	581 (77.1)	66 (59.5)	589 (76.4 )

<sup>3</sup> The total number of participants in each category may vary slightly due to missing data.

### 7.5.2. Logistic regression of cannabis use with continuous variables

Age was a significant predictor and for every unit increase in age, the likelihood of cannabis use increased by 58% and 64% for lifetime and current use respectively as shown in table 7.11. The models explained between 4% (Cox and Snell R-square) and 8% (Nagelkerke R-square) of the variance in use with a prediction success of 85.1% for lifetime and 87.3% for current use respectively. Age reliably differentiated users and non-users as shown by the test of the full model against baseline model for lifetime ( $\chi^2 = 33.50$ ,  $df = 1$ ,  $p < 0.000$ ) and current use ( $\chi^2 = 36.07$ ,  $df = 1$ ,  $p < 0.000$ ). The models fit well with the data with Hosmer-Lemeshow test of ( $\chi^2 = 1.33$ ,  $df = 2$ ,  $p < 0.507$ ) for lifetime use and ( $\chi^2 = 1.33$ ,  $df = 2$ ,  $p < 0.514$ ) for current use.

Sensation seeking significantly predicted lifetime and current cannabis use, increasing the odds of use by 10% for every unit increase and it showed good model fit with Hosmer-Lemeshow test of ( $\chi^2 = 7.61$ ,  $df = 8$ ,  $p < 0.472$ ) for lifetime and ( $\chi^2 = 3.62$ ,  $df = 7$ ,  $p < 0.822$ ) for current use. The test of the full models against a baseline model showed a statistically significant relationship for lifetime ( $\chi^2 = 34.76$ ,  $df = 1$ ,  $p < 0.000$ ) and current use ( $\chi^2 = 35.06$ ,  $df = 1$ ,  $p < 0.000$ ) indicating that sensation seeking reliably distinguished between users and non-users. The models explained between 4% (Cox and Snell R-square) and about 8% (Nagelkerke R-square) of the variance in cannabis use with a model prediction success of 84.9% for lifetime and 86.9% for current cannabis use.

Aggressiveness was a significant predictor of lifetime and current cannabis use, increasing the odds of use by 4% for every unit increase but it showed poor model fit for lifetime use with Hosmer-Lemeshow test of ( $\chi^2 = 15.53$ ,  $df = 8$ ,  $p < 0.050$ ) for lifetime and a good fit for current use ( $\chi^2 = 16.33$ ,  $df = 8$ ,  $p < 0.38$ ) for current use. The test of the full models against baseline models showed a statistically significant relationship for lifetime ( $\chi^2 = 19.99$ ,  $df = 1$ ,  $p < 0.000$ ) and current use ( $\chi^2 = 21.16$ ,  $df = 1$ ,  $p < 0.000$ ) showing that aggression reliably distinguished between users and non-user categories. The models explained between 2% (Cox and Snell R-square) and about 5% (Nagelkerke R-square) of the variance in cannabis use and prediction success was 86.1% and 87.9% for lifetime and 30 day cannabis use.

Parental attachment was a significant predictor and for every unit decrease, the likelihood of cannabis use increased by 4% for lifetime and current use as shown in table 7.11. The models explained between 5% (Cox and Snell R-square) and 9% (Nagelkerke R-square) of the variance in use with a prediction success of 85.7% and 87.4% respectively for lifetime and current use respectively. Parental attachment reliably differentiated users and non-users as shown by the test of the full model against baseline model for lifetime ( $\chi^2=36.31$ ,  $df=1$ ,  $p<0.000$ ) and current use ( $\chi^2=31.62$ ,  $df=1$ ,  $p<0.000$ ). The models fit well with Hosmer-Lemeshow test of ( $\chi^2=14.06$ ,  $df=8$ ,  $p<0.080$ ) for lifetime use and ( $\chi^2=15.10$ ,  $df=8$ ,  $p<0.057$ ) for current use.

Peer attachment was a significant predictor and for every unit decrease, the likelihood of cannabis use increased by 3 % for lifetime and current use. The models explained between 2% (Cox and Snell R-square) and 4% (Nagelkerke R-square) of the variance in use with a prediction success 86.1% and 87.9% for lifetime and current use respectively. Peer attachment reliably differentiated users and non-users as shown by the test of the full model against baseline model for lifetime ( $\chi^2=14.03$ ,  $df=1$ ,  $p<0.000$ ) and current use ( $\chi^2=11.72$ ,  $df=1$ ,  $p<0.001$ ). The models had a good fit with Hosmer-Lemeshow test of ( $\chi^2=6.03$ ,  $df=8$ ,  $p<0.644$ ) for lifetime use and ( $\chi^2=3.29$ ,  $df=8$ ,  $p<0.915$ ) for current use.

**Table 7.11. Logistic regression for cannabis use and continuous variables**

Independent variable	Dependent variable					
	Lifetime cannabis use (df =1)			30 day cannabis use (df =1)		
	Wald	Exp(B)	95% C.I	Wald	Exp(B)	95% C.I
Age	34.38	1.58	1.36-1.85	36.10	1.64	1.40-1.93
Sensation seeking	32.65***	1.10	1.06-1.13	33.30***	1.10	1.06-1.13
Aggression score	21.20***	1.04	1.02-1.05	22.66***	1.04	1.02-1.05
Total parental attachment	32.35***	.96	0.94-0.97	28.45***	.96	0.94-0.97
Total peer attachment	13.71***	.97	0.96-0.99	11.51***	.97	0.96-0.99

## **7.6. Binary logistic Regression**

Binary logistic regression was used to evaluate the relationship between cannabis use and independent variables selected in the study. Two models were set up using two dependent variables, namely lifetime use and past 30 day cannabis use, to capture factors associated with initiation and use of cannabis respectively. The third variable, 'reported use at any point' which was created to capture logical inconsistencies in the data by indicating the use of cannabis at any point in the data was also used as a dependent variable in a third model to compare the results. This comparison was considered necessary to evaluate the impact of inconsistent survey data on the regression model outcome. Robust standard error estimates using school as the cluster variable were obtained to adjust for the effect of clustering in the data.

### **7.6.1. Logistic regression analysis to obtain unadjusted odds ratios**

The first step to conducting a logistic regression was to test the bivariate relationships between the individual independent variables and the outcome variable logistic regression models to obtain unadjusted odds ratios and z estimates. The likelihood ratio (LR) chi square test and the Pearson chi square test are asymptotically equivalent, thus results obtained from the likelihood ratio tests were comparable to the Pearson's chi square tests earlier obtained in the bivariate analysis (section 7.5).

The significant relationships that were considered for the regression model are presented in table 7.12. The results from the continuous variables have been fully described in section 7.5.2. The peers of lifetime and current cannabis users were at least five times more likely to use cannabis and other substances than non-users. Fathers of participants who used cannabis were at least eight times more likely to use cannabis and their mothers were at least seven times more likely to use cannabis than non-users. The Logistic regression does not make any assumptions of normality so the logit of the continuous variables was tested for linearity, they showed linear relationships.

### **7.6.2. Model variable selection**

The p-values obtained from the regression analysis and the epidemiological importance of each variable provided a guide to selecting variables for the model. A baseline value of  $p < 0.25$  provides a guide for the inclusion criteria of variables into models to ensure that no significant variable is missed (Hosmer Jr and Lemeshow, 2004). Individual variables that do not appear to be associated with an outcome could become significant predictors when collectively evaluated with the dependent variable and when only variables with  $p < 0.05$  are added to the model, important variables may be missed (Hosmer Jr and Lemeshow, 2004). Age and gender were considered important demographic parameters and were included in multivariable models irrespective of their theorised or statistical importance (Katz, 2011). Due to limited sample size, only variables that were significant at 0.05 levels were included in the model.

There were more significant variables than the model could allow and thus a pragmatic approach was utilised in prioritising model variables. There are 133 lifetime cannabis users and 113 current users in the sample, thus only 11 variables could be included in the model using 10 events per variable as a guide. Parental and peer attachment scores were eliminated because they both reduce the sample size from 909 to 545 when included in a model. The variable, 'who they live with' was not included in the model because it had five subcategories and was difficult to categorise. The use of cannabis by peers and parents as an influence factor for cannabis use was considered more important than tobacco and alcohol use and thus these substances were eliminated.

**Table 7.12. Logistic regression with unadjusted individual variables**

Variable	30 day cannabis use		Lifetime cannabis use		Reported use at any point	
	Odds ratio/ 95%CI	Z	Odds ratio/ 95%CI	Z	Odds ratio/ 95%CI	Z
Age	1.64 (1.40-1.93)	6.01***	1.58(1.36-1.85)	5.86***	1.57 (1.35-1.83)	5.78***
Gender	0.57 (0.37-0.89)	-2.50**	0.55(0.36-0.82)	-2.89**	0.55 (0.37-0.83)	-2.86**
Peer cannabis Use	5.11 (3.38-7.74)	7.73***	5.24(3.56-7.72)	8.37***	5.14 (3.50-7.58)	8.30***
Peer other drugs use	5.49(3.60-8.39)	7.88***	5.46(3.66-8.16)	8.29***	5.36 (3.59-7.99)	8.22***
Peer stealing	2.98(1.96-4.51)	5.13***	2.87(1.95-4.22)	5.33***	2.85 (1.94-4.20)	5.31***
Father's cannabis use	8.24( 5.11-13.31)	8.64***	8.17(5.13-13.01)	8.85***	8.11(5.10-12.90)	8.85***
Mother's cannabis use	7.72 (4.71-12.65)	8.13***	8.58(5.29-13.90)	8.72***	8.10 (5.01-13.00)	8.60***
Aggressiveness	1.04( 1.02-1.05)	4.76***	1.03(1.01-1.05)	4.60***	1.03 (1.02-1.05)	4.57***
Sensation seeking	1.10( 1.07-1.14)	5.77***	1.09(1.06-1.13)	5.71***	1.09 (1.06-1.13)	5.66***
Availability of cannabis (difficult)	2.64(1.64-4.23)	4.02***	2.44(1.59-3.78)	4.05***	2.40 (1.55-3.69)	3.95***
Availability of cannabis (easy)	3.62 (2.13-6.17)	4.73***	3.10 (1.87-5.08)	4.43***	3.10 (1.87-5.06)	4.42***

### 7.6.3. Fitting the logistic regression model

Multicollinearity was tested using the variance inflation factor (VIF) to assesses the extent to which variance of the coefficient of the variables were inflated upwards to ensure standard errors and confidence intervals obtained were not biased (Hosmer Jr and Lemeshow, 2004). The cut-off point of 2.5 or greater was used as criteria for problematic multicollinearity (Hosmer Jr and Lemeshow, 2004, Katz, 2011). The highest VIF value in the data was 2.25 as shown in table 7.13. A correlation matrix of the coefficients of the model variables was also set up to assess multicollinearity with positive or negative correlations of greater than 0.9 indicative of problematic multicollinearity (Hosmer Jr and Lemeshow, 2004). The highest correlation in the matrix was 0.85. The results suggested that problematic multicollinearity was not present in the data although the test is limited because it cannot detect problematic relationships between three or more variables (Katz, 2011).

**Table 7.13. Multicollinearity test using the Variance Inflation Factor (VIF)**

Variable	30 day cannabis use		Lifetime cannabis use	
	VIF	1/VIF	VIF	1/VIF
Age	1.05	0.95	1.05	0.95
Gender	1.07	0.94	1.07	0.93
Peer cannabis use	1.36	0.73	1.36	0.74
Peer other drugs use	1.41	0.71	1.41	0.71
Peer stealing	1.21	0.83	1.21	0.83
Fathers cannabis use	2.25	0.44	2.22	0.45
Mothers cannabis use	2.19	0.45	2.15	0.47
Aggressiveness	1.22	0.82	1.22	0.82
Sensation seeking	1.16	0.86	1.16	0.86
Perceived cannabis availability	1.11	0.90	1.11	0.90
Mean VIF	1.40		1.40	

#### **7.6.4 Logistic regression results**

The logistic regression results showing comparisons between unadjusted and adjusted odds ratios for lifetime, current use and reported use at any point are presented in table 7.14. Age was a significant predictor of cannabis use in the three models. For every unit increase in age, the odds of using cannabis increase by 54%, 58% and 57% for current use, lifetime use and reported use at any point respectively. Gender was not significantly associated with cannabis use in all the models. Peer cannabis use significantly predicted cannabis use in all the models and the likelihood of cannabis use was doubled among participants whose peers used cannabis compared to those who did not. Participants whose peers had stolen before were significantly twice as likely to be current cannabis users or reported use at any point but this finding was not significant for lifetime users.

Peer use of other drugs such as cocaine was not associated with cannabis use in any of the models. The use of cannabis by participants' mothers significantly doubled the odds of lifetime and reported use at any point but not current use. Participants whose fathers used cannabis were two to three times more likely to use cannabis in all the models. Sensation seeking significantly increased the odds of cannabis use in all the models by 6% for every unit increase. Aggression was, however, not significantly associated with cannabis use in all the models. The perception that cannabis was easy to obtain significantly doubled the odds of current cannabis use compared to those who perceived obtaining cannabis as probably impossible. This finding was not significant for lifetime and reported use at any point. The perception that cannabis was difficult to obtain was not significant in any model.

In summary, age, peer cannabis use, father's cannabis use and sensation seeking were significant predictors in all the models. Peer stealing predicted other models but not lifetime use, mother's cannabis use predicted all models except current cannabis use and perception of cannabis availability only predicted current use. Reported use at any point predicted only factors that were predicted by either or both lifetime use and current use.

**Table 7.14. Odds ratio and confidence intervals for logistic regression for lifetime, past 30 days and reported use at any point**

Description	30 day cannabis use		Lifetime cannabis use		Reported use at any point	
	Unadjusted odds ratios	Adjusted model Odds ratio (95% CI)	Unadjusted odds ratios	Adjusted model Odds ratio (95% CI)	Unadjusted odds ratios	Adjusted model Odds ratio (95% CI)
Age	1.64 (1.40-1.93)***	1.54(1.272.00)***	1.58(1.36-1.85)***	1.40(1.12-1.81)**	1.57 (1.35-1.83)***	1.40 (1.14-1.81)**
Gender	0.57 (0.37-0.89)**	1.01(0.52-2.03)	0.55(0.36-0.82)**	0.69 (0.41-1.11)	0.55 (0.37-0.83)**	0.91 (0.53-1.58)
Peer cannabis use	5.11 (3.38-7.74)***	1.77 (1.06-2.50)**	5.24(3.56-7.72)***	1.90 (1.08- 3.02)**	5.14 (3.50-7.58)***	1.81 (1.00- 3.00)*
Peer stealing	2.98(1.96-4.51)***	1.84 (1.17-3.32)*	2.87(1.95-4.22)***	1.63(1.02-2.95)	2.85 (1.94-4.20)***	1.70 (1.16-2.78)*
Peer other drugs	5.49(3.60-8.39)***	1.88 (0.94-4.12)	5.46(3.66-8.16)***	1.78 (0.94-3.37)	5.36 (3.59-7.99)***	1.47 (0.88-2.70)
Cannabis use (mother)	7.72 (4.71-12.65)***	1.50 (0.80-2.39)	8.58(5.29-13.90)***	2.13 (1.26-3.25)**	8.10 (5.01-13.00)***	2.44 (1.53-3.43)***
cannabis use (father)	8.24( 5.11-13.31)***	2.67(1.39-5.39)**	8.17(5.13-13.01)***	2.81(1.63-5.25)**	8.11(5.10-12.90)***	2.42 (1.30-4.93)**
Aggression	1.04( 1.02-1.05)***	1.00 (0.99-1.03)	1.03(1.01-1.05)***	1.00 (0.98-1.02)	1.03 (1.02-1.05)***	1.00 (0.99-1.02)
Sensation seeking	1.10( 1.07-1.14) ***	1.06(1.04-1.10)***	1.09(1.06-1.13)***	1.06(1.03-1.07)***	1.09 (1.06-1.13)***	1.05(1.03-1.05)***
Availability of cannabis (difficult)	2.64(1.64-4.23)***	1.68 (0.89-3.78)	2.44(1.59-3.78)***	1.60 (0.75-3.92)	2.40 (1.55-3.69)***	1.56 (0.74-3.63)
Availability of cannabis(easy)	3.62 (2.13-6.17)***	1.82 (1.02-3.44)*	3.10 (1.87-5.08)***	1.56 (0.89-2.88)	3.10 (1.87-5.06)***	1.74 (0.88-3.630)

## 7.7. Evaluation of model fitness

The Pearson's goodness of fit was considered unreliable as it identified 744 covariate patterns in a sample with 764 observations as shown in Table 7.15. The Hosmer Lemeshow test showed that the model fitted the observed data well for lifetime and current cannabis use. The predictive power for both models as indicated by the area under the receiver operating characteristic curve (ROC) was 0.81 and 0.82 respectively for lifetime and 30 day cannabis use and this also suggested good model fitness and a high predictive power. The frequency of current users in the sample was 12.7%; thus it was assumed that 87.3% of all participants would be correctly classified as non-users. When all the variables were accounted for in the model, classification errors were estimated to be 11%. This implied that 89% of cases in the model were predicted correctly. The frequency of lifetime cannabis use in the sample was 14.8%; thus it is assumed that 85.2% of all participants are correctly classified as non-users. When all the variables are accounted for in the model, classification errors are estimated to be 12%. 88% of cases in the model were predicted correctly. The overall model fitness was considered to be satisfactory for the models evaluated for the survey.

**Table 7.15. Overall model evaluation for current and lifetime cannabis use**

Description		Lifetime use	30 days use
<b>Goodness of fit</b>	Number of observations	764	764
	Number of covariate patterns	744	744
	Pearson chi2	812.94	780.92
	Prob > chi2	0.019	0.098
<b>Hosmer-Lemeshow Test</b>	Number of observations	764	764
	Number of groups	10	10
	Hosmer- Lemeshow chi2	13.92	11.12
	Prob > chi2	0.084	0.1195
<b>Area under ROC curve</b>		0.81	0.82

## 7.8. Latent class analysis

### 7.8.1. Model selection

The latent class model was set up using variables which classified cannabis use patterns within the data to explore the relationship of these latent classes with factors associated with cannabis use (Reboussin et al., 2006). Model selection was guided not only by measures of fit but also theoretical corroboration of cannabis use patterns among young people and interpretability of the classes (Dziak et al., 2012, Sutfin et al., 2009).

The latent class analysis performed ensured that the number of classes chosen could explicably account for the relationships between variables being explored (Sutfin et al., 2009). It was anticipated that the latent class model would establish at least two classes based on cannabis use patterns ranging from non-use to heavy use and it commenced with setting up a two class model and continued until the most appropriate model was derived. The three class solution in this study was considered the most appropriate though the two class solution had the lowest Bayesian information criteria (BIC) value as shown in table 7.16. The Lo-Mendell-Rubin (LMR) p value was also significant for the three class solution and entropy was 0.99. Conditional model estimates obtained were used as a guide to allocating respondents' class membership guided by their reported cannabis use pattern (Sutfin et al., 2009). The model estimates, standard errors and p-values are presented in the appendix J.

**Table 7.16. Model fit for class solutions**

Model	AIC	BIC	P value	Entropy
2 classes	2287.6	2465.2	0.000	0.99
*3 classes	2211.73	2480.47	0.004	0.99
4 classes	2183.42	2543.35	0.81	0.98

BIC: Bayesian information criteria, AIC: Akaike Information criteria.

## **7.8.2. Description of latent classes**

**Class 1: non-users of cannabis (termed non-users).** There were 85.7% of respondents who were classified here. Respondents in this class are likely to be those who reported nonuse of cannabis. About 1.5% of people in this group appear to have inconsistently reported their use of cannabis. The class was named 'non-users' based on the predominant characteristics.

**Class 2: mild- moderate users (termed 'moderate' users).** There were 10.2% of respondents who were classified here. Those classified here were mainly respondents who had used cannabis between 1 -9 times in their lifetime, past 12 months and past 30 days. This class was named 'moderate users' based on the characteristics of the respondents.

**Class 3: Moderate-heavy users of cannabis (termed 'heavy' users).** There were 4% of respondents who were classified here. The respondents classified here constituted those who reported use of cannabis between 6- 40 or more times in their lifetime, 12 months and past 30 days. This class was named 'heavy users' based on the characteristics of the respondents in this class.

## **7.8.3. Associations between the latent classes and independent variables**

The latent classes were utilized as the outcome variables in bivariate and multinomial logistic regression analysis (Sutfin et al., 2009). Table 7.17 shows the bivariate relationships between the latent classes and variables in the study. The mean of heavy users was 17.83 (SD=1.36) compared to non-users which was 16.87 (SD=1.36). The difference between mean ages across the classes was significant. Males constituted the highest proportion in the three classes comprising over 75% of the heavy users though this was not significant statistically. There were no significant differences between the classes in terms of religion or perceived family wealth. There were statistical significant differences in perception of cannabis availability among the classes.

**Table 7.17. Relationship of the latent classes with independent variables**

Description	Parameter	Non-users	Moderate users	Heavy users	ANOVA/ Chi-square
Age	Mean (SD)	16.87 (1.36)	17.41 (1.24)	17.83 (1.36)	21.64***
Gender	Male (column %)	60.70	71.10	75.30	5.70
Religion	Islam (Column %)	63.00	61.40	76.50	2.70
Perceived family wealth	Well off	46.40	51.30	58.10	2.36
	Average	40.10	35.00	32.30	
	Not well off	13.40	13.80	9.70	
Perceived cannabis availability	Probably impossible	55.9	35.8	27.5	27.59***
	Difficult	30.30	38.3	40.00	
	Easy	13.8	25.9	34.3	
Peer cheating	Yes (column %)	56.90	68.70	65.70	5.05
Peer stealing	Yes (column %)	38.70	65.10	73.50	35.07***
Peer cannabis	Yes (column %)	23.20	59.00	71.40	79.56***
Mother's cannabis use	Yes (column %)	5.40	24.10	48.60	102.29***
Father's cannabis use	Yes (column %)	5.80	26.50	51.40	109.39***
Sensation seeking	Mean(SD)	17.66 (6.31)	20.83 (5.96)	22.82 (5.92)	18.31***
Aggression	Mean(SD)	10.93 (11.18)	16.36 (12.94)	19.37 (12.74)	14.75***
Parental attachment	Mean(SD)	99.52 (16.37)	89.87 (12.53)	88.61 (14.21)	15.02***
Peer attachment	Mean(SD)	84.39 (15.09)	78.60 (13.30)	79.30 (11.85)	5.68**

More than half of non-users perceived it was impossible to obtain cannabis compared to about one third of moderate and heavy users. Moderate and heavy users were more likely to report that it was easier to obtain cannabis and less likely to report that it was probably difficult to obtain cannabis than non-users. Stealing among participants' peers and peer use of cannabis was significantly associated with class membership but peer cheating was not. Almost three quarters of heavy users had peers who used cannabis compared with less than one third of non-users. Father and mother's cannabis use was significant with up to 50% of heavy users reporting their mothers or fathers used cannabis compared to about 5% of the non-users. Moderate and heavy users had higher sensation seeking and aggression scores than non-users and these findings were statistically significant. Scores for attachment to parent and peers were higher among non-users than heavy and moderate users and this was significant.

#### **7.8.4. Multinomial logistic regression**

Multinomial logistic regression analysis utilised the latent classes as the dependent variables using the non-user group as the base outcome (Feingold et al., 2014). As previously described, the effect of clustering within classrooms was taken into consideration (Sutfin et al., 2009). Robust standard errors were utilized to account for this effect in the model. Table 7.18 shows the relative risk ratio of class membership for the moderate and heavy group compared to the non-user group.

When compared to non-users, for every unit increase in age, the likelihood of being in the moderate and heavy user classes was higher by 48% and 54% respectively.

Members of the moderate and heavy groups were twice and three times as likely to have peers who use cannabis respectively. Sensation seeking significantly predicted membership of the moderate and heavy groups compared to the non-users with the odds being 4% and 9% respectively. Fathers of moderate and heavy users were significantly twice and six times more likely to use cannabis respectively than non-users. Peer stealing significantly predicted moderate use but not heavy use. Gender, aggression and perceived availability of cannabis were not significant predictors of class membership.

**Table 7.18. Multinomial logistic regression for latent classes**

	Moderate users		Heavy users	
	RRR	95% CI	RRR	95% CI
<b>Age</b>	1.48***	1.17-1.89	1.54*	1.08-2.20
<b>Gender (female)</b>	0.77	0.44-1.37	1.30	.53-3.17
<b>Peer cannabis use</b>	2.00**	1.30-3.10	3.06**	1.31-7.15
<b>Mother’s cannabis use</b>	1.48	0.89 -2.46	2.15	0.43- 10.71
<b>Father’s cannabis use</b>	2.52***	1.70-3.74	6.26**	1.46-26.78
<b>Peer stealing</b>	2.06*	1.03-4.10	2.30	0.78- 6.80
<b>Perceived availability (difficult)</b>	1.35	0.60-3.08	1.50	0.52-4.27
<b>Perceived availability (easy)</b>	1.60	0.91-2.83	2.15	0.81- 5.73
<b>Total aggression</b>	1.01	0.99-1.03	1.01	.97-1.04
<b>Sensation seeking</b>	1.04**	1.02-1.07	1.09**	1.03-1.16

## 7.9: Chapter summary

This chapter reported findings from the quantitative survey utilising dichotomised cannabis user and non-user categories to present demographic, bivariate and binary logistic regression analysis. Latent class analysis was utilised to classify varying levels of use and explore characteristic differences between non-users and moderate to heavy users. In addition, it accounted for logical inconsistencies in reporting the data.

Age, peer cannabis use, father’s cannabis use and sensation seeking were significant predictors in all the binary regression models and the latent class multinomial regression model. This implies that the same factors that consistently predicted use in the binary models also predicted use in the latent class model. The use of the latent class model not only reinforced the four consistent predictors in the binary models, it also highlighted key associations between heavy cannabis use compared with non-use.

## **Chapter 8: Qualitative results**

### **8.1. Chapter overview**

This chapter presents findings from interviews with young cannabis users that explored their motivations for the use of cannabis, the meanings they attached to use and the context of use. Although the topic guide did not set out to specifically explore issues relating to the impact of criminalisation on cannabis use, interviewees were inclined to discuss it because it was an issue at the time of the interviews. The TTI was utilised as an analytical framework for organising the themes that emerged from the interviews. The themes from the data are discussed within these headings as follows:

- Cannabis use and the sociocultural context: facilitators and barriers.
- Cannabis use and the social/interpersonal context: relationships.
- Cannabis use and intrapersonal factors: motivation and experience.
- Related behaviour: cannabis and cigarette smoking.

#### **8.1.1. Interviewees**

Demographic information about interviewees is presented in tables 8.1 and 8.2. A total of 32 males and 7 females aged between 16- 21 years were interviewed. Six out of the seven female interviewees interviewed completed secondary school; the seventh female interviewee dropped out of secondary school. Eight male interviewees completed secondary school, 6 were still in school and 18 had dropped out. Most interviewees smoked cigarettes and used alcohol in addition to cannabis. Reported age of initiation of cannabis ranged between 11 -17 years. The males tended to initiate cannabis earlier than the females with most males starting between ages 11-15 years and females from ages 15-17 years old. Although most interviewees were daily users, some others reported sporadic use with periods of abstinence for a wide range of reasons. Information about ethnicity was not obtained because the study settings were deeply multicultural. Twenty-five interviewees were Christians and fifteen were Muslims.

**Table 8.1. Interviewees' pseudonyms and demographic profiles**

Name	Interview	Age	Sex	Cigarette	Alcohol	Cannabis	Other drugs	School Status
Leo	Pair 1	16	Male	yes	yes	yes	no	finished
Bobby	Pair 1	19	Male	yes	yes	yes	no	finished
Soji	Pair 2	17	Male	yes	no	yes	no	finished
Caleb	Pair 2	18	Male	yes	yes	yes	no	dropped out
Sony	Pair 3	21	Male	yes	yes	yes	no	dropped out
Mike	Pair 3	21	Male	yes	yes	yes	no	dropped out
James	Pair 4	21	Male	yes	yes	yes	no	dropped out
Sonex	Pair 4	19	Male	yes	no	yes	no	dropped out
Wenger	Triad 1	19	Male	yes	yes	yes	no	finished
Swag	Triad 1	20	Male	yes	yes	yes	no	dropped out
Omoabe	Triad 1	20	Male	yes	yes	yes	no	dropped out
Mark	Triad 2	20	Male	yes	yes	yes	no	finished
Abebe	Triad 2	18	Male	yes	yes	yes	no	in school
Laba	Triad 2	17	Male	no	yes	yes	no	dropped out
Greg	Focus 1	20	Male	yes	yes	yes	no	finished
Polo	Focus 1	18	Male	yes	yes	yes	yes	dropped out
Peter	Focus 1	19	Male	yes	no	yes	no	dropped out
Bade	Focus 1	20	Male	no	yes	yes	no	dropped out
Solo	Focus 1	20	Male	yes	yes	yes	no	dropped out
Wisdom	Focus 1	19	Male	no	yes	yes	no	dropped out
Shisha	Focus 2	19	Male	yes	yes	yes	no	in school
Hugo	Focus 2	17	Male	yes	yes	yes	yes	in school
Rislar	Focus 2	18	Male	yes	yes	yes	no	in school
Richie	Focus 2	18	Male	yes	yes	yes	no	in school
Weedo	Focus 2	18	Male	yes	yes	yes	no	finished
Wale	Focus 2	16	Male	yes	yes	yes	no	dropped out
Osas	Focus 3	18	Male	yes	yes	yes	no	finished
Sam	Focus 3	17	Male	yes	yes	yes	yes	dropped out
Ojaba	Focus 3	18	Male	yes	yes	yes	no	dropped out
Chino	Focus 3	18	Male	yes	yes	yes	yes	dropped out
Obobo	Focus 3	17	Male	yes	yes	yes	yes	dropped out
Otunba	Focus 3	20	Male	yes	yes	yes	yes	in school
Becky	Individ 1	19	Female	yes	yes	yes	no	finished
Nicky	Individ 2	19	Female	yes	yes	yes	no	finished
Rosa	Individ 3	21	Female	Yes	Yes	yes	Yes	Finished
Jenny	Individ 4	20	Female	No	No	yes	Yes	Finished
Lizzy	Individ 5	21	Female	No	No	yes	no	Finished
Mary	Individ 6	19	Female	yes	no	yes	yes	finished
Okiki	Individ 7	18	Female	yes	yes	yes	no	dropped out

Quotes from individual and paired interviews were presented with the corresponding interviewee’s pseudonym. Focus group and triad interview quotes were presented with ‘P’ representing the response and they were labelled as ‘Interviewees’. ‘INT’ represented the interviewer’s quotes. Interviewees referred to cannabis in many ways including Igbo, Indian hemp, weed, smoke, marijuana and weeding.

**Table 8.2. Summary of interviewee characteristics**

Age	Gender		Total
	Male (32)	Female (7)	
16	2	-	2
17	5	-	5
18	9	1	10
19	6	3	9
20	7	1	8
21	3	2	5
In school	6	-	6
Finished school	8	6	14
Dropped out of school	18	1	19
Cannabis	32	7	39
cigarettes	29	5	34
alcohol	29	4	33
Live alone	14	2	16
lives with family	18	5	23

## 8.2. Cannabis use and the sociocultural context

### 8.2.1. Introduction

Interviewees' accounts of their daily lives were intrinsically linked with their settings and situations within their milieu. Their experiences mirrored contextual opportunities for the use of cannabis and were related to vulnerabilities expressed. Although all interviewees used cannabis, factors within their settings were probable restraints in the form of social support or controls. These factors, however, did not act alone as there were other factors at individual and social level that were associated with transitions within their lives cannabis use. The facilitators and probable barriers to cannabis use are shown in figure 8.1 and discussed in next sections.

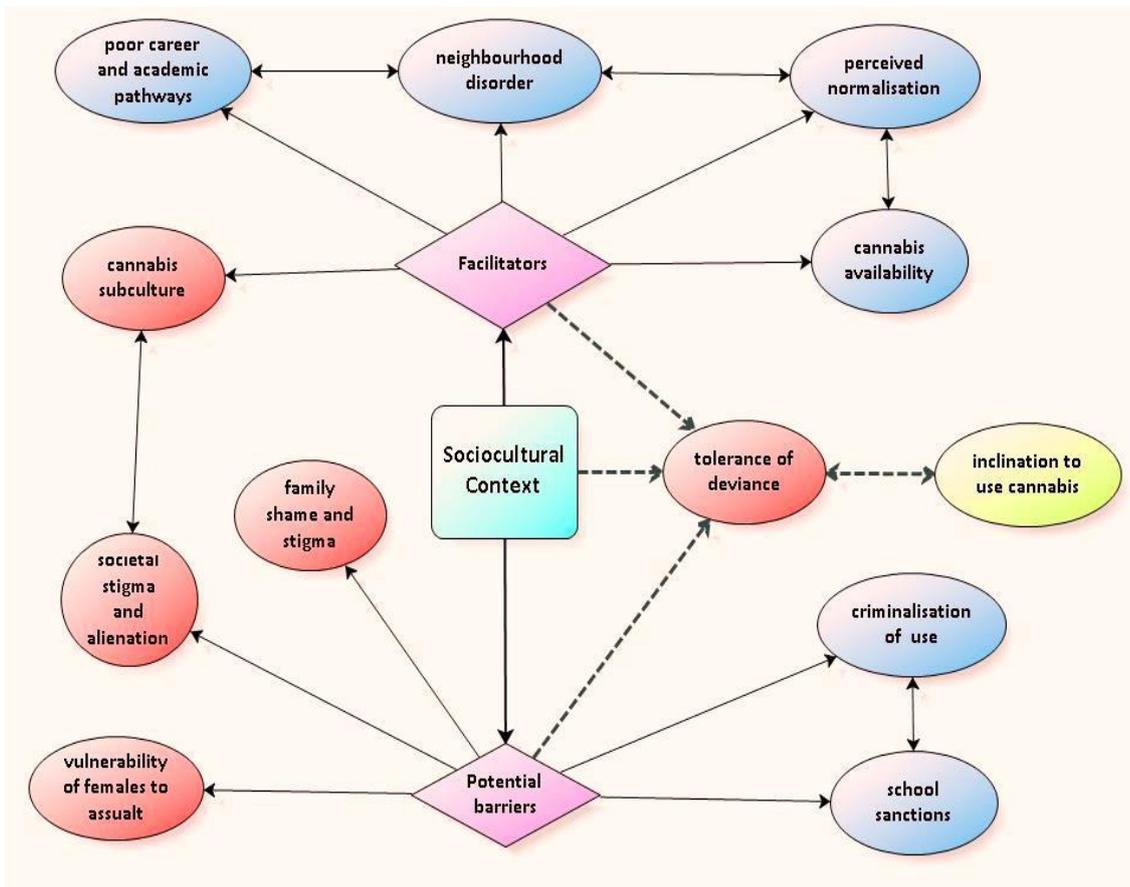


Figure 8.1. Thematic map for sociocultural context.

TTI ultimate level themes (blue), distal level themes (red), Proximal level themes (light green). Final pathways are represented with broken lines.

## **8.2.2. Facilitators: cannabis is normalised within the context**

The interviewees' account of normalisation was considered contextual because the emerging subthemes explored the nuances within their sociocultural setting. Conceptions of cannabis use in different situations were linked with significant changes occurring in the sociocultural context.

### **8.2.2.1. Cannabis use is normal culture**

#### **Cannabis is everywhere and used by everyone**

Most interviewees viewed cannabis use as a widespread activity that cut across all strata of society and they reckoned their use as part of a much bigger picture. This culture of cannabis use was presumed to extend to wider society although it was not apparent because use was mainly concealed activity. Words such as 'everyone' and 'everywhere' were frequently used to describe those who used cannabis and where it was obtained respectively. The perception that cannabis use was an all-inclusive activity within Nigeria was shared by male and female interviewees and its use was rationalised as trivial because it was considered conventional in their settings.

*It is everywhere, what are you saying? --- So if you want to come and help, then you are helping the entire population of Nigeria because every tom, dick and harry smoke... it is not a big deal.*

**Becky, Female 1.**

*The ghetto that we are now ha! (...). In short it will be everybody that will be smoking.*

**Leo, Male, Pair 1**

#### **Role models use it**

Most interviewees perceived they were part of a 'cannabis world' made up of a network of diverse people such as artists, celebrities, young and old people who all related to the basic conventions of a dynamic cannabis culture. This culture shaped how cannabis was viewed, used and positioned within mainstream society. The image of cannabis depicted pleasure, leisure and creativity especially since interviewees identified with role models who used it. The use of cannabis by role models was considered as validation of its efficacy because it was assumed that these role models were worthy of emulation. Successful musicians who used cannabis served as a reference point for some interviewees who were interested in music careers. More

importantly, this concept opened up cannabis use as a possibility because they anticipated its value in building a desired future in entertainment. The use of cannabis by singers was considered a validation that the inspiration to create a good piece of music came from cannabis.

*If you look all those singers... thousands of them they smoke, they drink...Yes, when they drink and smoke, the inspiration will come (...). The inspiration will come so they will keep on saying rubbish say this, say that. So immediately after that, they will now sat down and check their recorder, check everything, they will now put it together one by one...* **Interviewee, Male, Triad 1**

### **Cannabis has versatile uses**

The negative press about cannabis in wider society was considered to be due to lack of understanding about its uses and ubiquity. Many interviewees identified with the versatile uses of cannabis for skincare, as a spice or medicine. Cannabis was not regarded as a big deal because some claimed it was a substance historically used for medicinal purpose in villages until it was later transformed to something that could also be smoked.

*What are you saying it is not a big deal...do you understand? I tell you seriously do you understand (...)? We have 12 years old, thirteen years old that smoke Igbo. Some people don't smoke the Igbo they now chew it, the ones that don't chew it use it to cook beans and the ones that don't use it to cook beans use it to drink tea.* **Becky, Female 1**

Cannabis occupied a middle ground between legal and illegal substances. The perception of cannabis as a natural substance possibly because it was widely grown in Nigeria made some interviewees view it as much safer than heroin and cocaine. Heroin users were referred to as 'junkies' and it was considered a very bad substance to use. Although cigarette was legal, it was not viewed as a multipurpose substance like cannabis. When interviewees compared cannabis with 'drugs' (heroin and cocaine) and cigarettes, cannabis was viewed as the most adaptable and valuable substance.

*Igbo e don tey (has been in) our village (...), they used to drink it because it is good for body, when we went to Lagos... now change it to (something you can) smoke. Igbo is a good thing.....A very bad thing in this life is drug and cigarette.*

**Soji, Male, Pair 2**

### **The extent of use is widening**

Cannabis was not only considered to be widespread, the scope of its use was presumed to be widening to include 'educated' people and women. Among most male interviewees, cannabis use was regarded as evolving from being a predominantly male activity to include females. Cannabis use among females was previously perceived to be limited to commercial sex workers who used it to embolden themselves for commercial sex work. Although some male interviewees didn't seem to understand why educated females were using cannabis, they viewed it as sign that cannabis was becoming more inclusive. Similarly, its use among married women and the elderly were considered new trends and the broadening scope of users beyond the regular social structures was perceived as an indication of normalisation.

*Bobby: The last time I went to (...) my friend place I just see some girls upstairs (...) they were smoking weed. It's just like wow! I just asked my friend 'Are they all these prostitutes?' He said one girl she's there she's a doctor --- So it's just like a doctor, very pretty girl, all of them they look pretty. They are well educated, I don't know what they were seeing there (in cannabis), but I know...*

*Leo: We do see a woman that is married smoking, we do see husband and wife smoking, we do see papa old de (old men) smoke so in this situation, this century that we are, many people will be smoking if care is not taken.*

**Bobby and Leo, Males, Pair 1**

With respect to cannabis use among males, there was tendency to generalise that all boys used it and it was activity that people saw themselves joining in to do rather than standing out as lone users. The concept of joining in when cannabis was initiated rather than standing out made interviewees view themselves as part of an infinite network of users. There was a tendency to overstate the perceived level of cannabis

use, conceiving a picture that the use of cannabis was an all-inclusive a norm. Interviewees typically revised their assumptions of the scope of cannabis use downwards when probed further. The perception that cannabis was used by 'all' boys provided a basis to deemphasize the impact of stigmatisation of the behaviour.

*P: No be our only small boys dey smoke (it is not only small boys like us that smoke).*

*P: All...all boys smoke.*

*INT: All boys smoke? All?*

*P: 90% in this Island, 90% [cross talk]*

*P: All office men (men in formal employment), they are smoking it [cross talk]*

### ***Interviewees, Males, Focus 3***

#### **Within the cannabis subculture, there is a shared language**

The vocabularies used by interviewees' portrayed cannabis as part of everyday lifestyle. The use of a shared slang language within their networks facilitated covert information exchange about cannabis activities and a sense of belonging to a vibrant community. In a broader sense, it promoted identity and discussions relating to shared interests which were at variance to mainstream culture. The words 'weed' and 'weeding' were common slangs used by interviewees to refer to their cannabis activities.

*P: Okay I just want to be in the hostel I want to weed...*

*INT: What do you mean by weed?*

*P: As in, I just want to get myself high. That's what we normally.... we don't call it marijuana in school maybe it's weed ....because of the teachers (...). But when it is time for weed, everybody will just sneak out (...). We normally go to our play ball ground to do something like that. When it is (time), you that already know the slang language, you will just sneak out. **Interviewee, Male, Triad 1***

### 8.2.2.2. Cannabis is available and accessible

#### Cannabis is easy to obtain and very cheap

There was a consensus among interviewees that cannabis was readily available and accessible and no arduous effort was required to obtain it when needed. Interviewees who grew up in neighbourhoods where cannabis was hardly used or sold affiliated themselves with settings where it could be easily obtained. Cannabis was described as so widespread in some areas that parents didn't allow their children to play outside their homes. The widespread availability of cannabis did not mean that interviewees used it indiscriminately outside their familiar social settings. Some areas were known to deal cannabis in wholesale quantities and there were different hierarchical levels of cannabis dealers. The entire value chain from wholesale to retail was sometimes present in some neighbourhoods.

*INT: How easy is it for you to get Igbo to smoke?*

*P: It is very easy [cross talk]*

*P: they sell it... in our area (...)*

*P: It is not too difficult to get it... to see it (...)*

*P: Yes.... It is easy (...).*

***Interviewees, Males, Triad 1***

In addition to being available, cannabis was also described as being relatively cheap. Cost did not appear to pose a barrier to obtaining cannabis because several interviewees not only reported being able to afford 50 naira ( 20 pence) to purchase a wrap of cannabis but also had friends who could obtain it for them when they lacked money. Although there was a tendency for interviewees to assert that their primary motivation for use was the value of cannabis in their lives, the low cost appeared to make it easier to use. The interviewees' social networks guaranteed steady supply when it was occasionally in short supply especially during drug raids.

*I mean... The money is easy to get. It is 50 naira (approx. 20 pence). It is not too hard for me to get (...). She (my friend) used to get it for me if I need, if I am*

*short of money (...), she must get it. I don't know how she gets the money, but it is not too expensive...*

**Mary, Female 6**

*Igbo is just 50 naira in Nigeria now. Very cheap they can even dash you (give you for free). Anywhere what are you saying?, I will take you somewhere ehh! (Exclaims) You will see from house 1 to house 70, fifty houses are selling Igbo.*

**Becky, Female 1**

### **We sell cannabis**

Some interviewees sold cannabis and other substances as a mean of sustenance because they were jobless and it was profitable to do so. There were several levels of drug dealing as described by interviewees and the big time dealers were invisible at street level. This provided opportunities for young cannabis users to retail small amounts they purchased from low-level dealers as they didn't need to have a shop. They took cannabis around with them and sold it clandestinely in parties, leisure centres and other social settings making it as close to the user as possible and integrating use with everyday activities. Cannabis sellers also facilitated steady supply of cannabis within social networks and selling was a predominantly male activity as no female sold cannabis. Cannabis was usually not sold in isolation; other substances both legal and illegal were sold along with it.

*P: I am selling... something like gbana, cocaine (...), Igbo.*

*P: They are selling weed [Cross talk]*

*P: I sell smoke (cannabis), I sell ogogoro (local gin) and Chelsea and cigar (...).*

*We are selling... Weed. Only weed they are selling (...).*

*P: and... Cocaine*

**Interviewees, Males, Focus 3**

### **We share cannabis**

Some interviewees expressed the fact that they smoked in groups as a way of ensuring steady supply. Most female interviewees discussed obtaining cannabis through their boyfriends who they frequently smoked with or other third parties to mitigate the risk of doing so themselves. Cannabis was at the core of the group relationship and it

defined the ground rules for group activity. Inherent in the expectation that cannabis had to be shared within the group was the need to ensure everyone had it to use in order to share the experience. This group style of sharing was remarkable because the same friends who shared cannabis did not share food. Sharing other things including food was not considered expedient as these did not contribute to the experience of sustaining cannabis use. A few interviewees did not want to risk sharing the cannabis they bought with their money and preferred to smoke it alone. Within the groups, after sharing cannabis, those who were hungry considered other options available to get food such as stealing.

*If you see person near you (...) smoke, it is easy to give you the smoke but if it is food to eat he won't give you (...).The reason why they share smoke is that if they share the smoke with you, they even believe that if you too get smoke another day you will also share the smoke with them (...). If you smoke finish now, you begin to hungry; no one would give you food so you may find way to find something to steal to chop (eat).*

**Sonex, Male, Pair 4**

### **8.2.2.3. Cannabis use is embedded in our social settings**

#### **Cannabis is initiated in social settings**

Interviewees' accounts relayed the central role their neighbourhoods played in their lived experiences. Experiences were shaped by the wider neighbourhood context and this included social settings such as beaches, sports fields and joints. Some residential neighbourhoods were described as being taken over by smoking activities either because there were drug joints within them or there were diffuse smoking spots on the streets. Initiation of cannabis was commonly mentioned around beaches and sports centres although these settings were previously associated with family relaxation. Cannabis was also offered in parties and it was freely passed around for guests along with a wide range of substances or mixed with drinks. The fact that it was sold and passed around in sports settings reinforced interviewees' assertion that cannabis use was an integral part of leisure.

*The day we went to Oniru beach and we saw some guys smoking and we too we have to buy and smoke that is the day I started to be smoking.*

**Interviewee, Male, Focus 2**

*I went to party with my friends so.... I normally drink alcohol, during that time we are using palm wine so they mix that palm wine with Igbo (cannabis). So when I take palm wine round one, they bring cigarette, they bring Igbo, anyone that you like...*

**Interviewee, Male, Triad 1**

*They sell marijuana in my house that's why I started smoking. I teach myself, I find a paper just put the lighter started smoking.*

**Interviewee, Male, Focus 3**

**The influence of our neighbourhoods**

Although most male interviewees asserted that the neighbourhoods they were exposed to shaped their perspectives about cannabis use, a few felt that their individual agency played an overarching role. The females on the other hand discussed more about personal issues and relationships shaping their perspectives about cannabis than their neighbourhood. The male interviewees viewed growing up in their settings as a barrier to actualising their potential. This was because they felt compelled to conform to the predominant street culture of crime and associated cannabis use exhibited in their neighbourhoods. The internal fortitude required to overcome external environmental influence was weakened by pressure from the overwhelming majority that engaged in deviant activities. The perceived lack of control over situations in their settings was complicated by the fact that cannabis was described commonly in settings characterised by street gangs, violence and crime. Changing their neighbourhoods was usually not feasible and too late because they were already drawn to conform to negative situations before they realised the need to leave.

*My growing up was very tough, yes... tough (...). In our road, we can easily get initiated with those bad things because (...), we are surrounded with bad things (...). If there is another name for ghetto I would have used it for our area because you can easily get along with them. Because almost 80% in our street... Before you see someone responsible in our area, from 100% you can see maybe 20%. Before you can be yourself or try to be responsible I think you have to move out of our area because in our area you will not be able to think forward,*

*(...), you will not be able to think about your present now talk less about your future.*

**Interviewee, Male, Triad 1**

A few interviewees, however, had contrary views about how their neighbourhoods had shaped their lives and viewed their exposure to settings where fighting and gang activities were rife as positive experiences. According to them, such occurrences provided a unique opportunity for them to build tenacity to handle tough situations in the future. Such violent settings were viewed as training grounds for the future and a tool managing boredom which was a situation they also dreaded. Quiet and organised neighbourhoods were viewed as weak and uninspiring and it was assumed that children from such neighbourhoods could not compete with those from rough ones. The experience of living in disordered neighbourhoods was perceived as essential for survival in an increasingly challenging society where self-defence was imperative.

*Concerning the area I grew up, I will say the area is a good area, good to those who have not been in the area before because... If you stay in the area where nothing is happening, where you do not do anything bad, you will continue getting dull. But by the time you stay in an area, very rugged and rough (...) and you move from that area to (an) estate, those cool areas, you will see some certain difference staying (...) in rugged area than those that live in estate. As in the way they fight, you can't just come to this area and chance even a child of 10 years old. Instead that very small boy of 10 years old will be chancing him.*

*You get ahead; you know more about the world.* **Interviewee, Male, Focus 1**

The concept of 'good' and 'bad' settings related more to interviewees' perceptions than to societal definitions of good and bad. The feeling of helplessness or lack of control over neighbourhood situations may possibly have progressed to a point where these interviewees accepted them and then subsequently advocated them as positive. They may otherwise have been conditioned to accept their experiences as normal and consequently developed positive expectancies. The positive descriptions of the utility of living in a 'bad' neighbourhood may innately be survival strategies not only to deal with the pressures of living there but to avoid being judged for actions considered deviant. Seeing cannabis being continuously used and sold may contribute to greater

tolerance and acceptance of its use. There was something deeply significant about the constant observation of smoking and violence that transformed the disposition towards them.

*If you are kid that has not been to a place like this (a bad neighbourhood), you have not seen a person (...) smoking in your front, where they are drinking, where they do fight always (...). Like in the school where I am, we have some people that have not been in war front where they are even cutting someone's hands. So in that place if (...) you just see a guy with gun in your presence, (...) many people do faint.... I stayed in a rugged and rough area than what they are behaving in school...to me I will have that confidence that nothing is happening.*

***Interviewee, Male, Focus 1***

As earlier stated, interviewees who realised that the experience they desired was absent in their neighbourhoods sought them out in other places and the insulation provided by their settings became irrelevant. The motivations to seek those experiences emanated from positive expectancies relating to the utility or thrill the adventures purportedly offered. Although this quest sometimes involved leaving home to live with friends in the desired neighbourhoods or live on the street, this move was perceived as necessary to gain access to a desired setting. Gaining access often required using cannabis and this was common among females who were experiencing family conflicts.

*The neighbourhood I grew up in, they don't even sell it (cannabis) there. Do you understand? I just ran into the street, I just wanted to see life that's how I got into everything... Do you understand? Where I come from I am not used to...you understand... that's good girl gone bad that kind of thing... You understand.*

***Becky, Female 1***

Occasionally, interviewees were ambivalent about the impact their neighbourhoods had on their personal lives. They were unsure about the level of influence their neighbourhoods had on them and in some cases were convinced that their decisions reflected personal agency. The commonality for such interviewees was that they grew

up in neighbourhoods where cannabis use and associated activities were so deeply embedded that they were viewed with a sense of normalcy. Although they identified with drug joints and street gangs in their neighbourhoods, they entertained the possibility that chance and choice were more important determinants than the neighbourhood influence.

*I grew up (...) in the place (that) is very rugged; around 10pm in the night you meet bad boys outside smoking, drinking. Sometimes you meet some girls, all of, everybody anytime from 10-11pm you meet us outside we'll be smoking, drinking doing any kind of things disturbing the environment. That's how we used to do (...). Where I grew up affected me and where I grew up did not affect me because (...) I want to join them... the kind of life they want to live.* **Mike, Male, Pair 3**

The tendency to grow into the neighbourhood culture was expressed by many interviewees who believed that the future of young people was defined by their neighbourhood. Girls in those settings were reported as growing up to become commercial sex workers and boys to engage in violent behaviour. Interviewees asserted that people were compelled to conform to the predominant situations within their communities and the initiation of cannabis was viewed as a part of the spectrum.

*P: Ghetto life... Small girls doing 'ashawo'<sup>4</sup> (...).*

*P: I can't put my baby I can't put it in this island (...) It is fighting, smoking.*

*P: if you born ( give birth to ) a male child I believe that by the end of... when the child grow up he is going to be carrying like maybe cutlass up and down because he's going to start fighting.... When you give birth to a female, I believe that by growing up...Do 'ashawo'... [Cross talk].* **Interviewees, Male, Focus 3**

*A child growing up there..... Will start smoking and... will go find trouble.*

**Interviewee, Male, Triad 2**

---

<sup>4</sup> Ashawo is a street word for prostitute in Nigeria.

### **The smell of cannabis in these settings is a powerful motivator**

Interviewees who were constantly exposed to the odour of cannabis in their settings described it as a powerful motivator for subsequent initiation and use in areas where its odour was constantly perceived. They reported feeling high after smelling cannabis and experiencing physical changes such as reddening of the eyes. Some described deliberately hanging out with those who used cannabis to inhale it while they contemplated experimentation. In neighbourhoods where cannabis use was embedded, the smoke could be perceived all day and prior to initiation some interviewees inhaled more cannabis by hanging around their street than the actual users. Continuous exposure to second hand cannabis smoke resulted in mastery, awareness of its addictive potential and subsequent confidence to use cannabis.

*There is no where you can enter in my area now (...). Whether morning, afternoon, evening or night or even in the midnight (...), you will feel that smoke because the smoke will come out from somewhere. There is no how even if you can do it, even if you say I am not smoking... we know sometimes some people that stand beside them take more than the people that smoke it.*

#### ***Interviewee, Male, Triad 1***

*It really affect a lot of people because if ... you don't really want to take the real weed whenever you are inside you started hearing the aroma as in the odour, or the smell you will feel (...). So you are not the one taking the weed but whenever you perceive the odour it makes you feel high, you will now say that this thing these people are taking let me just test it. It has a stuff called codeine so it keeps you addicted to it, so whenever you take it is in your blood.*

#### ***Interviewee, Male, Focus 2***

### **8.2.3. Probable restraints from cannabis use within the sociocultural context.**

Some factors within interviewees' sociocultural context appeared to restrain the use of cannabis. This did not necessarily mean that interviewees stopped using cannabis as a result of these factors, but they understood the fact that it placed limitations on their use and identity in the long term.

### **8.2.3.1. Law enforcement.**

Interviewees viewed the hassles with the National Drug Law Enforcement Agency (NDLEA) special taskforce who regularly conducted drug raids along with the police as a major barrier to the seamless use of cannabis. There was a lot of suspicion and mistrust between users, dealers and the law enforcement officials (police and task force). Interviewees views about law enforcement and cannabis use related to their experiences or information they shared with peers. Although these hassles were considered probable restraints to cannabis use, the overall prospect about future use was positive.

#### **The 'cannabis user' stereotype**

Most interviewees reported that cannabis users were selectively targeted by law enforcement officials. These officials were believed to have created a mental picture of the 'typical cannabis user appearance' which guided them in identifying who to arrest when they conducted raids. Although officials frequently arrested anyone in sight, the stereotype of the typical cannabis user was a rough, unkempt and arrogant person. Cannabis users who lived on the streets were reportedly more likely to be arrested than those who were still in school because there was a greater chance that they looked like the stereotype. In-school cannabis users were perceived to be heavier users than out of school users who lived on the streets but they got into less trouble because they looked 'clean'. The lack of uniformity in the way the arrests and detention were carried out made it more difficult for interviewees to take proactive measures to avoid arrest.

*When they are raiding they arrest anybody they see. They even look face (judge people by their looks), if this face is arrogant or not. You may not.... take the right people (...) because you may see another person, his face may be like arrogant but he might not be arrogant. And some, their face may be clear and clean. Some guys they are even in school, all those students (...) they take smoke more than the person living outside life (living on the streets). They even like smoke more (...) so to arrest any person on the road that one does not mean (that a) person smokes or not...*

**Sonex, Male, Pair 4**

Cannabis users were also perceived as criminals because those that didn't have jobs were presumed to survive by engaging in criminal activities. Two distinct categories of cannabis users were identified in the interviews. The first category described themselves as regular cannabis users who did not engage in any form of criminal activity. The second category was cannabis users who also belonged to gangs, engaged in criminal activities and were predominantly male as no female interviewee engaged in gang activities. Some regular cannabis users who didn't have jobs reported that although they didn't have jobs, they did not engage in criminal activities. Unfortunately cannabis users who were not involved in anything criminal had a greater risk of being arrested during raids than criminals because the criminals were more discreet in their movement and were able to evade arrests.

*Not all of us that used to work among us, some used to go and thief (steal), some used to do bad things. So people that did not know anything, maybe just came to smoke (at the joint), task force may enter. People that used to do those kind of bad things they did not used to catch them, but you that did not know anything you just go there (to the joint) to say you want to relax and smoke, they may enter just carry (arrest) you. **Sony, Male, Pair 3***

### **Cannabis users are arrested and detained**

When cannabis users were arrested by law enforcement, they could be locked up for up to one year unless their families arrange funds to bail them out of detention. Those whose families could afford between 30-40,000 naira (£ 100-130) were released and others who couldn't were locked up for periods ranging from 6 months to one year. Some interviewees had been repeatedly arrested, detained and bailed out by their families. The money paid to the police was described as bribe because the funds were presumed to end up in personal pockets and were neither funds prescribed by the system nor funds utilised to do anything relating to the arrest. Interviewees dreaded being arrested because that was the common avenue through which their families got to know about their use of cannabis. Concealing cannabis use from their families was difficult after they had been arrested by law enforcement.

*We stopped somewhere to buy ...Indian hemp, we did not know they were following us (...) they came around and searched us (...). I never saw anything like that. My mum freaked out...she didn't believe it; she was so ashamed of me. Nigerian police! You must pay money now, egunje<sup>5</sup>, ahhh!. You think if you don't pay money on us they will release us? If not they will they easily take advantage of us? Thirty to forty thousand naira (£100-130). When they caught me I called my family immediately (...). Do you understand and the entire heart ache it did for my mum? Three occasions where I get caught up with the law enforcement agencies, you know being caught with marijuana...My mum had to come to down to the station to bail me... I know how she feels really hurt anytime she comes down there to get me.*

**Becky, Female 1**

In instances where interviewees couldn't afford to come up with the bail amount, they were forced to resort to illegal activities to pay it. Some interviewees were either not in contact with their families or knew their families couldn't afford to pay.

*And they arrest my brother (...), they say I should I go and find 30,000 naira (approx. £100). But there is no chance for me to get money... My friend just tells me I should go to the place (...) that they hustle<sup>6</sup>. I go there and I hustle but I get 15,000. The money (...) remain now is 15,000. **Oki, Female 7***

Drug dealers were depicted as powerful, well connected and invincible people in contrast to users who were weak, vulnerable young people at the lowest rung of the value chain. Dealers could not be 'seen' on the streets because there were several levels of middlemen and only low level retail sellers sold cannabis on the streets. The dealers also got tip offs and were able to alert their retailers to escape before the drug raids. The implication of this huge disparity was that despite the fact that both users and dealers were engaged in illegal activities, it was only the users that law enforcement targeted. It was considered a paradox that the dealers who sustained the

---

<sup>5</sup> Egunje: is slang used for bribes or kickbacks in the Yoruba tribe of Nigeria.

<sup>6</sup> Hustle: In Nigeria it means to struggle for survival but in this context refers to paid sex work.

availability of cannabis which was illegal were immune to arrests while the end users were at risk of being arrested. Interviewees presumed they were targeted because they were vulnerable and had no defence except to strategize and escape before their locations were raided although the raids were unpredictable.

*Mike: It is not very easy to catch the dealer because the dealers with the police are working together.*

*Sony: The dealer used to settle (bribe) police...*

*Mike: The police know the dealers and the dealers know the police. They will settle themselves. It is the people that are smoking they are always catching .... Not the people that are selling it.*

*Sony: Police cannot see the dealer. The dealer that is selling smoke will be watching. The taskforce used to pursue us; they used to come in the midnight... Everybody has slept (...) they will just come, raid anybody.*

### **Mike and Sony, Males, Pair 3**

#### **The dealers must identify the users before they sell**

Although there was a consensus on the fact that cannabis was easy to get, the users had to be known and identified by sellers. Discretion was needed to obtain cannabis because if sellers were suspicious, they would not sell as there were issues about gaining and maintaining trust. The ease of obtaining cannabis was thus related to being identified as a known cannabis user because police informants could pose as buyers to uncover trafficking rings. The need to be known and recognised before buying cannabis further reflected the open, yet closed nature of cannabis dealing. There was also the need to belong to a network that incorporated the users and the sellers as identification was a risk management strategy.

*P: If you are a new face (...), they won't sell it for you because they don't know who you are....*

*P: there is something...they may think you are from SSS... [Cross talk]*

*P: they may think you are informant....*

*P: Maybe you are from police or a spy.*

*INT: Does police arrest people smoking cannabis?*

*P: Yes they normally arrest them.*

*P: It is either they go and lock them up or they collect money from them and release them.*

**Interviewees, Male, Triad 1**

### **Criminalisation of cannabis does not necessarily deter use**

Despite the problems relating to law enforcement and frustration that interviewees felt relating to their identity as users, most of them were not contemplating stopping. Some were not contemplating stopping because of law enforcement as they had weightier issues to deal with relating to the use of cannabis as a coping strategy or dependence on it for daily functioning. The threat of law enforcement appeared to affect the prospect of long term use due to the need to conceal use and devise strategies to evade arrests. Stopping cannabis was widely recognised by interviewees as very difficult because in addition to being dependent, cannabis connected them to vital networks for support and sustenance of use. Some interviewees described situations where they or their friends had been detained for up to six months and after being released began to use cannabis immediately and their social networks served as hubs for sharing such information.

*Most people that are smoking they don't think about NDLEA because they have nothing to do with them (...). If you have started a smoke, to leave the smoke will be hard for you (...). If they catch you, carry you to prison, very soon they will still leave you. One of our guys they catch am (arrested him) last month, they release the guy yesterday. He shares the experience he gained in that prison with us yesterday. He tells us that in the prison there is no smoke, (...), but immediately he come out, the first thing he did is that he bought the smoke; he wrapped the smoke and smoked (...). To leave smoke is hard. But if to say NDLEA catch you and they even leave you after five months, if you will you come back you will come meet the smoke again and you will still continue with your smoke.*

**Sonex, Male, Pair 4**

Although some interviewees appeared ambivalent about stopping cannabis because of the problems relating to criminalisation, they expressed valid concerns about being unpredictably harassed by police. Once they were arrested, interviewees' families were informed and the whole family became stigmatised when it was public knowledge that they had a cannabis user. Although issues relating to family reputation were key concerns, interviewees who had been repeatedly detained reported that it was hard to stop using cannabis.

*Police harassment makes people to decide to stop or make them stop smoking (...). Some people do not like harassment, maybe they are walking on the way, police stop them, start checking their pocket maybe they see cigarette or they see Igbo (...). If police see risla (a brand of rolling paper) in your pocket, police will know you have been smoking, so police harassment makes some people to stop. Police does not make some people to stop; police harassment is not affecting them because of their determination that, if police stops them or not (...) they will continue smoking. Some people, they do not like anything (hisses) that will stain them, anything that will stain their family... this person is in the police station O! Let us go and bail him O! That's what makes some people to stop smoking.*

**Mike, Male, Pair 3**

### **8.2.3.2. Cannabis use is unacceptable in schools**

Smoking was considered unacceptable in schools and students who were caught smoking were not only expelled but had problems getting into other schools. Although some students risked smoking in school, there was a general consensus that smoking in school premises or while wearing the school uniform was bad because uniforms were seen as a symbol of law and order. There were different layers of arbitrary boundaries that were set with respect to cannabis use to bridge the gap between the law and what they considered acceptable.

*P: Smoking in school is bad ability, I see some people smoking in school which is not right (...) during the school hour or in the school, it is very, very bad.*

*P: Smoking inside the school compound is illegal. It is not good (...). But when you get home after the school hour, you can branch anywhere and smoke....*

*Smoking in school uniform is also bad. You can go home and go and put off your school uniform, wear your house wear and go and smoke anywhere.*

***Interviewees, Male, Focus 2***

Apart from risking expulsion from school, the entire future career could be jeopardized because schools communicated reasons for expulsion among themselves. In addition, the shame associated with expulsion and involving family diminished the possibility that expelled students would be able to go back to school. It was acknowledged that the use of cannabis had to be covered up from the school authorities because of the potential it had to destroy future prospects.

*P: If you smoke in school they can expel you or give you a suspension.*

*P: I see some of my friends smoking in school and I look at them that is not good. I also smoke.... But in school they will spoil all you have been covering from some years from JSS 1(first year in high school). When you are in SS3 (final year), you want to pass out they will say this guy is smoking they will just spoil your entire career. From there you will just be going from one place to another looking for school... and they will ask 'what happen in your former school?'...you will now tell them...so I don't like it smoking in school.*

***Interviewees, Male, Focus 2***

**8.2.3.3. Cannabis users, society and the 'criminal identity'**

Interviewees expressed concern that they were viewed by society as criminals despite wanting to live normal lives. Male and female interviewees shared these frustrations and females had the additional challenge of being viewed as commercial sex workers even by male cannabis users. This negative perception about cannabis users as irresponsible people with criminal tendencies was considered a disadvantage of using it and disclosure about its use resulted in stigma, ostracism and lost opportunities.

*P: The disadvantage of cannabis is that people don't see cannabis smokers as responsible persons. People around us... they thought like we are... (...) touts...<sup>7</sup>touts.*

---

<sup>7</sup> Tout is a street slang used interchangeably for hoodlums or thug in Nigeria.

*P: we are hoodlums and (...), they don't know that we have our personality to protect.*

**Interviewees, Male, Triad 1**

*They have this inkling that marijuana smokers are hardened criminals. I don't know where they got that idea from but it is a lie.*

**Becky, Female 1**

As a result of the stigma, cannabis use was limited to interviewees' social circles and they went to great lengths to conceal their use because that was the only way to avoid sanctions. The norms around cannabis use were shaped in the context of use within social networks and concealment from society. The need to conceal cannabis use was a reality shared and accepted by all interviewees and smoking was limited to settings where use was acceptable such as parties, drug joints or other social events organised by young people.

*It is just like when we go out, when we go out maybe to a birthday party or performance or anything so we do drink and I smoke, but normally on the street I don't smoke, I don't smoke in my area, nobody knows that I do smoke so I do it, I do it codedly, so (...) nobody knows I smoke...*

**Bobby, Male, Pair 1**

Concealment appeared to be part of the boundary setting that interviewees were inclined to do when they commenced the use of cannabis. Setting the boundaries related to using cannabis within prescribed limits to avoid being caught and it was crucial because a member of a network could put everyone in that network at risk as all his friends were automatically suspected to be users also.

*Like me now, if I want to take cannabis I would have to go to a quiet place ... because I know ... what I want to take it for. So people around us ... If they see you with cannabis, even if you are moving with those who smoke cannabis... they have count you that... you know that there is a saying 'show me your friends'....*

**Interviewee, Male, Triad 1**

#### **8.2.3.4. Families of cannabis users are stigmatised**

Most families went to extreme lengths to preserve their reputation in society because it was culturally unacceptable and dishonourable to have a cannabis user within the family. Interviewees concealed their use of cannabis from their families and thus the commonest means by which families knew about their use was if they got arrested by law enforcement. Strict religious backgrounds were prohibitive of smoking because it was against the tenets of the personal and moral values within the family. Families paid great attention to building and preserving their reputation because it influenced how they were viewed and respected by society. Interviewees did not want their presumptions about the utility of cannabis in their lives to be challenged and their families were likely to put restrictions on them if their use was exposed and this motivated them to conceal use. Once their use of cannabis was exposed, the stigma extended from the interviewee to include the entire family. An expression commonly used by interviewees was 'it may lead to family background'. This meant that the image of a family was reconstructed and redefined by negative societal perceptions about activities within the family.

*My parents don't know that I do smoke...whenever they know that I do smoke, they will think that ahhh! ...why are you smoking? Have you ever seen us smoking this thing.... it may lead to family background because my parents don't smoke. How do you get to know that this thing is good or something? But I am the only one that knows that the weed it does something in my life that's the reason why I do it.... I am the only one that knows that it has something that it does in my life.*

**Interviewees, Male, Focus 2**

Cannabis was commonly associated with criminality in society and the perception about a family with a 'known' cannabis user was that there was a criminal within that family. Hoodlums were presumed to use cannabis excessively in addition to participating in criminal activities. There was a deeply embedded perception that cannabis use was criminal and society did not discriminate between 'criminals' and regular cannabis users who did not engage in criminal activities; they were considered one and the same.

*But when we talk of marijuana, it is good... but the rate at which the touts are drinking it, that's why some parents normally call it that ahhh! .... 'omo ita ni e oti mu igbo.... iwono ti join omo ita'. (Yoruba meaning: you are an <sup>8</sup>area boy, you have gone to use cannabis, and you have joined the area boys).*

Although interviewees were concerned about the impact of their use on their families including the risk of being rejected, they did not feel empowered to stop. Those whose siblings smoked cannabis usually concealed together with them because they shared a common secret. There were two aspects to the problem that was a concern for families; the first was the interviewee's use of cannabis and the second was the impact of disclosure to wider society. Parents may be forced to in turn conceal their child's use of cannabis to protect their family name. Families were much more tolerant about the use of alcohol and cigarettes than the use of cannabis possibly because alcohol did not have the 'criminal tag' and was integrated into cultural and social settings.

*If they know at home... they will say ha! This boy you are the first person that spoil this family, ha! This is an Arabic family. But I know one of my senior brothers that used to smoke but they don't know....I used to ask why you don't let anybody at home know. No...they will say you this boy you are the first person that spoil the name that this family has been taking for so many years (...). Nobody used to smoke, nobody used to drink. You just came and you started drinking, smoking and people started knowing (...). --- At home they know I drink but they don't know that I smoke. My brother used to drink in my mother presence but they don't know that we smoke.*

**Interviewee, Male, Focus 2**

In instances where interviewees' families knew about their use of cannabis, they still could not smoke cannabis at home because it was still considered unacceptable. Females particularly cherished the love and affection they received from their families and were more concerned about disclosing cannabis use than males.

---

<sup>8</sup> Area boys are gangs of street boys known for troublesome behaviour, sale of illicit drugs and extortion.

*I don't smoke at home. Ah! Smoke at home ke? My mother will nail me to the cross.*

**Becky, Female 1**

#### **8.2.3.5. Female cannabis users and safety concerns**

While the males did not report personal safety concerns with respect to visiting drug joints and obtaining cannabis, it was a major problem for most females. They expressed concerns because in addition to issues with police raids, they could get caught up in fights or get sexually assaulted. Although this was a concern, female users found ways of keeping themselves safe by visiting the joints only in the morning, not smoking in joints and going to joints accompanied by their boyfriends or male acquaintances.

*I don't know about other girls but for me anything can happen in the joint. That is why I don't go there... I must be with my boyfriend. I used to hear that... but it has never come to me before because I don't go there alone except I am with my guy... It is a dangerous place... it is a ghetto now, joint...where they sell Igbo anything can...police can come there and pick anybody there start fighting... break all those things...bottle...rape girls...stab all those things. So I am afraid so I can't go there alone now...*

**Jenny, Female 4**

#### **8.2.4. Summary on cannabis use within the sociocultural context**

Cannabis was perceived as normalised within interviewees' social milieu despite the fact that widespread use did not translate to widespread acceptance or accommodation by mainstream society. Perceived normalisation was pivotal in the conceptualisation of cannabis use and positive media narratives, ease of access and widespread availability were contributing factors. The use of cannabis was at variance with religious and societal norms and users faced situations of stigma and social ostracism. Social settings previously considered neutral such as sports fields and beaches appeared to be high risk for cannabis.

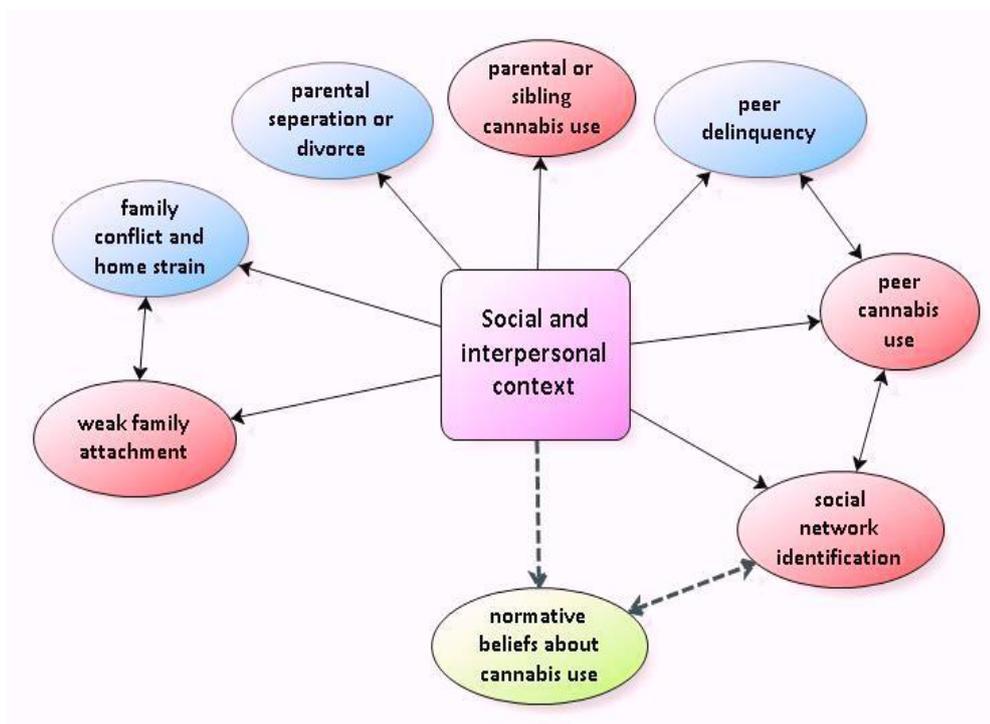
The integration of cannabis dealing into residential neighbourhoods and social settings put young people at risk of experientially experimenting, using and selling cannabis. Criminalisation and negative societal attitude regarding cannabis did not deter its use

because the utility of the cannabis was considered more personally relevant and the possibility of arrests and detention was factored in as a risk rather than a consequence. Access to cannabis was constrained by gendered issues relating to vulnerability of females to assault in drug joints. Society criminalised cannabis users and their families were also at the risk of being stigmatised if their use became known. Potential barriers that existed within society which limited the use of cannabis reinforced the fact that normalisation described by interviewees was subcultural and not mainstream.

### 8.3. Cannabis use in the social/interpersonal context

#### 8.3.1. Introduction

Within the social and interpersonal context, the nature of interviewees' relationships with key socialisation agents such as family and peers shaped their normative beliefs about cannabis use as shown in figure 8.2.



**Figure 8.2. Thematic map for social and interpersonal context**

TTI ultimate level themes (blue), distal level themes (red), Proximal level themes (light green). Final pathways are represented with broken lines.

### 8.3.2. Friendship has varied meanings

Interviewees commonly reported seeing other people use cannabis prior to contemplating its use. They observed smoking friends, family members, acquaintances or even complete strangers in social settings such as parks, beaches, parties and sometimes at home. The word 'friend' was used in diverse ways to describe interviewees' social relationships and the descriptions of peer associations varied. In some instances, the word 'friend' referred to brief acquaintances in social settings and in other instances, friends were classmates, neighbours or boyfriends of female interviewees. Commonality relating to cannabis use was a binding factor that facilitated loose friendships between people who were completely unknown to each other.

Friends were reported to play a significant role in facilitating cannabis use and also posed a great barrier in stopping. Friendships generally appeared more meaningful for the females and although a few male interviewees described having close friends, most of them talked about friendships more casually and situationally. In most situations, there was a tendency to actively seek out friends or social networks where cannabis was used until situational pressures compelled them to use. Interviewees' descriptions suggested that in addition to motivations for using cannabis, the desire to be included in a social support system inclined them to follow 'friends' who used cannabis.

*Some may just do it for the sake of doing it...to show off that so and so ... they don't have any good reason why they are doing it...or just show off because other people are doing it, they just want to show off that they belong to the group that are doing it ...*

**Lizzy, Female 5**

Interviewees who were strongly opposed to cannabis use and kept away from users became more inclined not only to use but went after friends who could facilitate their inclusion due to personal frustrations. Although frustrations were sometimes as a result of school or work problems, they were more intense when they related with rejection or conflicts with family. The transformation of cannabis from something totally repulsive to something normal or indispensable was facilitated by cannabis

users who offered support to non-users and relentlessly persuaded them about its potential utility. Interviewees participated in the process by going after the ‘friends’ because they were inclined towards them as a nexus for integration to a new lifestyle.

*For me I took smoke because of the frustration.....because.... Before I don't, if I see anyone smoke around me I always pursue them but for now I am part of them (...). So I keep on smoking, I join them because of frustration.*

**Interviewee, Male, Triad 1**

*It is bad friends; bad friends make you to smoke everyday so if ..... Our parents too make children to smoke every day, maybe parents do not take care of their children... maybe their children used to follow bad friends that will make them start smoking.*

**Mike, M, pair 3**

There was a general notion that some cannabis users were clearly using it because they had been influenced to do so by friends and not necessarily because they had a personal reason. Even in such instances, some interviewees described seeking out those friends or ‘bad gangs’ when they left home. Selecting friends with the specific characteristics of interest meant that they anticipated the kind of influence those friends could have on them. Those who sought for cannabis to meet specific needs in their lives did not feel they were influenced by friends even when friends facilitated the process of initiation.

*Some people don't know the reason why they smoke. Some people smoke with the influence of friends or something. I take weed because I know what weed does in my life.*

**Interviewee, Male, Focus 3**

*So...when I finish (...) my secondary school that's when I... I follow bad boys so that's how I start. The very first day that I start smoking I went there with my friend...*

**Mike, M, pair 3**

People within smoking networks were not always friends; sometimes they were neighbours or a boss at work. The authority an employer had over an employee who was likely to be younger could be exploited to compel the employee to smoke. These were the few instances where it appeared that interviewees were pressured to use, in

other instances, they had personal inclinations to use before associating with peers.

*I started smoking with influence (...) of friends and neighbours. My neighbour sent me to help them to go and buy smoke, lighter something like that... One day I was inside the room with them so, they now force me to take the smoke (...), from there I become a smoker.*

**Interviewee, Male, Focus 2**

### **8.3.3. Friends at home differ from friends on the streets.**

Interviewees who lived in neighbourhoods with limited cannabis activity described having friends who didn't use cannabis. They were introduced to cannabis by the friends they met when they moved away from home to stay on the streets. This was probably because friends they had when they stayed at home with family were more likely to be people that conformed to family values and stayed home with their parents. Friends on the streets have no such attachments and were not inclined to conform because they viewed themselves as independent from their families. When interviewees left home due to family conflicts, they were vulnerable to smoking friends on the street who offered love and acceptance.

*I grew up in Port Harcourt but...when I was with my family, my friends I grew up with, I never smoke or drank anything, it was after the disturbance of my step mum that I ran out of the house..... that's when I started smoking drugs.*

**Rosa, Female 3**

### **8.3.4. The influence of boyfriends**

For females whose boyfriends used cannabis, the influence appeared more subtle. In addition to being inclined to use along with their boyfriends, they were highly likely to have a steady supply. They were introduced to larger smoking networks their boyfriends were already a part of. Although it was implicitly assumed that females who had cannabis using boyfriends would automatically use cannabis, the process of use also involved contemplation. They were not only likely to smoke the specific substances their boyfriends used but also in the settings they used them. After interviewees positioned themselves in settings where cannabis was used, it was difficult for them to resist the urge to use also or stand out in the midst of peers.

*When I smoke marijuana and skunk ... I feel like relaxing because that is what my boyfriend smokes. When we go to beach (...), I start from my boyfriend when we go to beach I used to see them smoking (...) so I collect it and start smoking it (...). I wanted to try it that is why I collect it, I see girls like me smoking it..., they seemed to enjoy it. I said I feel like sharing with all of them... all of them are smoking it I don't want to be different among them as a bush girl<sup>9</sup> so I join them. That is why I learn it.*

**Jenny, Female 4**

### **8.3.5. Social networks and the use of cannabis**

Most interviewees reported enjoying cannabis when they used it in the company of friends because group interaction made the entire experience more exciting. The collective experience was reinforced by information sharing, problem solving and relieving unpleasant memories. Obtaining and using cannabis within these networks was considered a central part of their group activities and members viewed themselves as part of a dynamic social life.

*It is when I come ghetto life I started smoking. You understand. When I come to ghetto life, my first time, my friends that I made at that ghetto... that the same friends that made me to smoke that I should forget about whatsoever I am thinking for life.*

**James, Male, Pair 4**

Smoking networks appeared to exist on the basis of gender with females belonging to female groups and males belonging to male groups. Females with boyfriends who used cannabis possibly associated with male networks through their boyfriends. Friendship within networks did not require intimacy because the common ground was cannabis.

*I used to mingle with girls who smoke marijuana, but they are not intimate friends.*

**Jenny, Female 4**

The social network provided a base for cannabis users to belong and have a sense of identity. In addition to the enjoyment derived from using cannabis, the opportunity to belong to was critical because its use was mainly concealed.

---

<sup>9</sup> Bush girl: Bush is slang for a person who is uncivilised or unsophisticated in Nigeria.

*Because there's sometimes that when I just sit down I will just be like ahh... what's wrong with you this guy, go to your base (hisses). We normally have a base that there are some friends I normally work with.*

***Interviewee, Male, Triad 1***

The social network provided a nexus to integrate young people from diverse backgrounds and diversity was not considered a barrier as the core focus was the shared interest of cannabis use. In instances where interviewees were contemplating stopping cannabis use, their first consideration was how to dissociate themselves from their social network because it was a key barrier. Some interviewees reported that they were pressured to continue if they indicated that they desired to stop.

*The best thing is to separate yourself from them because the more you continue to stay with them (...) you will continue to...there is no how it will hungry you to smoke. I know a person that said he does not want to smoke again, but the friend will be forcing you that ah! .... you used to smoke, you are the one that used to smoke pass, why do you say you don't want to smoke again, so the friend convince him so he started smoking again. **Sonex , Male, Pair 4***

**8.3.6. Family associations and cannabis use**

The descriptions that interviewees provided about how their family members' use of cannabis affected them were not always distinct because there were multiple layers of influence within the family, friends and wider society. Some interviewees whose fathers used cannabis had never seen them use it because their fathers concealed use. Although some didn't see their fathers use cannabis until they grew up, their knowledge of their fathers' smoking made them perceive their use as permissible and they were positively disposed to future use. Despite this positive disposition to use, they did not begin to use until they left home and associated with smoking friends. In some instances, their fathers had stopped using cannabis but the effect it had on them lingered and this was similar for both male and female interviewees.

*I knew he (father) was smoking but I didn't grow up seeing him you understand.... I am so now maturity (mature) when I saw him smoking...even by*

*that time I have not started smoking. It is when I leave home when I come outside life, when I come ghetto life, before I came to be experience something smoking you understand.* **James, Male, Pair 4**

*I don't really know (...), my dad was really a weed smoker, smokes weed but for now....he doesn't so I don't see any reason why I am...* **Nicky, Female 2**

Parents and family members who used cannabis, however, found it difficult to stop their children from imitating them. Some interviewees felt the instructions not to use were compromised by the fact that they could see their fathers using and they were more focused on imitating actions than listening to their words. Seeing their family members use cannabis triggered a desire for experimentation and there were ample opportunities to do so outside the home. These interviewees expected their family members to be tolerant of their use of cannabis if they were discovered because they also used it. Siblings played a key role not only in facilitating initiation but also sustaining use and supply of cannabis.

*Sometimes you may see your daddy or your brother smoking weed and they won't allow you to smoke it (...). You are still a kid so you will just be thinking that ha! Why are they telling me to not smoke it but they are smoking.... so you can just go outside and taste it how it feels. So, from there you started growing up with it. When they even see you taking it they can't tell you that, why will you be taking because they too...they are also taking it too.* **P, Male, Focus 2**

In some instances, experimentation occurred at home because when adults left remnants and stubs to be cleared up by younger ones, they got initiated trying them out. An additional exposure came from seeing someone smoke and perceiving the smell of cannabis around the home. As with other forms of association, growing up in such home settings increased the likelihood that interviewees became positively disposed to use cannabis. Most interviewees reported that repeatedly watching people use cannabis inspired them to try it out because of the expression of enjoyment on their faces.

*No body introduced me, I just (...). My uncle do take it so he normally used to (...) when he is not at home, I normally sweep the remnants. I will take the remnant anything that is... so one day I just thought that I should just taste it. That is how I just started to (...). What really made me... it is the way they used to do their mouth; I think it is sweet... I think it; I just want to know what is in it.*

**Lizzy, Female 5**

### **8.3.7. Summary on interpersonal context and levels of social influence**

Influences with respect to smoking associations appeared to occur at different levels. Firstly some interviewees described being forced by friends to use cannabis. Secondly, some were offered cannabis or subtly coerced to use cannabis when they were present in settings where it was used. Thirdly some interviewees in close relationships with users such as boyfriends or siblings gradually began to use as a result of their association. Finally some sought out cannabis users and smoking networks with the intention of joining in and using cannabis. In all instances, observation of users over a period of time and sometimes direct pressure facilitate initiation and use of cannabis, thus the context of initiation conveyed had strong social dimensions.

## **8.4. Cannabis use and intrapersonal factors**

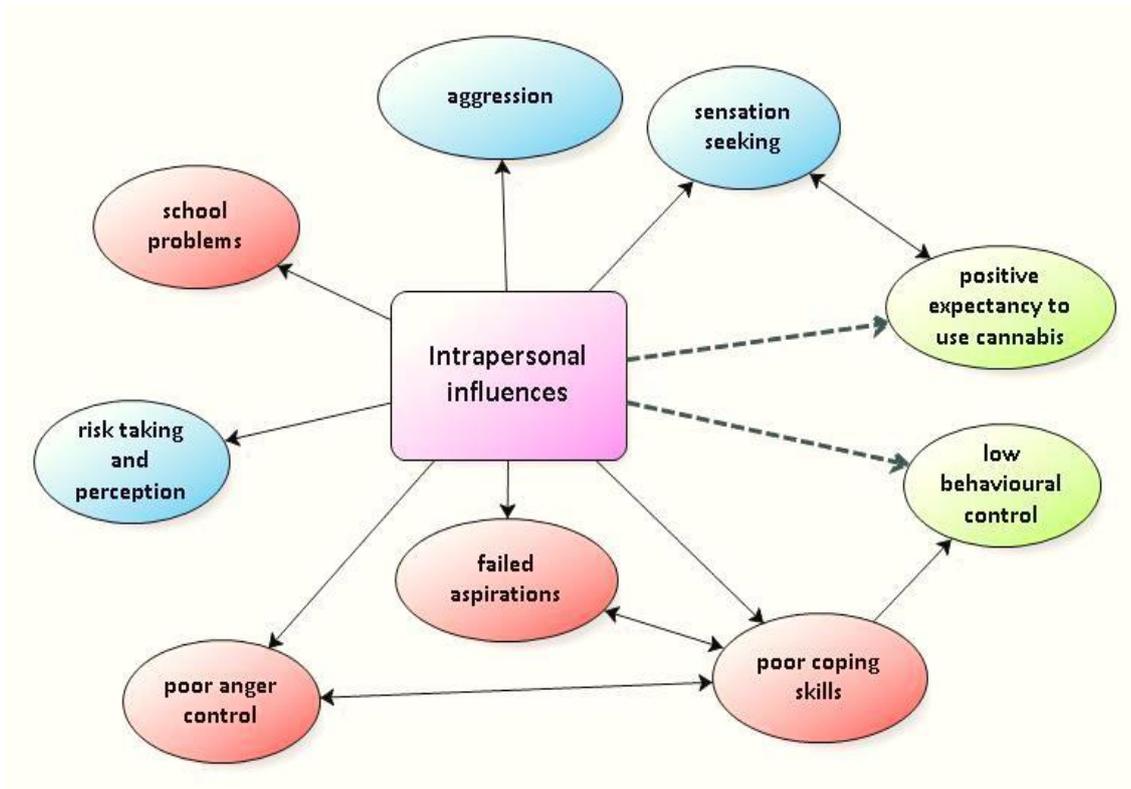
### **8.4.1. Motivation for cannabis initiation and use**

Interviewees had diverse personal motivations for using cannabis which mainly related with the need to experience an effect such as relaxation or to experience relief from a burden such as family conflicts and in some instances, there were no identifiable reasons for use. Intrapersonal themes are shown in figure 8.3.

#### **8.4.1.1. Positive expectancy and utility of cannabis use**

Most interviewees anticipated the benefits they expected to derive from using cannabis before they initiated it. The inclination to use cannabis was related to its perceived utility in diverse aspects of their lives. The most common way information was received about the value of cannabis prior to initiation was from peers or observation of users. Expectations before the use of cannabis appeared to be general and the experience of use gradually led to the appraisal of its utility. The utility of

cannabis was socially constructed and reconstructed because information sharing occurred as a continuous process.



**Figure 8.3. Thematic map for Intrapersonal context**

TTI ultimate level themes (blue), distal level themes (red), Proximal level themes (light green). Final pathways are represented with broken lines.

**Cannabis produces thrill and relaxation.**

There was a general consensus that cannabis was something enjoyable and fun to use especially in the company of a trusted network. Prior to initiation, most interviewees reported being told that cannabis was central to leisure and fun. There appeared to be a contrived dimension to the utility of cannabis in facilitating relaxation because use was based on accounts of other people’s experiences. There were, however, other important elements that facilitated initiation such as an interviewee’s personal situation and transitions occurring in various aspects of life.

*Bobby: Yea when I want to relax or when I am stressed, so... If I go out with my friend, so we go to seaside to weed so and to catch fun (...). We weed together.*

*INT: Weed, what does that mean?*

*Bobby: We smoke together and just to catch fun so... after then we come home to relax (...). About weeding and smoking. I think weed is good, weed is good...*

*Leo: It is just fun, we take it as fun...*

***Bobby, Male, Pair 1***

Some interviewees who initiated cannabis after incidental use in a social setting described going back to try cannabis because they retrospectively realised that they felt more relaxed after use. Although the process of initiation was incidental, the positive experience provided a motivation to continue to use it. When there were other untoward effects associated with initial use, the positive effects were used to reinforce the need to sustain use with the assurance that untoward effects got better with repeated use and adaptation occurred.

*We went with some friends (...) to a beach party. They were passing it around and I just wanted to know how it was going to feel ...we were excited. When I took it, I liked the way I felt. My first experience was funny cos I thought the ground was going to open.*

***Becky, female 1***

### **Cannabis is inspirational and stimulates reasoning**

The ability to reason inspirationally was depicted as one of the greatest benefits of cannabis. All interviewees were of the opinion that cannabis launched them into a realm where all things were intellectually possible. The ability to reason and develop useful ideas to solve personal problems was of prime importance because most interviewees felt personally inadequate about managing issues in their lives. Cannabis helped them to imagine fulfilled dreams that were captivating enough to make them feel temporarily good about themselves. Although ideas and inspiration came, they were unable to describe how these translated to action.

*You can reason anything... With weed*

**Interviewee, Male, Focus 3**

*Without smoke I can't do anything now because I believe on smoke now, if I take smoke it makes me think wide what I can't do in the next twenty years I can tell you now that I can finish it by next month I can do this I can do that...*

**Interviewee, Male, Triad 1**

It was widely believed cannabis was invaluable in inspiring creativity for those who desired careers in music or arts. This view was held so strongly that some interviewees reported initiating cannabis after being told by their music producers that its use was vital to a successful music career. Popular musicians locally and internationally were presumed to be successful because cannabis inspired them to creatively compose lyrics and perform on stage. The ability to view situations from diverse perspectives and experience entire events in the mind increased the inclination to use cannabis to conceptualise an entire music production.

*It was in the studio, so one of my producers said that I should just take it to let my voice to be clear and to be bold so I was like... I can't take this that aaah! Do you want to kill me? (...) My system will tell me that what you are doing is not good but I will have to say I am very sorry because all I want is I want to make money. We do it to (...) boost our energy; as a singer you must not dull your audience so you have to be bold to sing to them (...).*

**Leo, Male, Pair 1**

It was difficult to define the level of creativity that could be achieved following the use of cannabis but interviewees described being able to 'freestyle', compose lyrics, connect rhythms and perform with boldness. In some instances interviewees were told prior to initiating cannabis that it would inspire creativity, in other instances, they discovered retrospectively that they became more creative and inspired after use. In both cases, inspiration became a motivation for further use of cannabis.

*P: The first day I smoked, I got lot of reasoning because I am a musician.*

*P: I observed that when I started smoking it, it gives me an inspiration because I am an artiste. Whenever I smoke ... I got some inspiration to voice anything.*

**Interviewees, Male, Focus 2**

The utility of cannabis appeared to vary based on situational needs and individuals tailored anticipated the benefits to their specific situations. Contrary to the general notion that cannabis was used to create euphoria, interviewees ardently clarified that cannabis much deeper meanings. Inspiration had different meanings at different times ranging from asking a girl out and getting a positive response to having the boldness to face up to intimidating siblings.

*They think marijuana is just someone to make high (...), it can give us inspiration to do anything you want to do (...) and we are going to succeed in it. Even though it is a lady ... we want to attempt her, to talk to her (...). It (cannabis) will give us inspiration immediately that (...) she will just say yes (...) or no but she can't say no because it is the way you attempt her. And why ... that is happening is that it is something we've smoked but she might not know. But she will be thinking that how can a young guy just bounce on me like that (...), but we don't normally open our face, we just put dark glasses.*

***Interviewee, Male, Triad 1***

Inspiration from cannabis was reported to be very vital in achieving focus and concentration in school. Some interviewees reported using cannabis to expand their mind's capability to cope with the large amount school of work they had to handle and facilitate remembrance of all they were taught or read during exams.

*The reason why I think some students smoke is for them to reason well....because for me weed makes me inspired. When I was still in secondary school, before I go to school sometimes... I can take for about 5 minutes....so it makes me inspired whenever I get to school, read my books and it sharpens my brain.*

***Interviewee, Male, Focus 2***

### **Cannabis engenders boldness**

Most interviewees described being too shy to face up with their parents or adults in general. In addition, it was considered difficult to assert rights when they were shy and cannabis was conveyed as a substance that was useful in preventing people from getting 'chanced'. Although many actions interviewees proposed they could undertake

after the use of cannabis appeared exaggerated, these were firmly held beliefs that appeared consistently through the interviews. Cannabis was reported to alter interviewees' perspectives about issues or people and elevating them to a point where they felt important and relevant in society.

*I can't just come up to you but me I always feel shy... if I have to...if I take cannabis I could walk up to anybody. Even if I saw Jonathan (former president of Nigeria) in the front I will walk up to him because if I take cannabis I will see him as an ordinary person.*

**Interviewee, Male, Triad 1**

*It makes me feel very strong and very bold enough to stage, I mean very bold enough to stand with people to communicate with them, you know as in if you are even Obasanjo or Jonathan(former president of Nigeria) I can be able to confront you and talk to you boldly that's it after taking it.*

**Leo, Male, Pair 1**

### **Cannabis and physical capability**

Cannabis changed the way they viewed tasks that were considered difficult and the physical capability that came from using cannabis was presumed to make implausible tasks achievable. This may be a reflection of the perceived significance of cannabis in their lives or the way information was shared and passed on within their social networks.

*P: if you don't have power at all, that weed will give you many power... you will do...if you want to carry something, if you want to carry house on head...*

*P: You have strength in everything that you do. Even though they send you to use one hand to throw someone from here to there you will carry and throw it.*

*P: If you do work, if you finish work if you see that you dull, if you smoke Igbo..., you stand up again and start your work again.*

**Interviewees, Male, Focus 2**

Those who used cannabis as a source of energy to accomplish difficult tasks or carry out their daily chores got to a point where they were unable to work unless they had used cannabis. This may be linked with the fact that they presumed that cannabis altered their perspective about things or their dependence on cannabis.

*Some people they are taking it to get strength... If some people do not see Igbo they cannot work naturally.*

**James, Male, Pair 4**

*I am just a bearer, as in I normally carry [long pause] corpse, something like corpse --- When it is time for ... I do some heavy works due to my stamina I needed it --- Maybe like... when it is time, I normally get a little bit high just to make the work very snappy... and to make my body very strong that's the reason why I normally do something like that.*

**Interviewee, Male, Triad 1**

### **Appetite**

All interviewees reported that cannabis increased appetite but it was unclear in all instances if this was a desirable effect prior to the initiation of cannabis. Although some interviewees expressed increased appetite as an effect they desired before using cannabis, most discussed it as an incidental experience they retrospectively felt was desirable. Increasing appetite was perceived as a positive quality of cannabis as good appetite was viewed as a sign of good health. Cannabis was also described as facilitating digestion, preventing constipation and other therapeutic benefits. The perception that it had medicinal properties led interviewees to regard it as a cure for poor appetite and it was commonly recommended as a therapeutic measure. The tendency to eat a lot and then sleep was considered part of an integrated process of eating and subsequently sleeping to forget their problems.

*INT: Before you started taking marijuana, did you have problems eating well?*

*Becky: Not that I can remember but I know that marijuana has really enhanced my eating habit.*

**Becky, Female 1**

*Even today also I have already taken my smoke so...it is like food to me now. But if I want to eat like this, I will eat like I have not eat several years ago because if I take my smoke now, it will give me ability to eat, I will have appetite...so there is nothing like this guy is sick when I take my smoke... there is nothing like sickness in my body, it will flush everything out of my body.*

**Interviewee, Male, Triad 1**

### **Motivation is personal**

Some interviewees expressed the fact that smoking cannabis was a personal choice irrespective of the neighbourhoods they lived in or associations they made. They reckoned that these influences were not strong enough to tempt them if they were not already determined to do so because there were young people who lived in neighbourhoods embedded with drug activities who did not use cannabis. In contrast to others who claimed everyone in their neighbourhoods used cannabis, these interviewees knew young people in their social setting who did not use cannabis. To them, internal motivation was more critical in cannabis use and they were also more likely to believe that stopping cannabis use was also a personal choice. Personalising the decision to use cannabis sometimes meant that a person understood their motivation for using cannabis and were not pressured or coerced into doing it.

*P: Living in the area doesn't mean... you have to smoke. Some people live in the area and they don't smoke.*

*P: Some people may like to smoke weed or not. Some people may like it and the other people may not like it. But not with the influence of my neighbour is smoking.*

*P: Determination.... Anything that you want to do in this life is your determination (...) Even though people are stealing beside you if you want to steal you will and if you don't you won't.*      **Interviewees, Male, Focus 2**

#### **8.4.1.2. Initiating and sustaining cannabis use as a coping strategy**

##### **Coping as a continuum**

Coping was a strong motivation for the use of cannabis to deal with stressful situations interviewees faced in their personal and social lives. Coping with cannabis was not only a motivation for initiating cannabis, but also for sustaining use when the problems that led to initiation were not addressed. The use of cannabis as a coping mechanism had the tendency to draw users into a vicious cycle because the calming effect cannabis was transient and sometimes caused additional problems as a result of its negative effects. The conceptualisation of cannabis as a coping strategy usually

occurred as a result of information shared about its perceived usefulness within a social network or the lived experiences of others. Even in the most personal situations, ideas around cannabis as a coping strategy were linked to a setting, an association or shared information. Frustrations were related mainly to conflicts in family relationships, school and work. While most male interviewees who used cannabis to cope did so due to failed aspirations or work related problems, all female interviewees who coped with cannabis did so due to family conflicts.

### **Coping with failed aspirations**

One of the most common causes of frustration for the male interviewees related to lack of money, lack of jobs and a general sense of failed aspirations. Rich young people in society were perceived to be wealthy because they were involved in fraudulent activities such as internet scam or advance fee fraud and earning a decent living was no more considered attractive. The motivation to work and earn a decent living appeared to be low either because such opportunities were perceived as out of reach or because they were not as financially rewarding as fraudulent activities. The open display of wealth by young 'yahoo'<sup>10</sup> boys frustrated other young people into contemplating getting involved in fraudulent online activities. There was a consensus among most male interviewees that making money was a central issue even though this desire was not always matched with a desire to work.

*P: My friend says money is everything in life (...).*

*P: In the beach (...) see how they are wasting money (...). Lord let me have this money or I will go and do money rituals<sup>11</sup> but money is the important thing (...).*

*P: Mooney!!!! (...)*

*P: My own...Range rover 2015 (...)*

*P: Lamborghini! (...)*

---

<sup>10</sup> Doing yahoo means swindling people of funds through fraudulent online or bank transactions.

<sup>11</sup> Money rituals: this involves using charms, spells and sometimes killing people to create wealth.

*P: Bugatti (...)*

*P: Young boys....All they do is 'yahoo' (...). But it affects people mostly because of the money (...). Most people go to the beach to spend billions of naira (...). Maybe we should also do 'yahoo' and get money and it affects a lot of people, so many people don't want to work again. Like me I also love money all I need is money....*

**Interviewees, Male, Focus 1**

Interviewees had to adopt cannabis as a coping strategy to manage their failed expectations. Cannabis was described as being useful in lessening the psychological impact and was used like a medication to ease emotional pain. . Although this did not solve the underlying problems, they were able to laugh it off and view their problems from a different perspective. The use of cannabis was continually reinforced by the need to suppress these frustrations.

*Frustration ... Have you heard of (...) yahoo guys? Like me now I am jobless (...), if you see someone maybe your age or someone younger than you, you see them, how they lavish money (...), how they do things (hisses aloud). You can easily get frustrated because you'll be thinking that I was born like him. Why didn't I be doing like him? So you can easily get frustrated....but if I have taken cannabis you just laugh it off, that's his destiny jare. That's.... that's one advantage.*

**Interviewee, Male, Triad 1**

### **Coping with family conflicts**

All females who used cannabis as a coping strategy did so to cope with family conflicts. The females were more inclined to discuss aspirations in terms of developing skills and most of them were working, learning a skill or planning further study. When females were confronted with money related pressures, some resorted to commercial sex work to fund personal needs; others relied on their boyfriends or parents. The predominant problem they found extremely difficult to cope with was strained family relationships. Stressors within the family such as divorce, changing parental roles, or unmet emotional and physical needs put them under intense emotional pressure

forcing them to seek for solace outside their homes. The tendency to resort to associations they formed in social settings for help was high because there was usually nowhere else to go. Initiating cannabis in such settings thus play the dual role of helping them cope with their problems and forming new relationships.

*I had some problems with my step mum that was why I left home (...). My parents are divorced (...), there are four wives; I was being maltreated as a maid in my father's house. When I got to find out that she was not my mum, I decided to leave the house. When I left I entered into bad friends that taught me how to smoke so from the smoking it took me far. I don't have any job at hand. For now I am a sex worker, that's how I survive. I desire to be an actress, I desire to go back to school, and (...) I want to be happy again like every other young girl on the street. I want to be happy again.* **Rose, Female 3**

Family conflicts were sometimes the result of interviewees having different perspectives from their parents on the same issue. For instance although some interviewees viewed musicians who used cannabis as role models, their parents, were not accepting of their dreams of being musicians because parents felt that singing and music careers exposed children to delinquent behaviour. Parents resorted to restricting their children's' movement from home to protect them from bad influence and this was clearly not acceptable to them.

*You know the parents you have nowadays; they are not ready to help us because they believe that if you start singing you will be doing wrong things. So I just stay at home, sometimes they will stop that I should not go anywhere as if I am child or something. My parents are not ready to focus on my talent.*

**Interviewee, Male, Focus 3**

Interviewees sometimes made comparisons between the living conditions in their homes with that of their peers. Financial hardship in the family was a major reason why male interviewees left home as their parents were unable to meet all their needs. When they felt they were better off leaving home, they explored the possibility of getting help from friends. It appeared that when their focus shifted from their families

due to conflicts at home, it shifted to friends for a wide range of support such as financial and coping skills. Friends formed the nexus for their future decision making and were empowered to give conditions for providing help such as using cannabis.

*Maybe you are not well satisfied with what your parents have been giving you... so you got friends that have a lot of money and they say how much do you want? He gave you today (...). You also met an old friend and you saw him smoking and he asked you that what is the problem? You told him the story that a lot of things is happening due to my parents (...). Whenever you are not well satisfied and you got a friend that is well satisfied.... it might lead you that okay if you don't take this weed I won't give you money today. And you that know the thing that you need from your friend's hand, you have to take it.*

**Interviewee, Male, Focus 3**

The protection that the home offered was completely absent on the street but interviewees found it extremely difficult to remain at home when they encountered problems with their families. No one recounted using cannabis while at home despite the problems they had in the family and initiation occurred after they left home.

*When I was at home I did not used to smoke it is when me I have problem with my family that is why I decided to leave house. I decided to be staying outside so that's from there I now start to be smoking; before I did not used to smoke.*

**Sony, Male, Pair 3**

Living alone was a means of asserting independence and coping with family problems. The freedom that living alone offered came with the risk of engaging in deviant behaviour as a result of lack of parental guidance. Enjoying freedom from restrictions placed by parents was a key consideration but interviewees had fears about surviving outside home, keeping bad company and thriving without jobs or income.

*P: My living alone is that..... What I want to do they won't allow me to do it what I want to do ..... That's why I live alone...*

*P: living alone affects cos you think nobody can control me or nobody can tell me stop that... you think you are now a family man you can monitor yourself you can*

*take care of yourself. And it affects a lot of people because if they are with their parents some of their parents may still caution them that what you are doing is wrong... but when they are not with their parents they do whatever they like.*

***Interviewee, Male, Focus 3***

**Coping with school problems**

About half of the interviewees had dropped out of secondary school and all were male except one. For interviewees who already used cannabis while in school, problems relating to its use in school or poor concentration resulted in them leaving school or being expelled. For interviewees who had not initiated cannabis while in school, indiscipline within the school premises or financial problems resulted in them dropping out of school or being expelled. Some interviewees initiated cannabis after being sent out of school as a coping mechanism and those who already used it continued to use. In both instances, once they dropped out of school, the pressures relating to lack of achievement and boredom increased their emotional strain. Cannabis was reported by some other in-school interviewees as useful in coping with examination pressures, anxieties and deadlines relating to school work.

*For me I took smoke because of the frustration (...). The first day... that I smoked cannabis was the first day that I was sent out of school and I took that one among my friends because they forced me to take it. They said if you don't take this that there is (...) nothing you can do without it (...). It's because of frustration (...), if they did not send me out of the school that day I will not take it, because I will not meet all those friends (...). When I went out I met those guys they say let's go to that junction, we went to that joint and they give it to me... So that was my first day. During then, after then I take it continuously...*

***Interviewee, Male, Triad 1***

Interviewees who dropped out of school faced challenges getting back into school or getting jobs. Although cannabis temporarily helped them to escape the reality of their problems, they had to address the consequences on the long term. Dropping out of

school presented additional challenges because they did not have the basic qualifications needed to get jobs or apply for further studies. Although jobs were generally difficult to get, they were even harder after dropping out of school.

*Sonex: But there one incident happened this year that made me drop out from school which is (...) I have nothing to take care of myself and all my friends they are even tired of giving me something. But they think that me too I supposed to need help from my parents and I did not see any help from them (...).*

*James: I left school because I did not see supporter... I did not see someone that can sponsor me to finish my secondary school. I did not finish my sec school I just stop at JS2 because of money situation you understand. I left home because I did not have anything to do at home.*

***Sonex and James, Male, Pair 4***

**Coping with work problems and unemployment**

Some interviewees who had finished secondary school expressed frustrations with getting jobs. Lack of jobs meant that they could not support themselves financially, they also could not further their studies and all this facilitated boredom. Some interviewees believed they were capable of restricting their use of cannabis to parties if they had jobs. Cannabis was adopted as the strategy to manage these frustrations on the long term.

*P: When there is job, if you find any job to do so far we earn the money that if we earn a money we are not going to be doing all sorts of rubbish , sometimes its frustration that cause all these things. It is not that we are ready to smoke or do any bad thing it is frustration. It is not that people are ready to smoke; believe it is frustration (...).*

*P: there will be no time... if there's work there will be no time to smoke.....*

***Interviewees, Male, Focus 3***

In addition to coping with cannabis, some interviewees described resorting to illegal activities to sustain themselves or finding themselves in very compromising situations in their quest to get a job. There was a consensus that it was easier to get involved in crime at the height of their frustrations as that was the only way to survive. The interviewee below stated that using cannabis to deal with frustrations created by work problems could result in preoccupation with cannabis to the extent that the job no longer becomes the focus but cannabis.

*P: After the whole how many years you have been in school....coming out of school if you have no work (...), frustration. Some company they will tell you if you have not sleep with them, you will not gain work (...). You will get frustrated and (...) that thing can make someone to start smoking and by the time you forget everything and start smoking, your brain has spoilt. The only thing you will be thinking of is how you will smoke...smoke till you die...that is the only thing.*

*P: The major thing is because of employment and there's no job... people get frustrated and do things that are illegal (...).When there is no job people will not be happy so ... so they get frustrated and smoke....*

***Interviewees, Male, Focus 1***

### **Coping with anger**

Cannabis appeared to play a role for interviewees who expressed difficulty in managing anger. Cannabis was reported as being useful in managing conflicts because it could help interviewees switch their minds off a potential quarrel or fight after its use. They could sometimes calm them down to the point where they sought reconciliation despite being the offended party. Until they were able to find alternative measures to deal with anger, they were reliant on cannabis to calm down and 'free the mind' when they got angry.

*For now, anger with my friend that makes me to smoking and drinking but if I see anybody that will help me stop anger with my friends, maybe living a good life now, I will stop smoking.*

***Mike, Male, Pair 3***

*The second advantage cannabis has is that if... If someone offended you maybe you want to keep malice with him or maybe you are having him... maybe...this person I will love to fight him one day.....if you have taken cannabis (...) you'll free your mind...* **Interviewee, Male, Triad 1**

### **Does cannabis take the problems away?**

A few interviewees expressed awareness that although they used cannabis to cope with their problems on a continuous basis, it didn't solve these problems for them and they knew they eventually had to work through their problems. Others were more dismissive possibly because they did not want to think about their problems in the short term. The challenge, however, for most interviewees was the use of cannabis as a coping strategy only deferred the problems they had to a later date and increased their frustrations in the long term.

*Marijuana cannot solve the problem for me. ---I work my problems out myself; marijuana cannot solve any of my problems if I smoke marijuana the problem will still be.* **Jenny, Female 4**

*Smoking takes away all the problems, it calms the nerves, cools the mind... Relaxes the nerves it takes away the problem, you know...* **Becky, Female 1**

### **Coping with cannabis as a crossroad**

In many instances, interviewees who had left home were not willing to go back home to work through their problems with their families because they either felt they would not be accepted or they were convinced that their families couldn't help them. Some of them expressed a desire to be mentored or supported by people in society but anticipated that their use of cannabis would act as a barrier to being accepted even if this was possible. The use of cannabis was also a barrier to accessing healthcare services and some had to lie to doctors to avoid being stigmatised in the hospital as cannabis users. This meant that they considered their use of cannabis a huge barrier to getting help either for the primary problems or for their use of cannabis. Without an exit plan, coping with cannabis appeared to be a crossroad.

*I have to focus on... I am looking at the background because not that I can't focus. I have the mind to focus but I am looking for the person that will push me forward, as in lead me to the place to be satisfied. Interviewee, Male, Focus 3*

*Sonex: I have not determined to smoke long but the condition I am in just not to think about anything or not to think much because thinking much of something is making a person to get hypertension.*

*James: Some people that will saw us and say this is an hopeless child, a child that didn't have a parent, a bastard child something like that... but most of us it was the condition (...). Instead of them thinking and kill themselves (...), to smoke.*

#### **Sonex and James M, Pair 4**

#### **8.4.1.3. Summary Motivation for cannabis initiation and use**

Although cannabis use sometimes appeared opportunistic, the journey to use was a process that culminated in accepting and anticipating its value. The construction and dissemination of cannabis related information among interviewees and their peers was useful in understanding the dimensions of influence they faced. Information sharing was commonly based on personal experiences and hearsay. Conversations portrayed interviewees in most cases as active recipients of the social forces at play when the opportunity to use cannabis was presented. An inner dialogue about the utility of cannabis or otherwise appeared to process the situational benefit of using it. The use of cannabis was either for relaxation or coping. Coping with cannabis appeared to be a crossroad because it translated from being a short term strategy to a long term burden if there were no measures to address underlying problems.

#### **8.4.2. The cannabis experience**

##### **8.4.2.1. Meanings attached to cannabis use**

Although interviewees described various motivations for initiating and using cannabis, as they continued to use cannabis, these motivations seemed to become subsumed as meanings that were personalised and unique to the individual's experience. The fact that meanings were personalised did not diminish the role of the social context and

the predominant preference was still to use cannabis within social networks to enhance the experience.

### **Cannabis means different things to different people**

The meanings that interviewees attached to the use of cannabis related to how they experienced it and its substantive significance in their lives. Some meanings may have been socially contrived prior to initiation, but they were mainly experienced after use. The meanings they commonly anticipated before use were largely positive and there was no account of interviewees anticipating negative effects. Although meanings attached to the use of cannabis seemed to be conveyed during social interaction, after initiation personal experience reshaped these meanings. Meanings relating to cannabis use altered the way they viewed themselves, issues and the wider society. Among interviewees there was a tendency to prioritise the meaning attached to cannabis use based on the predominant need in their personal lives.

*All of them standing there are different and they are different and...so our problems and the reason why we smoke are different...* **Becky Female 1**

*Some people somewhere, they smoke marijuana and behave abnormally, maybe they will be fighting but that's not me...* **Interviewee, Male, Triad 1**

### **Meanings could be perceived as positive or negative**

When the meanings were negative or detrimental, some interviewees were motivated to stop but were unable to stop. Paradoxically, in some situations where interviewees expressed positive meanings relating to cannabis use, others reported negative meanings. For instance, although some interviewees described cannabis as inspiring them to meet up with school pressures, relax their brains and increase retention, others were so distracted by cannabis in school to the point of eventually dropping out. Despite the problems relating to dropping out of school, they were unable to stop using cannabis because they derived a new meaning related to coping with the consequences of dropping out. When meanings were perceived to be negative, interviewees still viewed cannabis as way of coping with the negativity.

*It was worse, if I am smoking I can't do any work, I will come out of the class and I will go and smoke. Later if I smoke ... I will come back inside the school; if I come back I will start trouble (...). I never finished secondary school, SS2 (...) I go by myself. It is that smoking.*

**Interviewee, Male, Triad 2**

*The reason why I think some students smoke is for them to reason well....because for me weed makes me inspired. So it makes me inspired whenever I get to school, read my books and it sharpens my brain.*

**Interviewee, Male, Focus 2**

Although cannabis was generally described as inspirational and engendering strength, some interviewees reported being sloppy and slow after using cannabis. The formulation of these meanings related to how cannabis affected internal needs or expectations from the experience of use.

*Marijuana it makes you high... it makes you to do things...to work, it makes you think....do different things that's how it makes me. It makes my blood fast, makes me to be very sharp, agile, that's for me O!*

**Jenny, Female 4**

*If I take only one stick of marijuana... I will lose some connection....maybe if I want to go somewhere when I take the stick then I will sleep it... dull my time, delay my time, waste my time.*

**Mary, Female 6**

### **Meanings are not always clear-cut**

Some interviewees were ambivalent about the significance of cannabis in their lives. The meanings were either conflicting or they were difficult to figure out. When there were positive and negative meanings occurring, some interviewees prioritised based on the meaning they considered predominant or consequential. Despite being unsure of the significance of their use of cannabis, some interviewees sustained use because of their immersion within a social network, boredom or other general frustrations.

*Sometimes marijuana (Hisses).... It helps me sometimes and it did not help me sometimes. Because sometimes, anytime I am not feeling like not doing anything I will just buy a parcel, start smoking it.*

**Mike, Male, Pair 3**

*I am not the doctor of myself, I am not sure it (cannabis) has affected my life, I am not sure.*

**Interviewee, Male, Focus 3**

### **Meanings are sometimes out of control**

Some male interviewees described the significance of cannabis in triggering aggressive behaviour. This experience was considered desirable in some cases because it inspired the potential to do anything required to address a situation. All interviewees who expressed feelings relating to tendencies for violent behaviour after the use of cannabis were male. The use of cannabis to deliberately enable violent behaviour was considered of positive value despite the fact that the impact was detrimental ranging from petty stealing to murder. The effect of these meanings were implied as reasons for sustaining use as cannabis stimulated a feeling of invincibility that compelled them to act aggressively in violent situations.

*P: You will have the mind to do everything, even though you want to steal, you will have the mind to steal (...).*

*P: if you smoke you will have the mind to do anything... If they tell you to go and kill person you will be ready to kill because you have already have the inspiration (...).*

*P: Take gun (...) Take gun go and collect money from someone...*

*P: Igbo will push you, push you, and push you. Interviewees, Male, Focus 3*

### **Constructing meanings as a lone or shared activity**

The significance of cannabis to most interviewees was much greater when they used it within a social network as a shared activity. The process of sharing cannabis was integral part of wider activities that included sharing information, problems and participating in leisure. The smoking experience thus went beyond the puff to an encounter that incorporated social cohesion, meaning making and mutual encouragement. Opting out of cannabis was more difficult when it was a shared activity because cannabis was central to the identity of the group. Interviewees who belonged to smoking groups were sometimes indebted to other members because

they had given them food, shelter or both when they needed it most.

*That very minute you guys are smoking together.... You have to share experience... so whatever effect or anything happens to your life or you want to get advice from somebody, by the time you smoke in crowd like this when you brought that thing that is disturbing your mind out...you will see person that will correct you that this is how you are going to do....* **Interviewee, Male, Focus 1**

A few interviewees however, liked to use cannabis alone and they reported that they maximized the significance of the smoking encounter when it was done alone.

*Lizzy: I don't smoke with anybody. I like doing it myself. Feel high...to stay on my own I like a quiet place, me alone --- I like smoking alone, alone, quiet, feel high... think something good about myself that is how I like it --- Good things will come my mind. Good thoughts...* **Lizzy, Female 5**

### **8.4.3. Cannabis, madness and dependence**

#### **8.4.3.1. Cannabis and madness**

Interviewees generally believed that cannabis use could result in 'madness' or irrational behaviour and they were cognizant of ways that this dreaded effect could possibly be avoided. There was no way of predicting with certainty who was more likely to use cannabis and experience this effect. There were fears however, that the cannabis was mixed with other potentially harmful substances before being sold. It was suggested that madness was the result of incompatibility of cannabis with some users' brains. Once there were signs of loss of control or irrational behaviour, it was assumed a person had gone mad.

*Some people if they smoke, they will think crazy (...). That mental problem it maybe because of those who the smoke did not match their brain and they are forcing themselves to smoke (...). Smoking is not good for some people (...). You will not get control; you will now be misbehaving (...). Some have been smoking (...) and reason well about life.* **James, Male, Pair 4**

*But it is very painful for me that some people that normally take it, it turns them to madness.* **Interviewee, Male, Triad 1**

Although it was difficult to define the threshold amount for madness, it was suggested that using over 10 wraps of cannabis at a time carried a very high risk of a user experiencing abnormal behaviour. Interviewees communicated this information within their networks and the use of cannabis in groups served as a way to manage the risk of any group member using it beyond this threshold. These beliefs sustained the need to use in social settings. Although 10 wraps was regarded by some as the threshold quantity for staying sane with the use of cannabis, others reported being guided by their subjective perception of what they viewed as excessive .

*If you take too much of the weed, it may make you go crazy... like taking 10(...). Some people may take 6, 7 8 (...), whenever I take one stick I am okay because it inspired me. So whenever I take too much of the weed you may go crazy.*

**Interviewee, Male, Focus 3**

*That first day [long pause] I smoked like (...) 10 smoke (wraps) ....it want to turn my head like a mad man.*

**Interviewee, Male, Triad 2**

Smoking alone was presumed to be a dangerous practice because some interviewees believed that using cannabis alone could result in madness. It was assumed that the risk of madness was highest when a user was at the peak of euphoria after using cannabis and managing that peak alone was dangerous. The process of smoking with friends and chatting together during smoking dissipated any untoward effect. The process of sharing may be viewed as a means of preventing excessive use of cannabis as interviewees commonly passed lighted wraps among themselves.

*If you smoke alone you will go mad O! At that point in time I don't like alone...I can't smoke alone. When I am smoking alone it means I am really deep in thought and at that point in time... I like to do puff puff...take two...pass to the next person you understand ...chit chatting, then we have our 5 minutes of amnesia together...you can't smoke alone, there's no such thing...that's the world of smoking(...).*

**Becky, Female 1**

*You are actually going to go mad... if you are not with somebody and you are smoking as you are going high...I am sure you are going to go mad--- Yes very*

*very certain...because you need to chat and smoke and you have to let people with you whenever you are smoking marijuana.* **Nicky, Female 2**

Despite this effect, interviewees who experienced such abnormal feelings while using cannabis maintained that they were unable to stop using cannabis. One interviewee described being powerless in stopping cannabis or removing the thought about it from his mind and asserted that unless God helped him, he had no choice but to continue.

*Anytime I smoke, I do behave abnormal. Like... just abusing someone that is not doing anything to me and some other things (...). If God said if you remove from my mind I will stop it and if God said no...I don't have any choice I will have to continue.* **Interviewee, Male, Focus 2**

#### **8.4.3.2. Cannabis and dependence**

As interviewees progressively used cannabis, some described situations in which their lives revolved around cannabis for relaxation, work and sleep. They gradually discovered that they could not perform tasks or even enjoy leisure activities until they had used cannabis. Not all interviewees described this as dependence per se; rather it was viewed more as a progressive integration of their body function and daily activities with cannabis.

*I smoke marijuana because I always just feel that without it I can't lay my hands on something (...). If I want to sleep I have to smoke marijuana... To help me to have a sound sleep because it has been become my part.... it has become my blood. It has become my part...* **Interviewees, Male, Triad 1**

About half of the interviewees expressed awareness about the fact that cannabis was addictive and that they were probably addicted.

*P: It has a stuff called codeine so it keeps you addicted to it, so whenever you take it is in your blood.*

*P: None is easy to stop...most weed or marijuana or cigarette is not easy to stop because there is content in it as in a 'cotine'. Whenever you taste cotine it makes you addicted to something. It is very hard to stop.* **Interviewees, Male, Focus 2**

Some interviewees started out appreciating cannabis as a viable coping strategy until they realised they were dependent and felt trapped. Although they wanted to stop, their recurring frustrations and associations made this difficult. At this point they appeared to reflect on their initiation of cannabis and described it as unintentional by using phrases like 'it is not my intention, my friend introduced me' or 'I did not like this cannabis from the beginning'.

*For me don't like cannabis from the beginning my friend introduced me to it*

**Interviewee, Male, Triad 1**

*And to me it was okay but I never knew I was destroying myself.*

**Rosa, Female 3**

Interviewees generally believed that cannabis was difficult to stop although a few were certain that with self-determination they would stop when they were ready. Some interviewees' reflections about their dependence on cannabis and stopping its use involved weighing their motivation for initiation and the overall impact on their lives. The lack of control some interviewees felt over stopping cannabis was expressed as frustrations and in most instances they described a situation in which they had relinquished the control over their stopping to God.

*Well... this marijuana.... I don't know how I ran into it. Stopping is a bit hard... Should I tell you why...It is so real to me right now if I don't smoke I can't sleep how about that? Right now I am looking up to God.*

**Becky, Female 1**

*You see this smoking this smoke that we are talking about... it is so powerful and spiritual. This is the same smoke; it is only God that can take it out of a human being mind.*

**James, Male, Pair 4**

The most common hindrance to stopping cannabis use was reported to be repeated encounters with smoking friends. Many interviewees affirmed that seeing friends smoke was a major factor that sustained their dependence cycle with the use of cannabis. This appears to be closely related with the fact that most interviewees

experienced the meanings they derive from cannabis when they used within smoking networks. The social networks thus played a vital role across the spectrum of initiation, attaching meanings to the use of cannabis and sustaining use.

*If I see my friends them smoking me too I want to smoke...I can't leave it again. If I see my friends that are smoking now, I will collect it and I will go and smoke again...*

**Interviewee, Male, Triad 1**

*The thing that makes to go back is when I am in the midst of people that are smoking. Maybe I go to where they are smoking so I will feel like to smoke again. It is not that the smoking is controlling me if I want to stop I will stop it. If I continue to remain in the midst of people... I will continue smoking.*

**Sony, Male, Pair3**

It appeared that interviewees who initiated cannabis for relaxation and thrill were more in control with respect to stopping than those who initiated it to cope with problems. They discussed the prospects of stopping more confidently and reported that cannabis was purely a tool for pleasure.

*Lizzy: it is easy to stop smoking but I am still enjoying it...sometimes I forget to use it if I am working I don't even use it one week , one month I don't...*

**Lizzy, Female 5**

*Marijuana is not helping me...only it makes me high, dreaming, and thinking. That's the only thing. I will stop it very soon. I will soon stop it.*

**Jenny, Female 4**

#### **8.4.4. Summary on the cannabis experience**

Irrespective of commonalities that appeared to exist between users, they were not a homogeneous group. At individual level, the experience with cannabis use was distinctively different. Although the motivation around initiation appeared to be socially constructed, meanings attached to use were personal. Interviewees later become frustrated with coping first of all with their problems and secondly with the loss of control they felt with stopping cannabis. The complex cycle of coping with

problems, developing meanings relating to using cannabis and subsequently dependence, sustained its use in the long term.

Interviewees' description of what cannabis meant to them was personalised in the context of their experiences and daily activities. Although these meanings were positive in some instances and negative in others, the overall prospect of continued use was positive. A salient distinction between the accounts of initiation and continued use of cannabis was that initiation was described more at a social level and continued use at a personal level. With progressive use of cannabis, interviewees experienced shifting perceptions of themselves, their problems and the wider society. At this level, motivation for the use of cannabis and the corresponding meanings they attached to use were distinctively different and personal. In addition to the meanings they attached to use, the game changer was the development of dependence on cannabis.

## **8.5. Related Behaviour**

### **8.5.1. Cannabis use and cigarettes**

#### **8.5.1.1. Cigarette smokers are liable to die young**

Almost all interviewees used cigarettes as well as cannabis and there was a consensus view that cigarettes were much more dangerous than cannabis. Cannabis was generally regarded as a natural, medicinal plant that had versatile uses ranging from therapy for the body and soul to inspiring creativity. Cigarette on the other hand was viewed as artificial, dangerous to health and only needed to modulate the effect of cannabis. The deleterious effects of cigarettes such as blocking the heart, damaging the liver, blackening the lungs were very familiar to interviewees and most of them quoted the slogan that 'smokers are liable to die young'.

*One thing about marijuana (...) is that it is not like cigarette, like that they will say, smokers are liable to die young. When you smoke cigarette, it is going to block your heart. But when I found about cigarette I decided to start mixing it.*

**Interviewee, Male, Triad 1**

*On the label of that cigarette they do write 'smokers are liable to die young', that's it, it is true. But for Igbo it is to motivate you.*

**Leo, Male, Pair 1**

### 8.5.1.2. Cigarette smoking sustains cannabis use

Despite the negative perception about it, cigarettes appeared to play a vital role in using and sustaining cannabis use. Firstly interviewees reported being more likely to give up cigarette and continue to use cannabis because they perceived that cigarettes were more harmful than cannabis. Secondly, the euphoria that accompanied the use of cannabis was viewed as sometimes being so uncontrollable that people lost their 'senses' or became irrational. Mixing it with cigarette and sometimes skunk mitigated this impact and the blend produced a better feeling than using cannabis alone.

This made the euphoria more enjoyable and interviewees reported being more composed and balanced. The optimal effect that produced the desired feeling was not static and interviewees frequently shared information about the proportion of each substance in the mix. Although the meanings they experienced from mixing cannabis with cigarette were personal, the process of deriving it was socially contrived and subjective. Interviewees were aware about different types of cigarettes they could mix with cannabis to achieve a wide range of feelings. Menthol cigarette was used when the focus was to reduce cannabis odour in the breath.

*P: They think marijuana is just to make someone high, as in go inspirational and ...the odour is very bad. So they used to think that maybe when they are going home their mum will be upset that they went to smoke... But when they mix it with (...) those two main things as in cigarette and skunk... Had it been we just smoked only that marijuana... (Hisses) she will be thinking maybe these guys they are out of our senses....*

*P: that is why we normally mix the three together. White London and something... And that white London we use it ... for menthol as in maybe for mouth odour...*

#### ***Interviewees, Male, Triad 1***

In this context cigarette appeared to sustain the use of cannabis because interviewees were not willing to give up cannabis but rather to diminish unwanted effects relating to its use. One interviewee, however, asserted that it was not a good idea to mix

cannabis and cigarettes together because that meant mixing something good with something bad.

*If you smoke Igbo and cigarette together is not good, the person that smoke. If you smoke Igbo it is not easy to leave it, if you want to smoke cigarette it easier to leave it. Cigarette is not good... Igbo is good for body. Cigarette I know small...the entire person that are drinking it...They are just wasting their life.*

**Soji, Male, Pair 2**

A third reason why cigarette appeared to play a vital role in cannabis use was that cigarette was used as an alternative when there were difficulties obtaining cannabis. Cigarettes were much cheaper than cannabis and in instances when cannabis was not available or affordable, cigarettes were conveniently used. The availability of a temporary alternative for cannabis may be sustaining its use in the long term as interviewees were inclined to hold onto cigarettes until they could get cannabis again.

*When you don't see smoke (cannabis) use that one (cigarette) to cover smoke so later on you get smoke and smoke. Cigarette is not good, we even believe that smoke is better than cigarette because we even hear say if you smoke cigarette... is able to die young.*

**Sonex, Male, Pair 4**

*People do smoke cigarette mostly because maybe they are short of cash and cigarette only cost of 10 naira (approx. 4 pence) , but weed sometimes it is 50 or 100 naira ( approx. 25-50 pence) so most people prefer taking cigarette due to the short of discount than taking weed.*

**Interviewee, Male, Focus 2**

Lastly, some interviewees explained that they needed cigarettes after using cannabis to step down from the effect of cannabis. As Jenny described, she did not need cigarette if she wasn't using cannabis. Although cigarettes did not have the same meaning as cannabis had for her, she needed it to facilitate her use of cannabis. Her view was shared by other interviewees who had a wide range of reasons for using cigarettes along with cannabis. Although they asserted that cigarettes did not play a

central role in their lives, they still used it to achieve the desired effect they needed while using cannabis.

*Cigarette cannot do what marijuana is doing for me, but when I take it, it is to step down, after the weed I will just calm down with cigarette. Without the marijuana I don't need the cigarette.* **Jenny, Female 4**

### **8.5.2. Summary on related behaviour**

The use of cigarettes sustained cannabis use in the long term because it modulated its effects and was a ready substitute when cannabis was not available.

## **8.6. Chapter summary**

The broad sociocultural, interpersonal and intrapersonal influences that facilitate the initiation and use of cannabis in this qualitative study have been described. Although the determinants of initiation appeared to be socially contrived, sustenance of use had deep personal dimensions relating to the meanings attached to use and dependence.

## Chapter 9: Discussion

### 9.1. Chapter overview

This chapter outlines the discussion of qualitative and quantitative results. Although they are two separate approaches, the discussion is integrated to reflect the overall aims and objectives of the thesis. The thesis aimed to explore the context, meanings and factors associated with the use of cannabis among young people in Nigeria with a view to making recommendations for health promotion. The key findings are discussed with evidence from literature and their implications for intervention, policy and health promotion are also outlined. Throughout the discussion, the use of ‘interviewees’ refers to young people who were interviewed in the qualitative research and ‘participants’ refers to those who participated in the survey.

As shown in figure 9.1, the Theory of Triadic Influence (TTI) which provided the theoretical framework for the entire study was utilised for organising the discussion of results. Although the TTI was highly useful in conceptualising the importance of context in behaviour, its use in the qualitative study was to identify broad topical areas and allow interviewee interactions to guide emergence of themes. The key advantage of the TTI is the fact that it identifies behavioural influences at multiple levels and each level has distinct implications for health promotion. The findings will be discussed using the TTI as a guide as follows:

- Cannabis use patterns and demographic relationships
- The sociocultural environment
- The social and interpersonal context
- The intrapersonal context
- The cannabis use experience
- Related behaviour
- Discussion of methodological approach
- Limitations of the research
- Summary

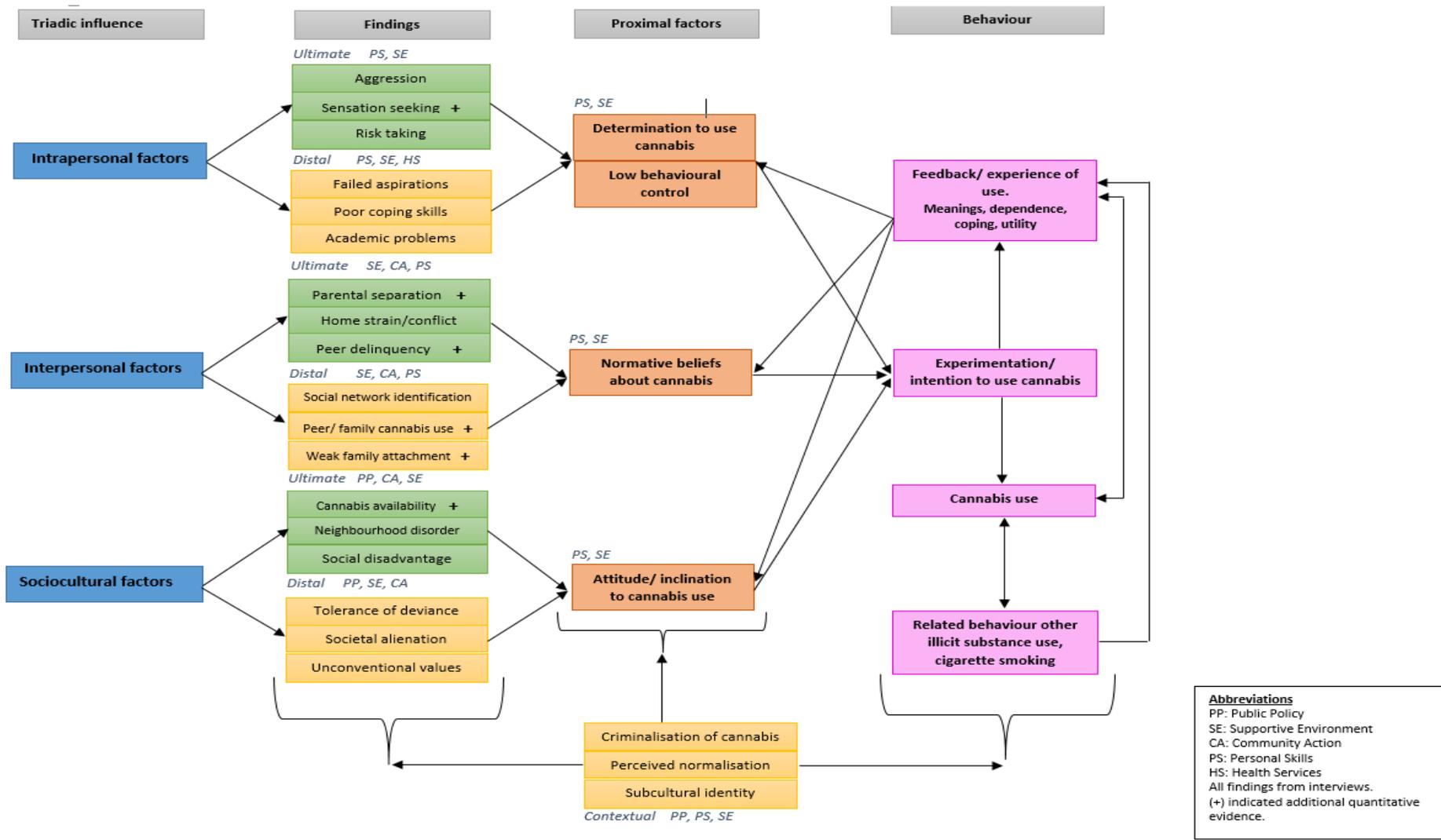


Figure 9.1 Conceptual Framework of findings and health promotion action strategies

## **9.2. Cannabis use patterns and demographic relationships**

### **9.2.1. Demographic factors**

The mean age of survey participants was slightly higher than expected for students in their fifth year in secondary school in Nigeria. Findings from the qualitative study also showed that interviewees who were still in school were overage although more than half of them, mostly male, had dropped out. These findings mirror Lagos state enrolment data which showed that a quarter of first year secondary school students were overage for their classes ((UBEC), 2010). The implications of overage enrolment relate to how it impacts on school completion, health risk behaviour and general wellbeing. The survey findings in this thesis which showed that older participants were significantly more likely to use cannabis and be heavy users underscore the issues relating to overage students. Interviewees, who dropped out of school as a short term strategy, found that the prospects of returning to school were slim.

The reasons interviewees gave for dropping out of school reflected the complex interaction between the determinants of behaviour highlighted by the TTI. Repeating the same class level due to poor school performance has been identified as an important factor in overage enrolments and drop out in Nigeria (UNICEF, 2012). Although poor school performance may appear to be a stand-alone problem, interviewees uncovered deeper socioeconomic and personal problems which were drivers of school functioning. In agreement with findings from this thesis, there are wider issues such poverty, child labour, peer pressure, poor teaching facilities and restricted opportunities for work or further study which contribute to school dropout rates Nigeria (UNICEF, 2012).

The lack of school absentee or dropout data in this thesis limits inferences from the survey although some interviewees cited the need to relax as their reason for truancy and lack of finance, family or school conflicts as reasons for dropping out. About a quarter of out-of-school children of junior secondary school age in Nigeria are reported to have dropped out of school with female more than males (UNICEF, 2012). Although the school dropouts in the qualitative study were predominantly male, this may reflect

the fact that female cannabis users who had dropped out of school were less accessible for interviews or more hidden than those who had completed school. The link between cannabis use and dropping out of school in this thesis was not simplistic because it occurred either as a facilitator or consequence of dropping out of school. Findings in this thesis were supported by evidence from a USA study that showed that cannabis use was associated with an increased likelihood of dropping out of school or truancy especially among heavy users (Roebuck et al., 2004). A systematic review of forty six studies also reported a significant link between early cannabis use and dropping out of school later in longitudinal and cross sectional designs (Townsend et al., 2007). Truancy, poor school performance, school detachment and dropping out have been reported as more common in overage students (Roderick, 1994).

Research conducted in USA is suggestive of the fact that overage students were a negative influence to other students and to general school discipline (Reed, 1998). The facilitators and consequences of young people being overage or dropping out in Nigerian schools and the potential link with cannabis must be understood. Interventions that directly address cannabis use without exploring these linkages may be ineffective because as discussed later, dropping out of school was associated with the long term use of cannabis as a coping strategy. Targeted programmes that address the context specific needs of overage students may yield better outcomes.

Although gender parity index for Lagos state schools showed that more female than males enrolled in secondary school, the higher proportion of male survey participants could indicate that more females dropped out early or more males were incidentally concentrated in the schools sampled ((UBEC), 2010). Religion was not significantly associated with cannabis use in the survey although this thesis only assessed professed religion and not religiosity. The main factor that determined the relevance of religion in the interview was the general family commitment to religious institutions. Although the association between religion and religiosity with cannabis use is mixed some studies have shown a modest association (Brook et al., 1998, Burkett and Warren, 1987, Cochran and Akers, 1989) . The findings from the interviews in this thesis which

showed that the impact of religiosity was family specific may explain the inconsistent association between religiosity and cannabis use. (Cochran and Akers, 1989)

The significant association between cannabis use and participants whose mothers were divorced or single mothers was corroborated with the fact that maltreatment from stepmothers and other associated family conflicts was the main motivation for cannabis use among female interviewees. Research in Nigeria suggests that increasing socioeconomic problems, urbanisation and migration in the country have negatively impacted cohesive family life resulting in separation or divorce with negative implications for children (Aderinto, 2000). Another Nigerian study showed that children from families experiencing marital conflicts were at least twice as likely to be involved in antisocial behaviour (Animasahun, 2014). Findings in this thesis support a review of evidence on family conflict that showed that young people from homes with marital problems had a very high risk of substance use (Hawkins et al., 1992a). Another review of five prospective studies showed that children of divorced or single parents were at increased risk for cannabis use (Petraitis et al., 1998).

Perceived family wealth was not associated with cannabis use in this survey. Although research suggests that the link between socioeconomic status and cannabis use is mixed, some reviews reported a positive finding with high socioeconomic status and inferred that the link was because young people from affluent families could afford cannabis (Petraitis et al., 1998). These studies were conducted in the USA and the situation is different in Nigeria where cannabis is affordable across all social classes.

### **9.2.2. Cannabis use patterns**

Lifetime cannabis use frequency in this thesis was comparable to UNODC estimates of the annual prevalence of cannabis use among the general population in Nigeria (UNODC, 2015). The prevalence of cannabis use among young people is, however, expected to be higher than the general population but population data for the use of cannabis among young people in Nigeria is not available (UNODC, 2015). Cannabis use frequency in some school surveys conducted between 1983- 2010 in South Western Nigeria showed a wide range of frequencies from 3% to 16.7% (Adelekan et al., 1992, Atoyebi and Atoyebi, 2013, Fatoye and Morakinyo, 2002, Makanjuola et al., 2007,

Morakinyo, 1983, Oshodi OY, 2010). Contextual and methodological differences may account for the wide variations but in the absence of population based data, these suggestions are speculative and the tendency for young people to underreport substance use activities is a consideration.

The significantly higher lifetime and current use of cannabis in males than females in this thesis mirrors UNODC estimates that show males are twice or thrice as likely to use illicit substances as females (UNODC, 2015). These findings were also comparable to the frequencies obtained from a multisite school survey conducted in South Africa and the USA although frequencies obtained in this thesis were higher than those from South Africa but lower than frequencies from the USA (Hon, 2007). The higher frequency of use in males than females is consistent with findings from other studies in Nigeria (Adelekan et al., 1993, Adelekan et al., 1996, Oshodi OY, 2010) and other parts of the world (Brook et al., 1998, Brook et al., 2006b, von Sydow et al., 2002).

The mean age of initiation of cannabis use in the survey was similar to the ages of initiation reported by male interviewees but earlier than the ages reported by female interviewees. The later onset of cannabis use by females in the interviews as opposed to the survey may be explained by the fact that most female interviewees had completed school and were possibly exposed to cannabis after they left school. Recruiting in-school female cannabis users for interviews was extremely difficult possibly because they were more hidden than those who had completed school. They may also be characteristically different from those out of school or who had finished school. In-school female cannabis users may be invisible at community level because of the potential impact that disclosure of use could have on their education and family. The age of initiation is a very important consideration for health promotion and other implications will be discussed in section 9.6.

### **9.3. The sociocultural environment**

The sociocultural environment shaped interviewee values and was crucial to how they viewed themselves, their settings and society in addition to how these views impacted their lives and choices. As highlighted by the TTI, the ultimate influences in the

sociocultural environment such as the neighbourhood and policy factors are beyond individual control but are useful long term considerations for health promotion programmes (Flay et al., 2009). A positive inclination to use cannabis results from factors within the sociocultural context that make the use of cannabis plausible.

### **9.3.1. Normalisation and the subcultural context of cannabis use**

#### **9.3.1.1. The paradox of cannabis normalcy and concealment of use**

Findings show that interviewees' conception about their daily experiences related to situations within their sociocultural milieu. The consensus that cannabis use was a widespread phenomenon may explain why interviewees assumed its use was a plausible consideration for young people. The perceptions about cannabis normalcy paradoxically contradicted accounts about the stigma users faced and in many respects most interviewees viewed themselves as detached from society. Detachment had implications for their identity as inclusive members of society and explains why acceptance was sought within social networks and not in mainstream society. Widespread use of cannabis did not necessarily translate to widespread acceptance and the prospect of using cannabis within safe social domains made its use feasible. If these safe domains did not exist, the link between prospective users and cannabis could be disrupted. The fact that they had to identify with safe spaces to use cannabis demonstrated their perceptions of cannabis being normalised as simplistic.

The qualitative findings showed that cannabis use was innately communal as reflected use in social networks and access to these networks which were perceived to be expanding was misconstrued to imply widespread use. The ability to neutralise negative external perceptions about cannabis and overcome barriers to use at home and in school may reflect pragmatic survival strategies but did not translate to normalcy as portrayed by interviewees. The existence of subcultural bases which were loosely constituted to facilitate discreet use of cannabis was at complete variance to the concept of normalisation. Despite interviewees' accounts about the inclusiveness of cannabis use across demographic and social divides, this widespread use has not been matched with tolerance, cultural accommodation or the acceptance that is described in the normalisation thesis (Parker et al., 2002).

The process of normalisation which conditions young people to accept the reality of normalcy with respect to recreational substance use such as cannabis and its transition from subcultural streams to mainstream society is contrary to findings in this thesis (Parker et al., 2002, Sandberg, 2012b). The increasing popularity and acceptability of cannabis is assumed to result in it playing greater roles in young people's personal, recreational and social lives until it is integrated into boundaries of normalcy (Hathaway, 2004, Järvinen and Demant, 2011). The boundaries of normalcy in Nigeria are however unlikely to be defined by the subjective experiences of young people irrespective of how widespread their activities are. As shown in this thesis, these boundaries were set by society and were resistant to transitions occurring within young people's sociocultural milieu.

The society's current position relating to cannabis users has hardly changed from the embedded public perception about its relationship with madness and deviance in the 1960s despite the fact that its use was also considered widespread at that time. This implies that interviewees' views that cannabis was normalised based on their perception of the scope of its use was naïve. The fact that their perceptions about the extent of cannabis use could not be assumed to mean actual use was buttressed by their tendency to exaggerate the scope of use and revise their estimates downwards when probed further.

Similar findings from a longitudinal Danish study showed that widespread acceptance of cannabis among young people did not necessarily imply its actual use and there was a disparity between perceptions about its scope and actual use (Järvinen and Demant, 2011). Normalisation has rarely been studied in Africa and although key indicators such as drug trying rates among young people are not available from Nigeria for comparison, normalisation does not appear to be the situation. This is in contrast to Britain where the remarkable rise in recreational substance use was characterised by drug trying rates of up to two thirds among young people in the late 1990s (Bauman et al., 1990, Parker et al., 2002, Parker et al., 1998).

Cannabis use is generally considered unacceptable by religious and societal systems in Nigeria and this disapproval of its use has been regarded as an informal source of

control as reflected by some interviewees (Asuni and Pela, 1986, Klantschnig et al., 2014). As reported in this thesis, the coexistence of normalisation and criminalisation of cannabis in the Nigerian context is extremely difficult. Despite the access and availability of cannabis which are fundamental aspects of normalisation, in a setting where it is criminalised, normalisation in its entirety is implausible (Parker et al., 2002). The more acceptable and accessible cannabis is to young people, the more normalised it is perceived to be but users may still face situations in which they feel stigmatised as encountered in this thesis (Hathaway, 2004, Järvinen and Demant, 2011).

The need to obtain and use cannabis in subcultural domains in this thesis was not limited to interviewees who belonged to social networks as those who preferred to smoke alone also did so covertly. The concept of cannabis use being subcultural has been discounted by normalisation because it presupposes that the shift of use from the fringes to mainstream renders subcultural frameworks irrelevant (Sandberg, 2012a). Contrary to this notion, decisions relating to obtaining and using cannabis in a clandestine manner have subcultural connotations as reflected by interviewees in this thesis (Measham and Shiner, 2009, Sandberg, 2012a). Negative societal attitude towards cannabis facilitates the need to participate in a subcultural context and users exaggerate its acceptability as a neutralisation technique to make its use appear conventional (Hathaway, 1997, Measham and Shiner, 2009, Parker et al., 2002, Peretti-Watel, 2003).

Societal perception defines how cannabis is regarded, either as a peripheral or mainstream activity irrespective of the level of use as evident in this thesis (Hathaway, 2004). The findings from a Norwegian study in which cannabis users described its use as normal yet instituted boundaries for safe use due to its illegal status were similar to findings in this thesis (Sandberg, 2012b). It was conflicting that interviewees in this thesis who used cannabis discreetly to diminish the associated risk also claimed normalcy. The concept of normalisation dilutes the multifaceted complexity relating to personal motivations for use and non-use within the same setting in addition to the meanings that users attach to it (Sanders, 2012, Shiner and Newburn, 1997). As will be

discussed later, findings from this thesis showed that cannabis use extended beyond concepts of normalcy to integrate personal meanings and experience.

### **9.3.1.2. Media and the use of cannabis by role models**

The media and musicians played a key role in perceptions about cannabis normalcy because its benefits were openly portrayed in performances and films. Unfortunately unlike the interviewees, these music celebrities were above the law and so unlikely to be arrested or charged for cannabis possession in Nigeria. Celebrity endorsement of cannabis did not translate to societal acceptance and explains why interviewees' parents strongly resisted their pursuance of a music career. More critical to parents than the prospect of successful music career was the stigma of being addressed as parents of an 'igbo smoker' or 'area boy' and the family image in society.

The validation of cannabis by musical legends in Nigeria such as Fela Kuti in the 1970s resulted in increased acceptance of cannabis as socially desirable among young people as opposed to its previous association with deviance (Klantschnig et al., 2014, Klein, 2001). His validation was heavily criticised implying that portrayal of cannabis as normal by celebrities did not translate to its tolerance (Asuni and Pela, 1986, Klein, 2001). The growing access of young people to social media and the social accommodation of cannabis in films and general media promote positive narratives about its use (Hathaway et al., 2011, Hyman and Sinha, 2009, Petraitis et al., 1998) Despite this, cannabis use results in stigma, ostracism and legal sanctions because it is considered at odds to societal norms (Asuni and Pela, 1986, Sandberg, 2012a).

### **9.3.2. Cannabis availability**

The perception that cannabis was easily available significantly doubled the odds of current cannabis use among survey participants in this thesis and this finding was supported by interview accounts. Physical and financial access to cannabis is probably facilitated by the fact that cannabis is grown in Nigeria which has vast arable land and the optimal climate needed for its cultivation. Supply reduction efforts by law enforcement are no match for the expansive cannabis farms hidden in tropical rain forests and which are more lucrative for farmers than food crops. Prospective users were highly likely to be freely offered cannabis during their first encounter and

subsequently social networks made it available. Although these networks did not consider it conventional to share anything else including food, cannabis was shared. The complex value chain from the growers to small scale dealers meant that trust was vital between buyers and sellers and this explained why trust and identification relating to the procurement of cannabis was handled by social networks. Cannabis is the first illicit substance young people try probably because it is the most widely available and when young people have access to it, they presume its availability is high (Fergusson and Horwood, 2000, Hathaway et al., 2011).

The availability of cannabis has been recognised as a major factor that strengthens other risk factors for its use (Agrawal et al., 2012, Fergusson and Horwood, 2000, Maccoun, 2006, Petraitis et al., 1998). This implies that if cannabis is not available, it can't be used as illustrated by the fact that interviewees switched to tobacco during periods of cannabis scarcity. It was interesting though, that they did not stop using cannabis altogether because they switched back to cannabis once it became available.

The need to reduce demand by reducing supply may underlie the predominant strategy of supply reduction as the major intervention in Nigeria (NDLEA, 2015). Unfortunately supply reduction efforts are very expensive and difficult when they span large geographical areas. These strategies don't also take into account the complex nature of demand for cannabis which extends beyond access to the substance to include meanings and social identity.

Although leisure and sports settings are considered important for the psychosocial development of young people, they could be high risk environments for exposure and access to substances like cannabis as seen in this thesis (UNODC, 2015). The availability of cannabis in diverse social settings may be challenging for an intervention strategy that is mainly based on reducing supply as these measures are less efficient when cannabis use is widespread (Hathaway, 2004). Supply reduction efforts that are backed by an integrated approach to engaging young people to understand the implications of using cannabis may be more effective than just the destruction of cannabis farms and arrest of traffickers. In addition, measures to promote healthy leisure among young

people must incorporate efforts to safeguard leisure settings to ensure they are safe and not used as hangouts for cannabis.

### **9.3.3. Cannabis as a therapeutic substance**

The perceived medicinal benefits of cannabis for health and general wellbeing were cited as a justification by interviewees for its use. Although cannabis was not historically associated with Nigeria, its local cultivation may have stimulated explorative use to discover its potential medicinal uses. The perception of cannabis as therapeutic may reflect the use of aspects of culture to validate social norms as some interviewees grew up in rural areas where cannabis was used as a local herb but became socialised into smoking it by peers when they moved to urban areas. Cannabis was perceived as natural and safer than other illicit substances such as cocaine and heroin possibly because they did not have a cultural identification like cannabis and were not grown in Nigeria.

Cannabis was used as a medicinal herb in Southern Nigeria and was administered orally or topically by traditional herbalists (Okoli et al., 2007). Oral or topical use of cannabis is at variance to interviewees' conception of smoking it for therapeutic benefits and smoking cannabis was at variance to cultural norms against smoking in society. The rationalisation of smoking cannabis on the basis that it was natural and had therapeutic properties was reported in other qualitative studies (Haines-Saah et al., 2014, Sandberg, 2012b).

The perception of heroin and cocaine as unnatural and dangerous compared to cannabis supported findings in other qualitative studies (Järvinen and Demant, 2011, Peretti-Watel, 2003). Heroin users are regarded as engaging in problematic and damaging behaviours by cannabis users (Järvinen and Demant, 2011, Peretti-Watel, 2003, Sanders, 2012). Although Fela Kuti popularised cannabis, he was known to set clear boundaries prohibiting the use of 'gbana' (heroin) in his Lagos shrine (Klein, 2001). The rationalisation of cannabis as a safe, therapeutic substance underpinned the tendency for interviewees to compare it with substances like heroin which was not perceived positively among substance users in general. This finding concurs with a USA

study which reported that young people ranked cannabis over other illicit substances as safer and more socially desirable (Sanders, 2012).

### **9.3.4. Social settings, neighbourhoods and social dimensions of cannabis**

#### **9.3.4.1. Residential neighbourhoods and leisure settings**

The use of cannabis by interviewees occurred in diverse settings such as residential neighbourhoods, beaches, leisure settings and football fields. As highlighted earlier, these areas can contribute positively to young people's wellbeing, it is thus important to understand why they appear to be high risk settings for cannabis use. Lack of maintenance may have resulted in the abandonment of the dilapidated facilities by local authorities and subsequent use by young people for unregulated activities. In addition, it could depict a shift in the conception of leisure among young people as male interviewees who complained about boredom appeared to struggle with the prospects of relaxation without cannabis. Community organisation of leisure is limited, leisure is not prioritised in Nigeria amidst other competing needs and individual efforts are insufficient to accommodate the growing needs of young people for leisure.

The assumptions that growing up in disordered neighbourhoods predisposed females to being socialised into prostitution and males into violence and crime left the prospects of achieving success to a slim chance. These activities were learned experientially through observation of crime, violence and cannabis use in social settings. Disorder theories such as the Broken Windows Theory may explain the findings in this thesis because it elucidates the link between neighbourhoods with abandoned buildings or broken windows with proneness to antisocial activities and lawlessness (Furr-Holden et al., 2015, Furr-Holden et al., 2011, Wilson and Kelling, 1982). The inclination to initiate cannabis through experiential learning has been linked with disordered settings where deviance and cannabis use are accommodated and this was reflected in accounts of male interviewees in this thesis (Furr-Holden et al., 2011, Wilson and Kelling, 1982).

As described in the Social Cognitive Theory which is an integrative theory included in the TTI, observational learning through vicarious experiences built the self-efficacy interviewees needed to model other people's experiences in their settings (Bandura,

1989, Conner and Norman, 2005). In addition to neighbourhood factors, the personal expectancies regarding the anticipated experience of using cannabis explained why some interviewees assumed that repeatedly seeing others smoke in their neighbourhoods led to their acceptance of cannabis use as positive. These findings are mirrored by studies from the USA and Columbia which highlighted the increased inclination to use cannabis as a result of repeated observation of smoking, violent crime and sale of cannabis (Furr-Holden et al., 2011)

The short term strategy parents adopted in locking up their children at home did not address the long term issues. Their children eventually left home possibly unprepared for the real risks in the community and also never experiencing healthy leisure. The integration of cannabis dealing into neighbourhoods implied that young people could encounter cannabis from a very young age. This may explain why some interviewees reported knowing that due to their early exposure, they were eventually going to use cannabis. There were other issues that facilitated or were facilitated by the neighbourhood impact such as dropping out of school, unemployment and involvement in drug sales.

Research on the impact of neighbourhood settings is limited despite the risk in increasing young people's inclination to use illicit substances (de Looze et al., 2015, Furr-Holden et al., 2011, Petraitis et al., 1998). Studies mainly carried out in the USA evaluating the link between neighbourhood disorder and cannabis use show a significant relationship and support findings in this thesis (Furr-Holden et al., 2011, Reboussin et al., 2014, Reboussin et al., 2015, Tucker et al., 2013). Cannabis dealing within the neighbourhood facilitated transitions from occasional to problematic use in one study (Reboussin et al., 2014); high unemployment was associated with increased neighbourhood exposure to cannabis experimentation in another study (Tucker et al., 2013). Evidence from these studies are corroborated by findings from this thesis. Unemployment partly explained the inclination of interviewees in this thesis to sell cannabis because it was a lucrative thing to do in the absence of a job and this was consistent with findings from a USA study (Tucker et al., 2013).

The need to pay more importance to neighbourhood context was highlighted in a USA study that showed that young people are increasingly spending more time outside home and in social settings (Tucker et al., 2013). In Nigeria, unemployment, poverty and lack of social welfare has been implicated as reasons why young people are increasingly spending more time on the streets than in homes (Daniel, 2012). As outlined in the TTI, influence factors at this level are deep rooted and very difficult to modify without integrated effort but they yield the best results as they influence multiple behaviours (Petraitis et al., 1995, Ralph J. DiClemente et al., 2009). The factors leading to social disorganisation and neighbourhood disadvantage relate with social, economic, cultural and political issues and thus difficult to tackle with a one-dimensional strategy. Impactful programmes at this level must seek collaborative approaches and focus on simple sustainable changes such as skills and leisure that can be scaled up to incorporate infrastructural or policy change.

#### **9.3.4.2. The smell of cannabis in social settings**

In addition to seeing other people use cannabis, many interviewees reported intense euphoria from perceiving the odour of cannabis and this not only increased the plausibility of their using cannabis but precipitated a desire to experiment. Retaining the status as non-users despite regular inhalation of cannabis smoke to experience its effects may redefine the concept of experimentation. Being able to inhale cannabis provided enough time for appraisal of the full ramification of being a cannabis user. This relates to social learning theories which explain young people's inclination to use substances as a result of their observation and perceptions of others (Bandura, 1989). Social modelling in this instance appears to go beyond observation to incorporate a preliminary experience. This finding implies that restriction of smoking activities in public places in addition to safeguarding public health can reduce the risk of young people being inclined to use cannabis from inhalation of the smoke in social settings. This is, however, difficult to achieve in deprived, disorganised neighbourhoods where cannabis sale and use is integrated into street culture and daily life.

#### **9.3.4.3. Cannabis, deviance and crime**

The purchase and use of cannabis in settings rife with crime and violence put interviewees at risk because distrust among dealers and regular raids by law enforcement created chaotic situations. Exposure in drug settings was not limited to cannabis as the more complicated sale of cocaine and heroin occurred through the same channels as cannabis. The use of cannabis by some male interviewees as a boost to commit criminal acts and violent behaviour is suggestive of a link between cannabis and violence. This is contrary to evidence that the predominant effects of cannabis are relaxation and euphoria although acute adverse or long term effects may produce intense anxiety, psychotic states and loss of control leading to extreme behaviours (Niveau and Dang, 2003, Pacula and Kilmer, 2003).

There is a significant body of research which suggests that cannabis and crime may be facilitated by the same causal pathway that facilitates disorganisation, inadequate social infrastructure and poverty (Pacula and Kilmer, 2003, Pedersen and Skardhamar, 2010). Problem behaviour theories highlighted in the TTI regard illicit substance use as an extension of the proneness to deviance and antisocial activities but not all use was associated with deviance as reported in this thesis (Flay et al., 2009, Sanders, 2012).

Unlike the male interviewees, no female was associated with violence or gang activities suggesting that this behaviour may be linked with the male socialisation process. Male interviewees who were gang members were more likely to be out of school, lived in high risk neighbourhoods and participated in criminal activities since childhood. Growing up in poverty, dealing with intense situations and observing gang activities were key influence factors in this thesis. The situation in the early 1900s where rapid urbanisation, poverty and neighbourhood disorder was characterised by youth gangs and delinquency in Lagos Island mirror the current circumstances described by interviewees in this thesis (Fourchard, 2006, Heap, 2010). This clearly shows that in the history of Lagos Island, similar determinants have been associated with deviance in the past 100 years and it suggests that there are wider issues than just cannabis use.

A qualitative study reported that initiation of cannabis among gang members occurred in similar ways to regular cannabis users and the greatest risk of joining gangs was living in areas with gang street culture similar to findings in this thesis (MacKenzie et al., 2006). Gang members may be related to criminal activities through pathways other than cannabis use and the disposition towards illicit substances such as cannabis may be similar irrespective of criminality (MacKenzie et al., 2006, Sanders, 2012).

Many male interviewees use multiple substances such as alcohol and tobacco along with cannabis. Poly substance use makes the link between cannabis, crime and deviance more complicated and it is difficult to detangle the effect of cannabis alone (Bretteville-jensen and Rossow, 2011, Niveau and Dang, 2003, Pedersen and Skardhamar, 2010) In two qualitative studies among gang members in USA, cannabis was the illicit substance of choice and the most common substance they used after alcohol (MacKenzie et al., 2006, Sanders, 2012).

Users may be socialised by dealers into criminal activities and although evidence is mixed, cannabis use has been associated with crimes and activities related to dealing (Bretteville-jensen and Rossow, 2011, Pedersen and Skardhamar, 2010). The key implication of the link between cannabis use and crime is the fact that it underpins the criminalisation strategy of drug control. Strategies that focus only on the association between cannabis and crime may inadvertently miss wider issues in the sociocultural context that drive both cannabis use and crime. At both extremes of the cannabis debate is the fact that it is either normalised and used for pleasure or it is not and associated with deviance and problematic use (Sanders, 2012). Settings where cannabis sales occur are, however, potentially dangerous for young people exposed not only to cannabis but also to criminal activities. Inclinations towards deviance as an explanation for cannabis use do not capture the use by everyday young people who do so as part of their rational lifestyle choices (Duff, 2003, Parker et al., 2002, Parker et al., 1998).

#### **9.3.4.4. Cannabis use: sociocultural dimensions or personal choice**

Not all young people who lived in smoking neighbourhoods and were exposed to cannabis used it reflecting the fact that additional influences mediate the decision to use cannabis. This was reflected in the tendency for interviewees within the same setting to blame completely different situations for their use of cannabis. Male interviewees were more likely than females to blame their neighbourhoods for shaping their lives and the females were more likely to blame their families. This reflects the fact that there were crucial factors within those domains that put them at greater risk. Females were more likely to stay at home until they were ready to be married while men typically left home earlier to achieve independence. As discussed later, this may explain why females were more affected by occurrences in the home and less by the neighbourhood although they mainly initiated cannabis in social settings and not at home. Intrapersonal theories in the TTI explain how personal competence and self-esteem are mediated by social factors that increase the inclination to initiate use (Kaplan et al., 1984).

Becker suggested that the conceptualisation of cannabis use had social dimensions because psychological characteristics could not fully explain the construction of use (Becker, 1953). This implied that the inclination to use cannabis had social elements which influenced the perceptual changes that made its use desirable (Becker, 1953, Measham and Shiner, 2009). Although this explanation is plausible, it does not address the level of interaction between personal and social situations that put interviewees at risk of cannabis use. A Colombian study showed that young people with high risk intrapersonal traits such as sensation seeking had a high likelihood of cannabis use irrespective of protective social or environmental factors and the converse was true if they had protective intrapersonal traits (Brook et al., 1998). This interaction between different streams of influence is highlighted by the TTI to show that behaviour is mediated by multiple factors and thus there may be no simple explanation for predominant influence for cannabis use (Brook et al., 1998, Ralph J. DiClemente et al., 2009). Social processes may shape the eventual use of cannabis even if there were personal factors in the first instance as seen in this thesis.

### **9.3.5. Law enforcement, society and the criminal identity**

#### **9.3.5.1. Perception of the consequences of arrests for cannabis use**

The tendency for interviewees to challenge society's negative views regarding their use of cannabis was based on the presumed rationality of their ability to appraise the risks and rewards relating to use. The legal assumptions for criminalising cannabis possession and use was at variance to the fundamental basis of young people's conjectures about risk and reward as demonstrated by interviewees. As highlighted earlier, the assumptions that punishment for possession or use of cannabis would serve as a deterrent are derived from political narratives with little or no public health perspectives (Klantschnig, 2015, Klantschnig et al., 2014). These assumptions may also have been premised on the fact that it would create fear among young people who will abandon it because of its perceived risks. As shown in this thesis, young people's concept of risk taking takes the perceived utility of their actions as well as consequences into consideration to determine if they will be deterred by threats of arrests and detention. Even when probable restraints such as school sanctions and disclosure of cannabis use to families threaten their decision making process, they are not viewed as absolute barriers to use as these risks could also be mitigated by concealment.

The repressive approach to curbing the problems related to cannabis use reflects the wider drug control policy of enforcement. The fieldwork phase of this research project provided a unique opportunity for the researcher to relate with interviewee accounts of arrests having witnessed a drug raid herself. Being at the wrong place at the wrong time was the main criteria for being arrested and this may be why young people were inclined to take the gamble with their use. These challenges relating to being arrested are worsened by the need to bribe and pay 'settlement' to secure release or be locked up for up to one year. The arbitrary and unpredictable nature of the discriminatory arrests was thus seen more as a risk that had to be factored into cannabis use than as a consequence.

Several studies and reviews about the political nature of drug law enforcement in Nigeria and the attendant issues with corruption, human right violations corroborate

the findings in this thesis (Isidore S, 1992, Klantschnig, 2015, Klantschnig et al., 2014, Klein, 1999, Klein, 2001). The rationalisation of the level of ease or difficulty involved in using cannabis despite the threat of sanctions can be understood by the perceived behavioural control construct of the Theory of Planned Behaviour, a proximal TTI influence (Ajzen, 1991). Interviewees' perception of their ability to use cannabis was contingent on the strength of their inclination towards cannabis use and reinforcement from their social context. Evidence from a Canadian study which supports findings from this thesis suggests that young cannabis users deliberately factor in the risks associated with using an illicit substance such as the harm or stigma (Hathaway, 2004). Findings from a Norwegian study were also in agreement with this notion because entrenched in the subcultural use of cannabis was the need to constantly diminish or deny the associated risks (Sandberg, 2012b).

In this thesis, female interviewees were hidden because they faced additional vulnerabilities if they were arrested. The increased risk of assault was not a deterrent to use as would have been expected as females mitigated this risk by being much more hidden and discreet than male users and avoided drug joints because of police raids. This may explain why it was extremely difficult to recruit female cannabis users in this study and they were practically unseen because they also obtained cannabis through third parties. Stigmatisation has been shown to result in people being ostracised and consequently facing disadvantages (Shiner and Newburn, 1997). A recent qualitative study on cigarette smoking in Nigeria failed to recruit any female cigarette smoker for interviews because they were completely inaccessible despite measures adopted to target them (Egbe et al., 2014).

The whole concept of criminalisation is thus at variance to the perceptions of users about its consequences and has key implications for health promotion. Health education is one of the commonest ways that young people are targeted for substance use prevention. Utilising the consequences of cannabis use with respect to its criminalisation as an education tool for young people may not yield sustainable outcomes because users not only perceive these 'consequences' differently, they may neutralise them.

### **9.3.5.2. Law enforcement and the criminal identity**

Selective targeting based on appearance created a 'criminal stereotype' that made cannabis users who were school drop outs to be more at risk of arrests than in-school cannabis users. The unspoken principle of use was 'use cannabis but don't get caught' as whoever was caught became the 'culprit'. The culprit was difficult to define because the police did not differentiate between regular cannabis users and those who participated in criminal gang activities as using cannabis was considered criminal. The tendency to view cannabis use and criminality as the same underpins the criminalisation strategy of cannabis use but it raises valid questions about the identity of the cannabis user. The definition of who a cannabis user is in the Nigerian context is thus unclear from a law enforcement perspective because arrests were made on the basis of the criminal stereotype or possession of cannabis paraphernalia. This stereotype only applied to young people because it was perceived that police officers could use cannabis and get away with it. The need to detangle the link between cannabis and crime was earlier highlighted because it is vital in driving the dynamics of exploring intervention options among young people in Nigeria. As long as they are tagged as criminal irrespective of their individual circumstances, they will continue to be a hidden population.

The issue of vulnerability builds on the perception that users are criminalised by society and out of school cannabis users viewed themselves as victims because they were more vulnerable to arrests. The victim perspective implied that they were targeted not necessarily because of their use of cannabis but because being young and unkempt made them vulnerable. Managing the victim identity required that users were unseen, unheard and masked. They were unseen because they avoided any attempt to make their identity as users visible, unheard because they didn't have a voice in society and masked because when they interacted outside their network, they concealed their identity as users.

Young people who feel victimised cannot be targeted by conventional programmes because they are hidden and it has been argued that they utilise neutralisation techniques to diminish the tendency for non-users and society to judge them as

deviants (Järvinen and Demant, 2011). Cannabis laws in the UK and USA are inclined towards prohibition and this has failed to control use as reflected by the idea of normalisation (Blackman, 2010).

Findings from a Canadian qualitative study of 104 cannabis users showed that most of them were not bothered about the legal sanctions relating to use once they took precautions to conceal (Hathaway, 2003, Hathaway, 2004). The arguments in favour of decriminalisation cite the devastating effect of stigmatisation on users in addition to school or work problems. The Netherlands experience is frequently cited as an example that decriminalisation does not necessarily increase use (Wodak et al., 2002). Illicit dealing and trafficking is said to thrive because increasing demand in the face of prohibition forces users to black markets (Wodak et al., 2002). The debates against the liberalisation of cannabis are hinged around its deleterious effect on health (Wodak et al., 2002). Young people who engage in deviant activities acknowledge societal norms and behavioural codes of conducts but they diminish them using 'neutralisation techniques' to belittle the impact of their actions or the stigma (Peretti-Watel, 2003). The conceptualisation of cannabis use as a criminal activity may have long term implications for public health especially because criminalised people are unlikely to seek help irrespective of their health or social needs.

## **9.4. Social and interpersonal context**

### **9.4.1. Peer relationships: attachment, associations and identification**

#### **9.4.1.1. Peer associations, delinquency and influence**

Peers of survey participants who used cannabis were significantly more likely to use cannabis and other substances than those who did not. In the latent class models, peers of heavy users were three times more likely to use cannabis compared to non-users. While this finding may be expected, the direction of peer association and influence has been a subject of debate. Although interviewee accounts of peer associations support the survey findings, the nuances in their conception of friendship showed that this link is bidirectional.

The factor most consistently discussed by interviewees in relation to their initiation of cannabis was association with peers who used it. Although the direction of influence in the relationships was not always clear cut, it appeared to favour situations in which they sought out friends that were inclined towards desired characteristics. They were not passive recipients of peer influence because they engaged in peer interaction through a dynamic process. Descriptions about observing friends use cannabis; negotiating inclusion and asking for cannabis from peers in social settings imply this was an active process. In situations where interviewees described being 'forced' to use cannabis, they were actually hanging out with peers who were smoking cannabis and thus were actors in the dynamics that resulted in their use.

Personal inclination of interviewees thus appeared to model the peers they selected and this inclination was reinforced by observing others use it. The continued use of cannabis among interviewees especially those who were unenthusiastic was, however, facilitated by direct pressure from peers. Once cannabis use was initiated, the pressure to sustain use from peers was more direct and strategic and included facilitating availability, group use and taunting those who were reluctant to do so. One explanation for the pressure from peers to continue use may be because after initiation, interviewees go through periods of indecision and contemplation regarding stopping or continuing.

The Peer Cluster Theory which is an ultimate level social theory in the TTI provides insight into the fact that psychosocial problems, attitude and the socialisation process could influence the inclination to association with peer substance users (Flay et al., 2009, Oetting et al., 1988, Petraitis et al., 1995). This implies that linkages between intrapersonal, sociocultural and social domains are useful in explaining interviewees' inclinations to cannabis using peers as seen in this thesis. Contrary to the Peer Cluster Theory's assertion that a positive attitude towards substance use leads young people to associate with peer users who directly mediate initiation, social learning concepts posit that the opposite occurs (Oetting et al., 1988, Petraitis et al., 1995). Association with peers in addition to other psychosocial factors may actually shape the attitude that favours initiation through social learning as seen in this thesis (Bandura, 1989,

Petratis et al., 1995). The key implication of this is that social modelling influences cognition which consequently influences future behaviour with or without peers based on future outcome expectancies (Bandura, 1989). Findings from this thesis suggest that peer clustering was thus more crucial in sustaining use than initiation.

Health promotion programmes directed at creating supportive environments for young people will facilitate the development of positive relationships using social modelling concepts. Interventions must target factors that increase young people's inclination towards cannabis using peers and incorporate resistance skills to decline pressure to sustain use. Programmes that focus only on peers and peer influence may miss opportunities to address personal inclinations to cannabis using peers or the social learning process.

Although peer stealing was significantly associated with cannabis use among survey participants, peer cheating was not. This is possibly because cheating in an examination was not considered a delinquent behaviour and could pass for normal behaviour because about two thirds of the entire sample had peers who had cheated. Cheating in an examination may be considered normal irrespective of a participant's inclination to other delinquent behaviour. A study of the perception of cheating behaviour among secondary school students in Southern Nigeria concurs with this as it showed that cheating was perceived to be common and encouraged by parents and school authorities (Alutu and Aluede, 2006). Evidence from an educational review showed that widespread cheating in Nigerian secondary schools had evolved to a coordinated system that involved parents, teachers and examination invigilators reflecting a collapse of societal values relating to honesty and integrity (Jimoh et al., 2009).

There is a significant body of research which has shown that peer stealing as a measure of peer delinquency is associated with cannabis use (Brook et al., 2011a, Brook et al., 1999, Brook et al., 1998, Brook et al., 1989, Morojele and Brook, 2006). In agreement with findings from this thesis, peer substance use has consistently being demonstrated to predict an individual's use later on (Hundleby and Mercer, 1987, Korhonen et al., 2008); peer cannabis use is also associated with cannabis use in young

people (Brook et al., 2011a, Brook et al., 1998, Brook et al., 2006c, de Looze et al., 2015, Morojele and Brook, 2006, Siqueira et al., 2001). Peer factors such as stealing and cannabis use were significantly more associated with cannabis use in males than females in this thesis and supports findings in a Colombian youth study.

Young people tend to overestimate peer smoking in terms of the number of smoking peers and the amount smoked possibly because this misperceived norm concept may occur because unconventional behaviour appears more captivating (Parsai et al., 2009, Presti et al., 1992). The concept of friendship among interviewees appeared superficial and there was a tendency to refer to a wide range of associations as friends including temporary acquaintances who facilitated the use of cannabis. A USA study showed a positive association between smoking associations and smoking levels (Flay et al., 1998). In line with findings in this thesis, another USA study showed that young substance users identified more people around them as friends than non-users (Hundleby and Mercer, 1987).

The argument that friendship selection and projection of peer use may be more important than peer influence because young people selected friends with desired experiences concurred with findings in this thesis (Bauman and Ennett, 1996). Selection was conceived on the basis that young people will associate with peers who similarly used cannabis as peer groups will typically limit inclusion to those who share similar use (Bauman and Ennett, 1996). In agreement with findings in this thesis, research evidence shows that the association between young people and their peers are bidirectional in terms of the influence (Allen et al., 2012, Bauman and Ennett, 1996). The findings relating to peer associations suggest that youth programmes cannot be effective without an understanding of young people's motivations and inclinations in terms of peer characteristics. The example of peer cheating clearly suggests that general perceptions within a group can result in a delinquent behaviour attaining a status of normalcy. Giving young people a voice will ensure that their perspectives are harnessed in designing programmes that address personal and peer related behaviour.

#### **9.4.1.2. Peer attachment**

The odds of using cannabis among survey participants reduced with unit increases in peer attachment in this thesis. Some interviewees clearly differentiated their friendships with users and non-users of cannabis. Attachment to childhood peers were described more positively as some asserted not using cannabis until they left home and friends to associate with peers they met on the street. The findings in this thesis support evidence from attachment theories as weak attachments to conventional associations inclines young people to attach to deviant peers (Petraitis et al., 1995). School or family problems have been reported to result in young people developing weak bonds at home and forming strong attachments with deviant peers that predispose them to substance use (Kumpfer and Turner, 1990, Petraitis et al., 1995). Contrary to attachment theories, interviewee relationships with peer cannabis users in this thesis appeared to be loosely constituted, temporal and contingent on the commonality of cannabis use as opposed to being 'strong attachments'.

Positive relationships and attachment to peers has been documented as having a positive impact on the wellbeing and development of young people (Allen et al., 2012). The influence of peers is reported to be greatest in young people who lacked personal skills and family support (Allen et al., 2012). Socialisation with key entities such as the family, school, peers and the community, results in healthy behaviour through social learning and healthy social bonds (Hawkins and Weis, 1985).

Lack of family support was reported by interviewees in this thesis as a reason for becoming increasingly dependent on peer relationships. In instances where these relationships were with cannabis using peers, they became inclined to use themselves. There was a strong positive correlation between peer and parental attachment scores in this thesis and this may indicate that those who had a strong attachment to parents also had strong attachment with peers. This finding supports evidence from a review of peer influence in young people (Gorrese and Ruggieri, 2012).

#### **9.4.1.3. Social networks, affiliations and identification.**

Gender based social networks were important for the entire spectrum of cannabis use and intimacy was not required possibly because Identification or affiliation was viewed as a survival strategy and formation of intimacy was considered elusive. Intimacy was instead a feature of friendship pairs who shared common interests and possibly lived together if they had left home. Interviewees in this thesis reported learning about mixing techniques within their groups and skunk was popularised within groups that mixed it with cannabis to achieve a specific effect that was suited for effective communication. Acceptance into a network promotes a sense of belonging that may explain cannabis users' susceptibility to peer influence as they strive to conform because of the fear of segregation (Haynie, 2001). Social learning is facilitated through networks and can stimulate shifting perceptions about cannabis as normal despite external stigma (Hathaway, 2004).

Becker emphasized the fact that cannabis use was a learnt behaviour and experiences or meanings attached to its use were socially constructed (Becker, 1953). The craftsmanship involved the smoking techniques, the anticipated effects and appraisal of the entire experience were socially driven in order to sustain use (Becker, 1953). This may explain why some interviewees in this study initiated cannabis on their own because they did not want to be tagged as learners by social groups. Becker also argued that even when distasteful effects were experienced, cannabis use was sustained because its effect was re-evaluated as pleasurable with reassurance from peer networks (Becker, 1953).

A balanced approach is necessary because opportunities to understand the intrapersonal influences may be missed by overdependence on the role of friends in explaining motivations to use cannabis (Arnett, 2007). The social network could also be explored as a tool to positively deliver interventions to young people.

## **9.4.2. Parental relationships: conflicts, attachment and family cannabis use.**

### **9.4.2.1. Family conflicts and parental/sibling cannabis use**

Parental use of all substance evaluated was significantly associated with cannabis use among participants. The association of father's cannabis use with initiation and continuation of use compared to mother's use which was only associated with initiation suggests father's use combined influence factors for both dimensions of use. Father's cannabis use where applicable appeared play the most significant role in initiation than any other influence factor in this thesis.

Interviewee reports of sibling and father's cannabis use provided a rich perspective about the distinctiveness of the influences: while the father's use indirectly triggered initiation and use, siblings directly influenced initiation and facilitated the entire spectrum of sustaining use. Firstly, knowing their fathers used cannabis even if they did not actually see them use it was perceived as a basis for assuming that their own use of cannabis was permissible. Secondly, their fathers' advice against smoking cannabis wasn't considered consequential if the fathers also smoked because the example set by their conduct was considered more valuable than their advice. Although the positive disposition to cannabis was influenced by their fathers' use, in most instances, these interviewees waited until the opportunities arose outside the home to use cannabis.

This finding is key to understand the factors that shape young people's inclinations towards peer cannabis users. The foundation laid by their fathers' cannabis use made its use plausible and may have stimulated their inclination to associate with smoking peers. Findings from this thesis supported a study in the USA which reported that young people who knew their family members used cannabis were curious about experimenting with it irrespective of whether they had seen their family members use it or not (MacKenzie et al., 2006). This finding may have implications for understanding why young people seek out deviant peers based on their proclivity for cannabis as the inclination may have developed at home.

Siblings who used cannabis not only motivated their kin to use, they shaped the process of use, concealment and sustenance of use. Such siblings acted as friendship

pairs to reinforce and support each other's use. Interviewees whose siblings used cannabis considered the sibling's role in their sustenance of cannabis use as more important than their peers. This maybe because there was a closer bond, they probably lived together and the sibling assumed a mentorship role.

Sibling use of cannabis was positively associated with cannabis use in a study of young people in Colombia (Brook et al., 1998). Parental smoking has been associated with initiation in young people and it is particularly noted that it is as significant as peer smoking when lifetime parental measures are utilised (Bauman et al., 1990). Parents who use substances may not deliberately advocate use but their actions convey the impression of normalcy as their children do not expect to be reprimanded for doing so unlike those whose parents have never done so (Bauman et al., 1990). A review of studies showed that parental cannabis use is associated with its use among young people and the more tolerant a parent's attitude is towards cannabis, the more inclined their children will be to use (Hawkins et al., 1992b). Interventions that incorporate family programmes that address parental roles may be useful in helping parents better understand their role in supporting and mentoring their children. Parents may not know the full impact of their use because they perceive they have never been seen smoking by their children. Integrative youth programmes need to incorporate families and address issues such as this because the inclination to use cannabis may have developed entirely at home.

#### **9.4.2.2. Parental attachment**

The odds of cannabis use in the survey data reduced with unit increases in parental attachment and this mirrored the role of supportive family relationships that was a major feature in the interviews. All the females who used cannabis as a coping strategy in the interviews did so because of family conflicts. Dysfunctional homes disproportionately affected females more than males and their vulnerabilities were increased when they left home. When key aspects of attachment such as trust and communication are absent, young people tend to feel alienated from their parents and may seek other forms of associations to fill the gap.

Supportive relationships between young people and their parents in addition to a cordial family environment has been associated with reduced substance use (Hundleby and Mercer, 1987). Weak parental attachment has been associated with cannabis use as highlighted in this thesis (Brook et al., 1998). Family ties are sources of restraint from the use of cannabis and strong parental attachment is associated with better outcomes in young people through adulthood (Burkett and Jensen, 1975, Laible et al., 2000). Stable, supportive parental and peer affiliations are invaluable in young people's adaptation to roles and responsibilities (Laible et al., 2000). In the absence of enriching and positively reinforcing interactions in the family, schools and with peers, adolescents are more predisposed to experimental substance use (Petraitis et al., 1995). This finding reinforces the need to incorporate families into programmes that address young peoples' needs.

#### **9.4.3. Motivation to use cannabis**

Contrary to societal views that cannabis was used for arbitrary reasons or just to get high, the motivations for use of cannabis highlighted by interviewees demonstrated specificity either to achieve a positive benefit or to cope with a negative situation. Coping with problems was the predominant motivation for using cannabis in this thesis. Most of the public information available about cannabis focus on the fact that it is illicit so peer narratives were important in shaping motivation. This may explain why narratives about cannabis utility and effects were similar across different interviews reflecting the level of information exchange that occurred in social networks. A Swiss study suggested that young people form opinions about cannabis themselves because the public focuses on its illegality and debates about its criminal nature and not necessarily its public health consequences (Akre et al., 2010).

Detangling the motivations that were held prior to initiation from those that develop after use may be helpful in addressing perceptions relating to the utility of cannabis among young people. A common example was the fact that increased appetite was perceived as a benefit of cannabis that became important after use. This implied that poor appetite was not a motivation for initiating cannabis but increased appetite was a

motivation for wanting to continue. The utility of cannabis was paradoxically not static but reconstructed based on expectations and experiences.

In instances where experiences were at variance with the actual experience of use, the utility of cannabis was reconstructed to fit the new experience and this may explain why interviewees did not stop cannabis when their experience did not line up with their expectations. This explains why interviewees who used cannabis to cope better in school and dropped out due to its distracting effect continued using cannabis to cope with the impact of dropping out. A Canadian qualitative study showed that motivation and experiences with cannabis use were varied and the same person could attach diverse meanings at different times or settings with the meanings having opposing effects in some instances (Hathaway, 1997). This finding reflects the need for dynamic ways of engaging young people in a participatory manner during health programmes. This is because a programme that focuses on the simple assumptions that motivations are linear may miss opportunities to address young people's tendency to reconstruct experiences. Socially learned and experiential aspects of cannabis motivation are important because the decision to continue using cannabis may be at variance to the decision to initiate.

Although motivation to initiate cannabis was socially derived, the motivation to continue to use appeared to be based on the personal experiences with use. Research findings from the United Kingdom, Canada, and Norway show that the motivation for cannabis use was mainly leisure and was considered a pastime (Hathaway, 1997, Hathaway, 2003, Parker et al., 2002, Sandberg, 2012a). A British study on the reasons for cannabis use showed that with relaxation, euphoria and boredom being the commonest reasons for use (Boys et al., 2001). This is in contrast to findings in this thesis that indicated coping was the main motivation and there are limited studies that capture the motivations for cannabis use in Nigeria and Africa.

There is a possibility that the overwhelming socioeconomic pressures and inequalities that young people face in Nigeria shape the predominant motivation of use (Agnes, 2010, Ajaegbu, 2012, Chukuezi, 2009, Okafor, 2011). A young person living in a disadvantaged setting who perceives future career and academic opportunities are

limited may resort to cope with cannabis if there are no personal skills to rise against the odds. In countries where there is a social buffer in the form of social welfare, the motivation for using cannabis is likely to be different. The perceived benefits of cannabis cannot be ignored in programmes that target young people. If cannabis users are deliberate about the effects they experience from the use of cannabis then interventions need to be deliberate in addressing their deep seated perceptions.

## **9.5. Intrapersonal Context**

### **9.5.1. Cannabis use as a coping strategy**

The use of cannabis as a coping strategy by interviewees who felt inadequate about handling stressful situations they were confronted was usually intended as a short term avoidance strategy although there were little or no long term solutions. The need to continually escape from the cycles of frustration was the critical factor that sustained use as underlying problems were not addressed. Most females who used cannabis as a coping strategy did so to cope with family conflicts and this may reflect the fact that they were significantly affected by unstable home settings. Most males who used cannabis as a coping strategy did so to cope with school, work problems or failed aspirations.

Males and females are socialised differently within the Nigerian context and these social norms are deeply embedded in all aspects of community life. Males leave home earlier than females because independence is a crucial need. Family stressors may put females under intense emotional strain forcing them to leave home in search of coping mechanisms and they are unfortunately highly vulnerable on the streets. Males are viewed as breadwinners who have to show resourcefulness at an early age so the pressure is on assuming the male role, making a living and being independent. Failure in achieving their aspirations in school or work puts them under intense strain and coping with cannabis in these situations may be long term if there were no exit strategies. In addition, findings showed that the perception that opportunities for young people were limited unless they engaged in fraudulent dealings was associated with intense frustration among male interviewees.

Cannabis was used as an anger management tool to cope with provoking situations and control their response. Although anger was not listed as a motivation for initiating cannabis, it was stated as a motivation for sustaining use and this implied that its utility in controlling anger may have been an incidental or socially constructed. A Canadian study showed that majority of adolescents whose families had conflicts and marital problems were more likely to use cannabis and those from dysfunctional families who used cannabis were likely to progress to problematic use (Butters, 2002). Evidence from a USA study also showed anger coping and family problems were associated with cannabis use (Siqueira et al., 2001).

Several studies have highlighted the fact that young Nigerians have limited access to opportunities to education and employment in addition to alienation from society at all levels resulting in intense frustration (Agnes, 2010, Ajaegbu, 2012, Okafor, 2011). A review of studies evaluating the relationship between cannabis and stress related coping showed that cannabis was significantly associated with coping with a wide range of stressful situations from abuse, intense anger to family or social problems (Hyman and Sinha, 2009). Lack of alternative coping mechanisms, dysfunctional problem solving methods and altered stress-reward pathways have been implicated in chronic or heavy use of cannabis as a coping strategy (Hyman and Sinha, 2009). The ubiquity of cannabis may explain why it is commonly used as a coping strategy and young people who use it to cope develop more problems than those who use it socially (Hyman and Sinha, 2009).

This finding reflects the need for interventions that empower young people with the skills they need to handle daily situations and pressures. Family support is crucial and females particularly need to be protected because leaving home at an early age increases their vulnerability to abuse and cannabis use. Social influences frequently suggest cannabis as a plausible option for coping and thus young people need to have access to a wide range of resources and counselling regarding coping with problems. Targeted interventions are particularly useful for those already at risk.

### **9.5.2. Sensation seeking and the concept of risk taking**

Sensation seeking was a significant finding that was associated with cannabis use in the survey with scores higher among male than female and this was also a key finding among interviewees who desired high risk experiences and exposure to risky settings. The concept of good and bad was consequently not based on conventional norms but on anticipated benefits and the desire for adventure. Evidence from a USA study suggests that interventions for young people living in disordered neighbourhoods are useful in preventing deviance and substance use (Furr-Holden et al., 2011). Findings from this thesis suggest that such interventions may need to extend further to young people in other settings who are inclined to deviance irrespective of their risk exposure.

Advocates of a 'risk based approach' to understanding and addressing substance use among young people suggest that they use substances because they are unaware of the risks and devastating effects (Järvinen and Demant, 2011). This is opposed to a 'reasoned approach' in which they use because they are aware of the risks, have weighed them and made personal choices to use based on the consideration that benefits outweigh the perceived risks (Järvinen and Demant, 2011). Dialogues about substance misuse among young people are mainly focused on the potentially damaging, detrimental effect on health and wellbeing (Mayock, 2005). The risk based approach views users as oblivious of the risks but on the contrary, they may be drawn by the risks to stimulate adventures and risks are socially contrived through an iterative process (Järvinen and Demant, 2011). The limits of normalcy delineated by society also influences risk perception as seen in Canada in the 1990s when cannabis use increased as perception of risk of related consequences reduced (Hathaway, 2004).

In this thesis, interviewees reported learning from the experiences of incarcerated cannabis users after their release in order to reappraise their risk of getting caught or thriving in detention. This reflects the fact that individualised aspects of risk and rational decision making are influenced by the social context (Mayock, 2005). An ethnographic study of cannabis use transitions in a high risk environment reported that some young people did not use it despite others shifting from low to very high use

(Mayock, 2005). Sensation seeking which is characterised by the desire to take risks and seek arousing experiences has been linked with illicit substance use and a wide range of illegal behaviour among young people (Bates and Labouvie, 1997, Malmberg et al., 2010, Stephenson et al., 2003).

Traditional health messages typically tag some actions as good and others as bad without consideration for young people's perception of good and bad. Although the concept of 'risk avoidance' has been used to promote health messaging regarding the use of cannabis, young people also adopt strategies to address the risk tag on cannabis (Hathaway, 2004). Information that is presented in a more communicative manner may allow them to reason the pros and cons of an action and facilitate healthy decisions making. A young person who perceives a high risk neighbourhood as good is unlikely to be swayed by information that tags it as bad because it is portrayed as bad for the same reasons it is perceived as good. The concept of good and bad is thus relative to personal perceptions and not societal definitions.

### **9.5.3. Aggression and cannabis use**

Aggression was significantly associated with cannabis use in univariate models in the survey but was not a significant finding in the final regression models. The fact that no female interviewee reported any inclinations for aggressive behaviour support the survey findings in which male aggression scores were significantly higher than female scores. Interviewees associated irrational behaviour with excessive use of cannabis and this is contrary to evidence about cannabis effects as earlier discussed. Cannabis has a placid effect on activity resulting in relaxation and reduced reaction time (Boles and Miotto, 2003). A review of literature showed that cannabis had little or no effect on aggressive behaviour although excessive use of high potency variants may mimic those effects (Boles and Miotto, 2003). The aggressive effects experienced by cannabis users in this thesis may be related to the potency of cannabis use or polysubstance use.

The fact that the relationship between aggression and cannabis was not significant in the final survey models may indicate that its effects were mediated by other factors. Almost all interviewees used alcohol in addition to cannabis and it is possible the use

of cannabis with alcohol may account for the inclination to carry out violent activities. Although it was not explored in detail, most male interviewees reported 'smoking cannabis and drinking'. It is also possible that they had other psychosocial inclinations to aggressive behaviour that is not explained by cannabis or other substance use. Aggressive behaviour has been predominantly linked to male substance use in many studies (Hawkins et al., 1992b, Korhonen et al., 2008).

## **9.6. The cannabis use experience**

The experience of cannabis use among interviewees appeared to be predominantly conceptual and they achieved a sense of empowerment or invincibility with its use although in many instances it did not facilitate the actual execution of conceived tasks. There was a tendency to exaggerate experiences with cannabis use beyond what was humanly possible and this may be a neutralisation strategy or may reflect social reinforcement among users relating to the positive attributes of cannabis. This could also possibly be because cannabis removed the inhibition and mental limitation users had prior to use.

Despite the communal nature of use of cannabis, the experience with cannabis was distinct and different between interviewees. Personalised meanings suggested that 'cannabis becomes to you what you want it to be' and the experience at individual level, was distinctively different irrespective of the decision to continue use. The meanings attached to using cannabis also determined how interviewees wanted to use cannabis; while some wanted to use it alone, others could not use it unless they were in the company of peers. With progressive use, participants experienced shifting perceptions of themselves, their problems and the wider society.

Impulsive use was facilitated by boredom which related to wider issues of joblessness or dropping out of school reflecting symptoms of a wider problem and leisure in that sense may be a coping strategy for boredom and not relaxation. Boredom may be a contextual construct in the sense that it could reflect the discourse within an interviewee's social milieu. A clear distinction between the use of cannabis for leisure and as a coping strategy for boredom is, however, crucial because the former may

have more positive connotations than the latter. The experience of cannabis use is important because as highlighted by the TTI, the experience of use acts as feedback to the influence factors to predict future behaviour (Flay et al., 2009).

### **9.6.1. Cannabis, madness and dependence**

#### **9.6.1.1. Cannabis and madness**

The perception that there was a dose dependent relationship between cannabis use and 'madness' with awareness of the risk of dependence or mental health problems explained why interviewees set boundaries for safe use. The consensus that smoking more than 10 wraps of cannabis at a time carried the risk of irrational behaviour or madness reinforces the tendency for social networks to set informal codes of conduct. Although interviewees' subjective understanding of the risk factors for madness may be inaccurate, this highlighted the fact that a reasoned approach to addressing cannabis use among young people may yield better results. They were not passive users without regard for the risks involved but this did not mean that their decision to use despite the risk was rational.

The preventive measures they came up with to reduce the risk of madness such as mixing cannabis with other substances like skunk or dealing with contaminants shows the extent they go to mitigate risks of use. Unfortunately these measures may even cause more harm as skunk is known to be a highly potent variety of cannabis. These perceptions and social support facilitated the sustenance of cannabis use as a social activity. Young people have been reported to have an awareness of the risk of dependence, mental health and other problems with the use of cannabis (Menghrajani et al., 2005). A major argument that liberalisation of cannabis is hinged on is that the quality and concentration of substances in cannabis will be regulated if it is liberalised (Wodak et al., 2002). That argument is countered by the fact that despite the regulation of cannabis in Netherlands, over sixty percent of the supply to users occurs outside the coffee shops (Wodak et al., 2002).

The association between cannabis and psychosis has been well documented (Andréasson et al., 1987, Hall, 2009). The association between cannabis and psychosis gave the first indication of cannabis related problems in Nigeria in the 1960s and

recent studies have continued to document this link (Adamson et al., 2010, Klantschnig et al., 2014, Morakinyo, 1983).

The Swedish 15 year follow-up study of 50,000 conscripts showed that the likelihood of developing schizophrenia was 2.4 to 6 times higher in those who used cannabis than non-users depending on the level of use (Andréasson et al., 1987). After adjustment for confounders, personality traits and the use of other substances such as alcohol or cigarettes, the association between cannabis and schizophrenia was still significant (Andréasson et al., 1987, Zammit et al., 2002). Although this does not translate to the risk of schizophrenia being causal with cannabis, cannabis may be a trigger for schizophrenia in susceptible people (Andréasson et al., 1987). A systematic review of studies done in USA and Europe showed that the occurrence of psychosis was higher among cannabis users with a 40% higher risk in lifetime users and up to 200% higher risk for heavy users (Moore et al., 2007).

There was limited evidence to suggest that early use of cannabis carried a greater risk although young people who begin to use at an earlier age may have a higher cumulative exposure over time that puts them at greater risk (Moore et al., 2007). The THC content of cannabis is reported to have increased over the past three decades implying that the potency of cannabis currently being used is much higher with adverse health consequences (Hall, 2009, UNODC, 2015). In a Norwegian study, the risk of psychosis was attributed to fears about the illegal status of cannabis in use (Sandberg, 2012b). These findings have implications for policy and health promotion because it is necessary to protect young people from early exposure to cannabis. In addition, interventions need to address misconceptions in a participatory manner since young people rationalise risks and mitigate them.

#### **9.6.1.2. Cannabis and dependence**

Similar to beliefs about madness, interviewees were also aware of the risk of dependence and their knowledge of 'codeine' as the addictive substance in cannabis although inaccurate, buttresses the fact that they obtained and shared information about various aspects of cannabis use. Dependence resulted in loss of control and meanings were no more the main determinants of use because interviewees who

experienced negative meanings felt constrained to continue use and preoccupation became the norm. There were social dimensions to dependence on cannabis as some reported not being able to attempt quitting unless they left their social network or moved away from their siblings. In order to stop, the bonds between the groups need to be weakened and participants had to occupy themselves constructively. The use of cannabis as a coping strategy carried the risk of chronic use and dependence as earlier described. There is a significant body of research that shows the association between cannabis and dependence has been highlighted in several studies (Degenhardt et al., 2013a, Moore et al., 2007, Murray et al., 2007). A Canadian study showed that participants were aware about the risk of dependence, acknowledged them and took measures to mitigate the risk (Hathaway, 2003).

## **9.7. Related behaviour**

### **9.7.1. Cannabis and polysubstance use**

Majority of lifetime or current users of cocaine and heroin in the survey also used cannabis. The relationship between cannabis and other illicit substances is relevant to the aim of this study because understanding the link between cannabis and other substances (licit and illicit) may explain the risks and boundaries with initiation and continued use. The reported mean age of first use of cannabis, cigarettes and cocaine was 14 years, while heroin and alcohol was 15 years in this survey and this finding is discussed here as it relates to the gateway hypothesis. This finding supports evidence that majority of cocaine and heroin users have used cannabis and illicit substances (Hall, 2006). Available data on the mean age of first use of cannabis use in Nigeria are hospital based and indicate initiation between 14-19 years (Adamson et al., 2010, Amechi Anumonye, 1980).

It has been posited that the risk of substance use typically follows a pattern from alcohol to cigarettes, cannabis and other illicit substances with cannabis acting as the link between licit and illicit substances, the causal nature of this link is still a subject of debate (Fergusson and Horwood, 2000, Hall, 2006, Kandel and Jessor, 2002, Kandel et al., 2006, Van Gundy and Rebellon, 2010). The gateway hypothesis is underpinned by

the need to prioritise the prevention of earlier substances to ensure the interruption of latter ones such as targeting cigarette risk factors as a means of preventing cannabis use (Kandel and Jessor, 2002). In a Finnish study, early cigarette smoking was predictive of progression to the use of cannabis and other illicit substances (Korhonen et al., 2008).

Although there is supportive evidence for the gateway hypothesis, availability, contextual factors and personal motivation may explain the wide variations observed (Kandel and Jessor, 2002). Supportive evidence for cannabis as a gateway substance may actually indicate that its availability facilitated its first use and prior use of cannabis may be a risk for other illicit substances (Fergusson and Horwood, 2000). Findings in this thesis appear contrary to the gateway hypothesis because the age of first use of cigarette was the same as cannabis. Although cannabis has been considered a gateway substance to other illicit substances, this thesis suggests that participants were trying most of these substances around the same time. It is possible that they experiment with multiple substances and settle for the one that was most socially desirable or they tried them in quick succession. This has implications for programmes that typically target cigarette smoking as a priority because while these programmes are educating young people about the use of cigarettes, they may be trying illicit substances potentially skipping the gateway process.

The role of cannabis as a gateway to other illicit substances has been highly debated and the 'marijuana gateway effect' posits that users try cannabis and then move on to try other illicit substances (Fergusson and Horwood, 2000, Morral et al., 2002). In some instances, substances like cocaine were tried before cannabis and it has been suggested that complex factors such as biological, social and exposure to specific substances interact to facilitate which substance is tried first (Agrawal et al., 2012, Fergusson and Horwood, 2000, Kandel and Jessor, 2002, Maccoun, 2006, Van Gundy and Rebellon, 2010). Alternative explanations suggest that the risk of using cannabis and other illicit substances may be mediated through a common pathway of causative factors or links with peer users (Fergusson and Horwood, 2000, Hall, 2006). Cocaine and heroin users are more likely to have tried cannabis, tobacco and/or alcohol; poly

substance use may also be as a result of shared genetic susceptibility or part of general delinquency (Hall, 2009).

Findings from this thesis showed that interviewees who sold cannabis reported also selling cocaine with multiple layers of exposure to dealers and settings. There are arguments that the disposition to use substances may be more important than the order of use (Morrall et al., 2002). A key factor has been the fact that cannabis users purchase cannabis from sellers who deal in cocaine and heroin thus facilitating easy access to these substances (Fergusson et al., 2006, Fergusson and Horwood, 2000, Hall, 2006, Hall, 2009). A longitudinal study showed that heavy cannabis use was associated with a strong likelihood of other illicit substance use after adjusting for confounding factors and peer association (Fergusson and Horwood, 2000). The use of multiple substances by young people may be as a result of the social construction of their utility, identities and perceived health impact (Haines-Saah et al., 2014).

### **9.7.2. Relationship of cannabis with cigarette smoking**

Majority of those who smoked cigarettes in this thesis were lifetime and current cannabis users and almost all interviewees smoked cigarettes in addition to cannabis. Lifetime and current cannabis use frequencies were higher in this thesis than the frequency of tobacco use. This is contrary to findings in several school surveys in Southern Nigeria which reported rates of lifetime and current use for tobacco higher than cannabis (Adelekan, 1989, Fatoye and Morakinyo, 2002, Makanjuola et al., 2007, Oshodi OY, 2010). The most recent of all the surveys reviewed, however, had similar findings to this thesis with the frequency of cannabis being higher than tobacco (Atoyebi and Atoyebi, 2013). National data on adolescent substance use in the USA shows that prevalence of cannabis use is currently higher than cigarette smoking and this is reported to correspond with a change in risk perception in favour of cannabis use (Johnston et al., 2014, Reboussin et al., 2015). This finding was similar to findings in this thesis and changing perceptions regarding the safety of cannabis compared to cigarette was reported by interviewees as their motivation for shifting to cannabis.

There was a consensus among interviewees that the use of cigarette was more dangerous than cannabis and this perception arose from public health warnings about

the dangers of cigarette smoking. Cannabis was portrayed as a social, natural and a safe substitute for cigarettes. Despite the negative perceptions about cigarettes, it played a pivotal role in sustaining cannabis use in this thesis. Most interviewees used both substances and reported that cigarettes modulated the euphoric effects of cannabis, mitigated some of its unwanted effects and was available as a substitute when cannabis was scarce.

It has been reported that young cigarette smokers had up to fifteen times increased likelihood of using cannabis than those who did not smoke cigarettes and cannabis was commonly used with tobacco (Bélanger et al., 2011, Haines-Saah et al., 2014). A Swiss qualitative study reported that cannabis was used with tobacco to dilute the effect of cannabis on the lungs, save cost because tobacco was cheaper and to achieve optimal euphoria (Akre et al., 2010). Qualitative findings from a Canadian study showed that cannabis and tobacco were used together because they were both smoked, tobacco was perceived to modulate the effects of cannabis and it was too expensive to smoke a pure cannabis joint (Haines-Saah et al., 2014). Cost was not considered a major consideration for mixing cannabis and tobacco in this thesis although tobacco was used as a substitute when cannabis was not available. A British study showed that young people switch to alternative substances if their substance of choice is not accessible because some effects or benefits are perceived to be similar across a wide range of substances (Boys et al., 2001). Findings in this thesis support this and show that the needs and perceptions of young people are important in designing programmes for them. Public health campaigns designed to publicise the adverse effects of cigarettes were perceived by interviewees as a call to shift from cigarettes to other substances.

A more effective approach may be to develop integrated participatory messages that provided information about substance use in general. Anti-tobacco advertising was considered a factor in redirecting young people to cannabis in Switzerland and the relationship between cannabis and tobacco in young people has public health implications (Akre et al., 2010). Young people were reported to rationalise the pros and cons of co-use and perceived tobacco as less available, more hazardous to health,

and more stigmatising than cannabis (Haines-Saah et al., 2014). The findings in this thesis were similar except that tobacco was considered more available and the less socially desirable than cannabis.

## **9.8. Discussion on methodological approach**

### **9.8.1. Pragmatism as the epistemological stance**

Pragmatism as the epistemological underpinning facilitated the use of the most suited methods for studying the objectives by enabling the researcher to apply ‘what works’ in addressing the research problem. This also enabled flexibility in making practical methodological decisions that proved challenging given the nature of the research among a hidden population of cannabis users. The varied constructs evaluated in the study required varied methods and techniques and it provided a rationale for quantitative and qualitative methods. In discussing the results, it facilitated the use of quantitative and qualitative results as facets of the same continuum to create an understanding of the dynamic issues relating to answering the research question.

### **9.8.2. Theory of Triadic Influence**

The TTI is an integrative theory combining constructs from multiple theories and it was useful in exploring the complex nature of behaviour. The versatile nature of the theory meant that it could be used to plan the research, present the findings, discussion and propose a framework for health promotion. The incorporation of the role of feedback and related behaviour in projecting future cannabis use was useful in this thesis in exploring the role of other substances in sustaining cannabis use. The theories in the TTI brought different perspectives that enrich the framework.

In some instances, integration was challenging because the constructs represent different aspects of the problem that present diverging views. This was, however, not viewed as a limitation because divergence facilitated deeper exploration of the applicability of the theories in the context. For example while the TTI constructs focuses only on strong attachments to deviant peers, it omits the role of strong attachments to peers who act as positive role models. Peer attachment was consequently assessed both ways in this study. There are no uniform measures for

assessing the TTI constructs and thus comparisons across different studies may represent different inferences. There was difficulty in finding suitable risk factor measures in the survey and some instruments adapted were not easy to use and interpret such as the measures for the proximal constructs of the TTI. Difficulties were encountered during the analysis of the proximal constructs and it had to be omitted from the analysis. In addition, some constructs such as neighbourhood factors are difficult to characterise and measure.

The TTI did not capture the contextual factors that needed to be evaluated in the study of cannabis use such as social identity, subculture and conceptualisation of risk. The TTI construct relating to policy was 'weak public policy on illicit substance use'. It assumed that weak policies were enabling factors for the use of substances like cannabis. This did not relate to the policy context in which this thesis was conducted. Despite harsh law enforcement policies, the use of cannabis was paradoxically facilitated among those who appraised its utility as positive. There was difficulty in integrating the findings in order of priority especially between ultimate, distal and proximal levels due to the complex nature of the interaction between influences. Evaluating all the constructs of the theory in one study is difficult and although many constructs could be explored qualitatively and quantitatively, sociocultural factors were mainly explored qualitatively and intrapersonal factors, quantitatively in this thesis. The limitations of the inferences from choosing this approach as opposed to exploring the use of other measures are acknowledged.

### **9.8.3. Sampling and inconsistencies in survey data**

Although the qualitative and quantitative studies were conducted in Lagos state, the sample populations for both studies were different. The advantage of this was that it provided an opportunity to obtain a rich perspective from cannabis users who were out of school and in community settings because they appeared different from those in school settings. This also led to an important finding that it was extremely difficult to recruit female cannabis users who were still within the school system and they may be characteristically different from female interviewees in this thesis who had mainly completed secondary school.

Despite the high level of confidentiality and anonymity guaranteed in the survey, logical inconsistencies were observed for the patterns of substance use in the data. The logical inconsistencies were highest for responses relating to heroin use and lowest for responses relating to cannabis use. This may reflect the increasing acceptance of cannabis as a socially desirable substance among young people. Heroin on the other hand as discussed in the interviews is considered harmful by cannabis users. The features of cannabis users and non-users in the survey however corresponded with theoretical predictors of cannabis use as outlined by the TTI and the findings from the qualitative study corroborated the survey findings. This indicates that despite the inconsistencies which were minimal for cannabis use data, the survey exhibited construct validity.

#### **9.8.4. Data analysis**

The initial survey data analysis plan was to test the association between cannabis use and independent variables evaluated in the study using binary models. The dichotomisation of cannabis use limited inferences relating to the level of use because it classified the survey participants into use and non-use. Latent class analysis was used as an additional analytical approach because it accommodated logical inconsistencies and characterised users based on their level of use. This provided additional information that differentiated between varying levels of use. The limitation of using frequency to categorise participants into latent classes is acknowledged because amount or level of use was not measured in this study due to limitations of measuring illicit cannabis use.

#### **9.8.5. Interviews**

Telephone interviews were introduced because of the difficulty in recruiting and interviewing females and using focus groups and interviews. Although the use of four interview techniques was a pragmatic one, they provided complementary perspectives about the context and meanings relating to cannabis use. In addition, this facilitated corroboration of information because focus group discussions about general perception of young people were supported by accounts from paired or telephone interviews. Comparing views across different types of interviews showed that

information that was co-constructed within a focus group reflected the facts presented by individuals discussing their personal accounts within a paired interview. In addition to building consensus from different forms of interviews, this showed that the perception of cannabis users about key issues cut across the young people's social world. The tendency to exaggerate and overstate issues was higher in the focus groups and triad interviews than the paired or individual interviews. This was possibly because interviewees in a larger group could reinforce such views and they tended to discuss issues more broadly than the individual interviews.

The use of telephone interviews in this thesis provided an interesting dimension to the research because females felt more comfortable speaking to the researcher on phone than face to face. The two females who were interviewed directly had very brief interviews because they could not open up freely but all the telephone interviewees went on until their interviews were completed. The conversations tended to be more frank with the telephone interviews than the face to face. Allowing interviewees to choose the technique they were more comfortable with appeared to be a pragmatic decision that facilitated the conduct of the qualitative study.

## **9.9. Limitations of the research**

The study relied on self-report data and issues relating to self-report such as social desirability or undesirability could raise concerns about validity. Although the use of biochemical methods of validation or other verification methods was considered, they were expensive and not feasible logistically in this thesis.

The cross sectional design of the study limits inferences that can be made as inferences can only speculate associations and not causality, this thesis cannot inform trends or transitions relating cannabis use. An in-school survey was conducted; this is obviously limited in terms of inferences for young people in community or treatment settings who may differ characteristically from the survey participants. The interviews were done with young people in the community who were mainly out of school and thus inferences may not be transferrable to characterise the context of use for in school students.

Dichotomising participants into use and non-use categories may have had the limitation of missing out on the salient characteristic differences between varying levels of use. This was the most feasible analytic approach considering the proportion of participants using cannabis more frequently would have been too small to analyse associated variables. This limitation was partly accommodated with the use of latent class analysis. Although an integrative theoretical framework was utilised, only very few variables were analysed in this study. The framework was too cumbersome to analyse in a small study of this nature. This study is thus limited in its capacity to integrate findings comprehensively to explain the context of cannabis use among the sample. The variable selection criteria used however facilitated the exploration of key variables identified from the framework.

The scope of the qualitative study was limited by the drug raids that occurred during the fieldwork. The study may have been broader and more inclusive if the raids had not taken place. Only seven females were interviewed and thus the perspectives of female cannabis users included in this study may not all encompassing.

### **9.10. Chapter summary**

This chapter has discussed findings from the qualitative and quantitative studies in this thesis. It also highlighted salient methodological decisions that were taken in the study and how they impacted on the research process. The limitations of carrying out this study were also outlined.

## Chapter 10: Conclusion

### 10.1. Chapter overview

This thesis explored the context and factors associated with cannabis initiation and use among young people in Lagos, Nigeria. The findings highlighted influence factors in addition to providing a rich description of the context of cannabis use in the study setting. Research evidence relating to cannabis use in Nigeria and Africa is highly limited thus it is anticipated that findings from this study will contribute significantly to the policy and health promotion discourse in this area. The aspects of the TTI identified as important in understanding the context of cannabis use and the implications for health promotion are highlighted for the health promotion action areas. The limitations of actualising health promotion in this thesis for a developing country like Nigeria are acknowledged and thus the recommendations acknowledge the need for practical targeted interventions where applicable for those already at risk. This chapter is organised into:

- Summary of empirical findings
- Recommendations and implications for health promotion
  - Multilevel intervention for high risk groups
  - Build healthy public policy
  - Create supportive environments
  - Strengthen community action for health
  - Develop personal skills
  - Re-orient health services
- Significance of the research
- Recommendations for future research
- Final conclusions

## 10.2. Summary of empirical findings

- Cannabis users were more likely to be overage for their classes, had dropped out of school, were higher sensation seekers and had relationships with peers or family members who used cannabis.
- Findings reflected the tendency for cannabis users to continue use after initiation and this was possibly linked to the fact that problems that resulted in the need to use cannabis as a coping strategy increased the risk of chronic cannabis use and dependence.
- Experiential learning in disordered neighbourhood was linked with cannabis use, socialisation into crime and gang activities.
- Society defined the boundaries of normalcy with respect to cannabis use in the Nigerian context irrespective of young people's perceptions of its normalisation within their social milieu.
- The concept of good and bad was not based on conventional societal norms but on subjective personal appraisal of benefit. Societal perceptions about the consequences of cannabis use were rationalised by young people as risks that needed to be mitigated as part of a decision making process.
- A salient distinction between the accounts of initiation and continued use of cannabis showed that initiation was described more at a social level and continued use at a personal level.
- Females were more hidden and implicated family conflicts as their main trigger for initiation while males cited neighbourhood and intrapersonal influences as their major triggers.
- The tendency to switch between substances based on perceived risks and rewards was reflected in the reinforcement of cannabis use by perceptions about tobacco use that were mainly derived from health education programmes about the dangers of tobacco.

### **10.3. Recommendations and Implications for health promotion**

As identified in this thesis, cannabis initiation and sustenance is the result of a complex interaction between influence factors occurring at multiple levels. Interventions must integrate multidisciplinary evidence based strategies that are situated in the Nigerian sociocultural environment. Focusing on promoting healthy development and behaviour will address multiple problems which were potentially linked to cannabis such as deviance, crime, truancy and dropout from school. Addressing ultimate determinants in the TTI by promoting healthy families, communities and creating opportunities for young people will be useful for cannabis and other associated risk behaviours. Addressing the issues relating to cannabis use among young people requires a paradigm shift from law enforcement as the sole strategy to a more integrated framework that incorporates health promotion, prevention and treatment.

#### **10.3.1. Multilevel interventions for high risk groups**

As identified in this thesis, a large proportion of users continue to use cannabis after initiation and the predominant motivation to use cannabis is as a coping strategy. Short term strategies that target high risk groups may be necessary to supplement universal measures that promote health. In the Nigerian context, such targeted programmes may also be necessary to build evidence and a business case for health promotion which addresses the fundamental determinants of health.

A broad health promotion perspective to improving wellbeing through the reinforcement of healthy behaviour and elimination of risks typically assumes a universal or population based approach (Perry and Jessor, 1985). Although utilising a universal approach will reach a large proportion of young people such as those in school, it may not cater for the needs of a high risk group that require selective interventions (Griffin et al., 2003, Naidoo and Wills, 2010, UNODC, 2015). Targeting a few young people who are high risk may not yield significant benefits for the entire community of young people (Griffin et al., 2003). Targeted programmes are more cost effective when the proportion of high risk people are high but the benefits are limited for the wider community (Griffin et al., 2003, Rose, 1981).

Selective interventions may, however, not be effective in Nigeria unless they are driven by policy change that facilitates decriminalisation or stigma reduction for cannabis use to

enhance openness in pragmatic help seeking. Failure to do so may result in low participation and exclusion of females who are currently more socially disadvantaged than male users.

Skills based programmes are generally more efficient than traditional programmes because they enhance social competence and resistance skills in addition to changing perceptions regarding social norms (Botvin, 2000, Cuijpers, 2002, Faggiano et al., 2005, Skara and Sussman, 2003).

Although the school is an effective avenue addressing substance use programmes, the needs of young people who are out of school and who may constitute a large proportion of cannabis users should be considered. It may be more effective to run targeted programmes at community level and universal programmes in school since young people who will be reached in the community are likely to be out of school. For cultural reasons, school programmes that will be effective in Nigeria need to enhance broad based participation through commitment to confidentiality and not coercion and stigma. In addition to school, peers and family are critical influences that enhance the effectiveness of youth programmes as shown in this research (Cuijpers, 2002). The integration of personal skills, coping skills into programmes are not just important because of cannabis but also because they improve the general wellbeing and stimulate a positive outlook to leisure, social interaction and aspirations.

### **10.3.2. Build healthy public policy**

This thesis showed that young people engaged in the use of cannabis within a context and thus programmes that address their needs must be contextualised. Nigeria's drug policies and programmes have been shaped entirely by external policies with limited focus on context specific factors. There is limited evidence on the effectiveness of these policies in Nigeria as they are not regularly reviewed to accommodate changes in a pragmatic manner.

Healthy public policies are important in providing a good foundation for health promotion among young people. These policies will drive advocacy and action that is necessary to reduce risk factors and improve the sociocultural environment. In the area of cannabis use, building healthy policy requires multisector collaboration from the Government, NGOs, schools, education ministries, health ministries, youth development and women affairs.

Policies that promote healthy leisure, decriminalise the use of cannabis, put appropriate restrictions on direct and indirect advertising and facilitate smoke free settings are critically needed.

The recent launch of a Nigerian National Drug Control Master Plan (2015-2019) may be an important milestone for addressing policy issues relating to cannabis use and other illicit substances in Nigeria. The current plan acknowledges the dearth of prevention and treatment services in Nigeria and aims to provide equal attention to demand and supply reduction. This plan, however, provides a legal and policy framework which is mainly situated in law enforcement domains and compliance with international regulation (NDLEA, 2015).

Unfortunately, health promotion strategies that are not situated in evidenced based policies may not be effective. The starting point for health promotion action in Nigeria may be strategic advocacy that aligns evidence with the critical need to improve health and wellbeing among young people. A key aspect of health promotion is advocacy to garner political will that will foster healthy public policy to address the multidimensional nature of their health needs (Nutbeam, 1997). Advocacy is key because funding and support for programmes are driven more by the political will to make a difference than the exigency of the need (Dixey, 2013).

Although the drug control master plan is designed with actionable goals and recognises the need for multisector collaboration, critical evidence with respect to the scope and context of the problem is limited. Policy frameworks must address the need for locally synthesised evidence to drive health promotion programmes. In addition, the challenge with the NDLEA facilitating programmes aimed at educating the public and reducing associated stigma is that if young people perceive NDLEA as the punitive law enforcer, they are unlikely to participate if they perceive participation will negatively impact them. This buttresses the need for policies that are driven by evidence of what works and not top down programmes that do not take the local context into consideration or give voice to young people in a participatory manner. The participation of young people has the dual advantage of involving them in co-constructing policies and strategies while simultaneously guaranteeing their participation in mobilising their peers.

Healthy public policies are also needed to integrate drug control strategies for illicit substances and licit substances such as tobacco and alcohol control. These programmes are currently separate but findings from this thesis shows that licit and illicit substances use occurs at different ends of the same spectrum and it is imperative their control programmes are integrated. The master plan focuses mainly on sensitisation, awareness and treatment. Policy plans that do not step back to address fundamental determinants of young people's wellbeing as identified in this thesis such as education, environmental and social reforms may not yield long term benefits. This is because the drivers of initiation and use are deeply rooted in sociocultural domains. The best suited strategies for health promotion among young people are hinged on a myriad of factors such as context, resources, political will and long term sustainability.

### **10.3.3. Create supportive environments**

To create supportive environments that support health promotion for cannabis use, changing perceived norms about cannabis is a good starting point. In redefining norms about the use of cannabis, the health promotion messages at school, home and community level must be integrated. This is especially useful because information about cannabis is passed down in social settings. Rehabilitating youth leisure facilities and integrating school sports and leisure with community level initiatives will help young people view their communities as supportive. Clear policies banning transactions and use of cannabis and other substances must be in place to reduce the tendency for social settings to function as social modelling avenues for cannabis.

A major challenge in Lagos is poor urban planning and this means that residential homes, shops, and clubs can be found on the same street making it difficult for parents to adequately protect their children from exposure as highlighted in this thesis. Many communities form local associations to organise for the provision of water, electricity and other basic amenities. These local associations can also be used as vital tools to facilitate the wellbeing of young people because they are mainly up of made parents. Local initiatives organised by parents within housing estates banning the sales of substances have been successful in some parts of Lagos. This highlights the need for families, community

organisations and other stakeholders to introduce practical measures that protect young people from the risk of exposure.

Supply reduction efforts that limit the sale of cannabis can sanction dealers found selling cannabis to young people. This will serve as a disincentive for sellers who target settings where young people can be found. Supply reduction strategies are much more difficult to achieve for illicit substances which can be grown or sold anywhere but additional steps can be taken to ban smoking in all public places.

A key aspect with creating supportive environments is to address the issues of young people, unemployment and boredom. Employment, volunteer opportunities, community engagement opportunities are needed. The odds against young people in Nigeria in terms of access to a wide range of educational pathways, employment, entrepreneurial incentives and social infrastructure have been widely documented (Agnes, 2010, Ajaegbu, 2012, Chukuezi, 2009, Dike, 2009, Okafor, 2011). Amongst other factors, it has been identified that existing school curricula do not have contemporary relevance and young people lack practical skills for work and social integration (Okafor, 2011). These are focal issues that can be addressed using supportive frameworks to organise programmes for young people that are run by young people. This will go a long way in addressing overage enrolment and dropout because young people can be guided to choose educational or career pathways suited to their abilities. An integrated system between the community, schools and empowerment agencies ensure that young people can be assured of the full spectrum of care from school to empowerment.

In terms of supportive environments, the primary approach is to consider schools as the most suitable avenues for health promotion. While this may be true, the school environment may not be conducive unless measures are taken to facilitate this. Infrastructural problems, motivation and incentives for teachers, large classroom size are some of the challenges in public schools in Nigeria. If the wider determinants of school achievement, relationship with teachers, conducive school environment for learning, supportive home environment are not in place, young people will not engage with the programmes or the school because of wider issues in their lives (Nutbeam, 1997).

#### **10.3.4. Strengthen community action for health**

Community action provides an opportunity for communities to be engaged in pragmatic ways of identifying and employing local resources to improve health. Strict religious discipline was highlighted in this thesis as a restraining factor for use. Religious institutions can be encouraged to engage young people in meaningful non-judgemental ways at community level. The integrative effort of community leaders, youth leaders, religious leaders and NGOs can lead to strengthening of local initiatives that improve the health of young people. This can range from sports to environmental sanitation or even empowerment programs.

The community also provides a unique opportunity to engage youth in culturally appropriate programmes and bring about social change and advocacy. Social disadvantages can be tackled at community level if young people are empowered to identify their needs and be part of providing a solution within their context. Local waste recycling initiatives developed as cooperatives at community level will not only provide jobs but can also be used as a tool to develop the leadership capabilities of young people.

#### **10.3.5. Develop personal skills**

Young people need to be equipped with practical actionable skills that promote health and general wellbeing. Capacity building programmes must ensure that young people are provided with the skills before the need arises. Although there is the need for life skills that develop personal and social competence, general skills that help with everyday living within the community are also needed. There are arguments that health promotion programmes should be timed to start well ahead of exposure to risk factors because by early adolescence, the effect of these factors may have evolved (Botvin, 2000, Gottfredson and Wilson, 2003, Skara and Sussman, 2003, UNODC, 2015).

Addressing triggering factors before they occur can interrupt initiation in non-users and significantly impact high risk people (Gottfredson and Wilson, 2003). Initiation in this thesis was reported as early as 11 years, programmes of later onset may not cater for those who have dropped out and school drop outs are more difficult to reach. The cost and sustainability of starting health promotion programmes from an early age in Nigeria are critical considerations amidst competing programmes such as school feeding programmes and free education projects that were severely compromised because of sustainability.

Young people's perception of risk must be taken into consideration in planning communication messages because they can diminish the risk of cannabis use based on social reinforcement from peers. Traditional anti-smoking messages such as 'say no to drugs' or 'smoking kills' are too simplistic for young people who have access to a wide range of information on varied media. They are more likely to have counter arguments for information that does not address their primary concerns. Comprehensive participatory health education that target multiple substances are more effective (Boys et al., 2001).

As discussed earlier, health education should not focus just on the legal sanctions or risks of cannabis use but on wider issues that affect their wellbeing. A review of programmes providing descriptive information about substances showed that they increased knowledge but were either unsuccessful in deterring use or actually increased use (Botvin, 2000). Another review of illicit school based programmes showed that knowledge based programmes improved knowledge about substances but not decision making or resistance skills compared to programmes that were skills based (Faggiano et al., 2005). A more effective approach to health communication is to engage young people in a participatory manner. Programmes that are administered in highly interactive and communicative formats are more effective than those that provide information without feedback (Cuijpers, 2002). Prevention programmes need to reflect the complicated nature of young people's decisions and experiences relating to cannabis use because a simplistic one sided approach may not address their needs. Technology can also be used as a tool because most young people have access to phones in Nigeria so messages and feedback can be facilitate through interactive apps.

#### **10.3.6. Re-orient health services**

As highlighted in this thesis, young cannabis users alienate themselves from society and even mask their symptoms when they visit hospitals to avoid being judged as smokers. There is an urgent need for training and reorientation of health service personnel as it relates to the needs of young people. Substance misuse is generally not viewed as a health issue but as a criminal issue to be handled by NDLEA. There is a need for policy makers to engage health services more because they are in a better position to reach young people. Young people currently lack youth friendly walk in centres where they can get counselling.

Youth friendly clinics with trained staff to offer non-judgmental counselling and referral are also essential. Healthcare workers need to be trained to skilfully provide confidential services to young people. If health services are appropriately trained, they can recognise those who are at risk and vulnerable and refer them appropriately. Health services can gradually take the lead and be cognisant of the context of young people.

A good way to encouraging participation in such clinics will be integrate the services to other programmes such as leisure or computer literacy programmes. This is because the stigma attached to a centre can limit participation. Changing a 'substance use clinic' to a 'wellbeing clinic' will destigmatise the centre and stimulate participation especially for females who have additional vulnerabilities.

#### **10.4. Significance of study findings**

The findings from this study make an original contribute to knowledge because to the best of the researcher's knowledge, it is the first focused study of cannabis use among young people in Nigeria. The findings provide insight into the broad determinants of cannabis use in context. The use of two different methods were used in different populations facilitated the exploration of young people in community and schools. This study successfully recruited and interviewed female cannabis users and although this was extremely difficult to achieve in Nigeria, it was a critical necessity in obtaining perspectives from a hidden and vulnerable population. The key findings relating to the subcultural context and coping as the predominant motivation for cannabis use which are very different from evidence in Western studies underpin the need to situate evidence in context for health promotion. The use of theoretical driven determinants of cannabis use will be useful for making comparisons in future research. The rich description of the context and meanings of cannabis use in the lives of young people highlighted key considerations for health promotion among young people in the area of substance misuse and other risky behaviours.

#### **10.5. Directions for future research**

This thesis has explored the context and factors associated with cannabis use in a cross sectional study and it will be beneficial to test initiation and use in longitudinal designs. All

accounts of initiation documented in this thesis were retrospective and thus limited in terms of inference compared to a longitudinal design that evaluates the influence factors before they occur. As discussed in chapter 7, logical inconsistencies were an issue in this research. Biochemical measures have never been used in Nigeria and the use of such validation measures to test the accuracy of self-report were be invaluable in documenting the reliability of self-report measures in an African context.

The TTI was utilised in exploring cannabis use in this thesis but the aspects of the TTI that could be robustly evaluated in this thesis were limited. The dimensions of TTI can be assessed in a population based study to document the risk factors of cannabis use in Nigeria and provide wider comparison with evidence from other countries. In addition, the adaptation of measures from other countries may limit the findings within Nigeria. Population based studies to develop and test measures that can be validated and used within the country will be useful.

This study focused on young people aged between 16-21 years old, a more inclusive study which incorporates younger people may provide a broader picture of issues highlighted in this thesis. Interviewees reported initiating cannabis as early as age 11 years and thus it may be useful to understand the broad determinants in a different or expanded study population. The study was limited to the final year group for operational reasons but the overall picture may be better explained by researching younger secondary school grades. Research that analyses the influence of the current policy on young people's uptake and sustenance of cannabis would be useful to inform policy reviews and evidence based interventions.

Research evidence that drives an integrated approach that combines school, community, family and policy frameworks in a participatory manner will yield better health promotion outcomes that will facilitate the health and general wellbeing of young people.

# Appendix A: Questionnaire

Questionnaire Vs 2

**SCHOOL SURVEY  
QUESTIONNAIRE**

**Young People's Views about Life, Experiences and Cannabis Use.**

**PLEASE DO NOT PUT YOUR NAME ON THIS FORM.**

This research will find out about young people's lives, their views and experiences with friends, family and substance use to help in planning adolescent health programs.

Kindly answer the questions honestly as there are no right or wrong answers. It should take you about 30 minutes to complete this survey. Your name does not appear on this survey and no one can identify you. Your cooperation in completing this questionnaire is highly appreciated.

**1: ABOUT YOU. Please put a cross (X) in the most appropriate box.**

1. Age in years.

- 16       17       18       19       20

2. Are you male or female?

- Male                       Female

3. What is your mother's marital status?

- Single                       Separated                       Widowed  
 Married                       Divorced

4. What is your father's marital status?

- Single                       Separated                       Widowed  
 Married                       Divorced

5. Who do you live with?

- I live alone                       I live with my mother                       I live with my father  
 I live with both parents      Others specify.....

Page | 1

Questionnaire Vs 2

6. What religion do you practice?

- Christianity                       Islam

Others specify.....

7. How much education did your father receive? ( mark the highest level attended)

- No formal schooling                       Partly attended university/ or polytechnic  
 Attended primary School                       Completed university or polytechnic  
 Partly attended secondary school                       I don't know  
 Completed secondary school

8. How much education did your mother receive? ( mark the highest level attended)

- No formal schooling                       Partly attended university/ or polytechnic  
 Attended primary school                       Completed university or polytechnic  
 Partly attended secondary school                       I don't know  
 Completed secondary school

9. Does your family own a car or a van?

- No                       Yes, one                       Yes, two or more

10. Do you have your own bedroom for yourself?

- No                       Yes, one

11. How well off financially do you think your family is?

- Very well off                       Quite well off                       Not at all well off  
 Average                       Not very well off

Page | 2

**2. ABOUT DRUG USE/DRINKING. Please put a cross (X) in the most appropriate box.**

**1. On how many occasions have you used any of the following in your lifetime?**

	I have never used it before	One or two times	Three to five times	Six to nine times	Ten to nineteen times	Twenty to thirty nine times	Forty or more times
Tobacco /cigarettes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Alcohol/beer/wine/ Liquor/ogogoro	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Marijuana/cannabis/Igbo indian hemp/weed/ganja	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cocaine/coke/charlie/ crack/snow	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Heroin/china white/ gbana	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**2. On how many occasions have you used any of the following in the past 12 months?**

	I have never used it before	One or two times	Three to five times	Six to nine times	Ten to nineteen times	Twenty to thirty nine times	Forty or more times
Tobacco /cigarettes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Alcohol/beer/wine/ Liquor/ogogoro	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Marijuana/cannabis/Igbo indian hemp/weed/ganja	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cocaine/coke/charlie/ crack/ snow	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Heroin/china white/gbana	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**3. On how many occasions have you used any of the following in the past 30 days?**

	I have never used it before	One or two times	Three to five times	Six to nine times	Ten to nineteen times	Twenty to thirty nine times	Forty or more times
Tobacco /cigarettes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Alcohol/beer/wine/ liquor Ogogoro	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Marijuana/cannabis/Igbo indian hemp/weed/ganja	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cocaine/coke/charlie/ crack/snow	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Heroin/China white/ gbana	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**4. How old were you when you first used any of the following?**

	I have never used it before	11 years or younger	12 years	13 years	14 years	15 years	16 years	17 years	18 years	19 years or older
Tobacco /cigarettes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Alcohol/beer/wine/ liquor/ogogoro	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Marijuana/cannabis/Igbo indian hemp/weed/ganja	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cocaine/coke/Charlie/ Crack	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Heroin/China white/ gbana	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**5. If you have used cannabis before, how did the following apply to you in the past 3 months?**

	Never / almost never	Sometimes	Often	Always /Nearly always
1 Did you ever think your use of cannabis was out of control?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2 Did the prospects of missing a smoke make you very anxious or worried?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3 Did you wish you could stop?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**6. If you have used cannabis before, how did the following apply to you in the past 3 months?**

	Not at all	A little	Quite a lot	A great deal
Did you worry about your use of cannabis?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**7. If you have used cannabis before, how did the following apply to you in the past 3 months?**

	Not difficult	Quite Difficult	Very Difficult	Impossible
How difficult would you find it to stop or go without cannabis?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

24	parents tries to be understanding. I trust my parents.	<input type="checkbox"/>				
25	My parents don't understand what I am going through these days.	<input type="checkbox"/>				
26	I can count on my parents when I need to get something off my chest.	<input type="checkbox"/>				
27	I feel that no one understands me	<input type="checkbox"/>				
28	If my parents know something is bothering me, they ask me about it.	<input type="checkbox"/>				

**4: ABOUT FRIENDS.**

Please tick the most appropriate box in each question.

		ALMOST NEVER OR NEVER TRUE	NOT VERY OFTEN TRUE	SOME-TIMES TRUE	OFTEN TRUE	ALMOST ALWAYS OR ALWAYS TRUE
1	I like to get my friends' point of view on things I'm concerned about	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	My friends sense when I'm upset about something	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	When we discuss things, my friends care about my point of view	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	Talking over my problems with my friends makes me feel ashamed or foolish.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	I wish I had different friends.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	My friends understand me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	My friends encourage me to talk about my difficulties.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	My friends accept me as I am.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	I feel the need to be in touch with my friends more often.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	My friends don't understand what I'm going through these days.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11	I feel alone or apart when I'm with my friends.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12	My friends listen to what I have to say.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13	I feel my friends are good friends.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14	My friends are fairly easy to talk to.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15	When I am angry about something, my friends try to be understanding.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16	My friends help me to understand myself better.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**6: ABOUT GETTING DRUGS**

		Probably Impossible	Very Difficult	Fairly Difficult	Fairly Easy	Very Easy
1	Cigarettes	<input type="checkbox"/>				
2	Alcohol	<input type="checkbox"/>				
3	Marijuana	<input type="checkbox"/>				
4	Cocaine	<input type="checkbox"/>				

**7: ABOUT YOUR ATTITUDE AND BEHAVIOUR.**

The following activities have been presented in pairs with one word on one side of the scale and its opposite word on another. For each pair of words, mark (✓) on a scale of 1-7 which word you think best describes your situation.

For example: if you are sure you intend to use cannabis in the next week, the answer will be 7 and if you are sure you definitely do not intend to use cannabis in the next week, the answer will be 1. If you are not sure of your intention to use or not use cannabis, the answer will be 4 as shown below.

I intend to use cannabis in the next week	Definitely do not	1	2	3	4	5	6	7	Definitely do
					✓				

Please tick (✓) the most appropriate answer for you.

1	I tease angry	My using cannabis in the next week is	Bad	1	2	3	4	5	6	7	Good
2	I got a somet	My using cannabis in the next week is	Unfavourable	1	2	3	4	5	6	7	Favourable
3	I foug hit me	My using cannabis in the next week is	Negative	1	2	3	4	5	6	7	Positive
4	I said make other	My using cannabis in the next week is	Unsatisfactory	1	2	3	4	5	6	7	Satisfactory
5	I enco fight.	People who are important to me think I	Should not use cannabis	1	2	3	4	5	6	7	Should use cannabis
6	I push stude	People who are important to me would	Disapprove of my using cannabis	1	2	3	4	5	6	7	Approve of my using cannabis
7	I was;										
8	I got it becau: angry										
9	I slapp										
10	I calle names										
11	I thre somet										

Questionnaire Vs 2

People who are important to me want me to use cannabis	Unlikely	1	2	3	4	5	6	7	Likely
I believe I have the ability to use cannabis	Definitely do not	1	2	3	4	5	6	7	Definitely do
To what extent do you see yourself being capable of using cannabis	Very incapable of using cannabis	1	2	3	4	5	6	7	Very capable of using cannabis
How confident are you that you will be able to use cannabis	Very unsure	1	2	3	4	5	6	7	Very sure
If it were entirely up to me, I am confident that I would be able to use cannabis	Strongly disagree	1	2	3	4	5	6	7	Strongly agree
Whether or not I use cannabis is entirely up to me	Strongly disagree	1	2	3	4	5	6	7	Strongly agree
How much personal control do you feel you have over using cannabis	Very little control	1	2	3	4	5	6	7	Complete control
How much do you feel that using cannabis is beyond your control	Very much so	1	2	3	4	5	6	7	Not at all
I intend to use cannabis in the next week	Definitely do not	1	2	3	4	5	6	7	Definitely do
I plan to use cannabis in the next week	Definitely do not	1	2	3	4	5	6	7	Definitely do
I want to use cannabis in the next week	Definitely do not	1	2	3	4	5	6	7	Definitely do
I used cannabis last week	Strongly disagree	1	2	3	4	5	6	7	Strongly agree
How often did you use cannabis last week	Never	1	2	3	4	5	6	7	Frequently
I tried to use cannabis in the last week	Strongly disagree	1	2	3	4	5	6	7	Strongly agree

Questionnaire Vs 2

**8: Please put a cross (X) in the most appropriate box.**

		Strongly Disagree	Disagree	Neither disagree nor agree	Agree	Strongly agree
1	I would like to explore strange places.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	I get restless when I spend too much time at home.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	I like to do frightening things.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	I like wild parties.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	I would like to take off on a trip with no pre-planned routes or timetables.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	I prefer friends who are excitingly unpredictable.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	I would like to try jumping from a tall building	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	I would love to have new and exciting experiences, even if they are illegal.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**9: Please put a cross (X) in the most appropriate box.**

	None	A few	Only some	Most
How many of your friends drink alcohol at least once a week?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How many of your friends have ever used marijuana/weed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How many of your friends smoke cigarettes?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How many of your friends have ever used other drugs like cocaine, ecstasy, designer drug or heroin?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How many of your friends have stolen something?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How many of your friends have cheated in an exam?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Appendix B: Evaluation of TTI risk factors

Questionnaire Vs 2

10: Please put a cross (X) in the most appropriate box.

	None	One cigarette per day	One to five cigarettes per day	Half of one packet of cigarettes per day	One packet of cigarette per day	More than one packet a day
How many cigarettes does your mother usually smoke?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How many cigarettes does your father usually smoke?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Never	Less than a full drink a day	One drink a day	Two drinks a day	Three drinks a day	Four or more drinks a day
How often does your mother drink alcohol?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How often does your father drink alcohol?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Never	Once or twice a year	Once or twice in three months	Once or twice a month	Once a week	Daily
How often does your mother use marijuana?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
How often does your father use marijuana?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

QV2.

Page | 11

Constructs:	Importance	Evidence	Amenability	Measures	Assessed
Family Motivation/Reward	Important and widely studied	Inconsistent and mixed	Yes	Steinberg's	No
Parental Support/Supervision	important	Strong and consistent	Yes	No permission to use	No
Lack of Parental discipline	Widely studied	No supportive evidence	Yes	Yes	No
Home strain/Parental separation	Important and consistent	Strong and consistent	Yes	Descriptive Qualitative	Yes
Attachment to family	Yes	Yes	Yes	IPPA	Yes
Attachment to peers	Yes	Yes	Yes	IPPA	Yes
Unconventional values among peers	Widely studied	Strong association	Yes	Yes	Yes
Substance by Peers and Family	Widely studied	Strong association	Yes	Yes	Yes
Neighbourhood, crime, employment, academic opportunities	Not well studied but considered important	Limited but highly suggestive	Difficult	Not easy to measure or use Qualitative	Yes
School problems	Yes	Yes	Difficult	Qualitative	Yes
Cannabis Availability/Policies	Varies with context	Yes	Difficult	Survey and qualitative	Yes
Tolerance of deviance, social alienation, rebelliousness	Not widely studied	Mixed	Yes	Yes	No
Genetic, impulse control, extroversion	Considered important	Mixed	No	Yes	No
Aggressiveness	Considered important	More in males	Yes	Yes	Yes
Sensation seeking	Considered important	Strong	Yes	Yes	Yes
Proximal factors	Considered important	Strong	Yes	Yes	Yes

# Appendix C: University of Leeds Ethics

Faculty of Medicine and Health  
Research Office

University of Leeds  
Worsley Building  
Clarendon Way  
Leeds LS2 9NL  
United Kingdom

+44 (0) 113 343



UNIVERSITY OF LEEDS

11 March 2013

Dr Osasuyi Dirisu  
PhD Student  
Leeds Institute of Health Sciences  
Charles Thackrah Building,  
101 Clarendon Road  
University of Leeds, LS2 9LJ

Dear Osasuyi

Re ref no: HSLTLM/12/035

Title: Adolescent Cannabis Use in Nigeria: exploring the context of use and associated factors.

I am pleased to inform you that the above research application has been reviewed by the Leeds Institute of Health Sciences and Leeds Institute of Genetics, Health and Therapeutics and Leeds Institute of Molecular Medicine (LIHS/LIGHT/LIMM) joint ethics committee and I can confirm a favourable ethical opinion based on the documentation received at date of this letter and subject to the following conditions:

- Please check your changes in the questionnaire with your supervisor
- The consent form states "I confirm that I have read and understand the information sheet dated January 28, 2013" so the information sheet will need a date on it.

Document	Version	Date
Ethics Application Form	1	28.01.13
Risk Assessment Form	1	28.01.13
Information Sheet for Questionnaires	1	28.01.13
Information Sheet for Interviews	1	28.01.13
My Questionnaire	1	28.01.13
Topic Guide	1	28.01.13
Participant Consent Form	1	28.01.13
Research Protocol	1	28.01.13
Response to Reviewer Comments	1	04.03.13
Information Sheet for Interviews	2	04.03.13
Information Sheet for Questionnaires	2	04.03.13
My Questionnaire	2	04.03.13
Risk Assessment Form	2	04.03.13
Participant Consent Form	2	04.03.13

Please notify the committee if you intend to make any amendments to the original research as submitted at date of this approval. This includes recruitment methodology and all changes must be ethically approved prior to implementation. Please contact the Faculty Research Ethics Administrator for further information [FMHUniEthics@leeds.ac.uk](mailto:FMHUniEthics@leeds.ac.uk)

Ethical approval does not infer you have the right of access to any member of staff or student or documents and the premises of the University of Leeds. Nor does it imply any right of access to the premises of any other organisation, including clinical areas. The committee takes no responsibility for you gaining access to staff, students and/or premises prior to, during or following your research activities.

*Please note:* You are expected to keep a record of all your approved documentation, as well as documents such as sample consent forms, and other documents relating to the study. This should be kept in your study file, which should be readily available for audit purposes. You will be given a two week notice period if your project is to be audited.

It is our policy to remind everyone that it is your responsibility to comply with Health and Safety, Data Protection and any other legal and/or professional guidelines there may be.

I wish you every success with the project.

Yours sincerely

Professor Darren Shickle  
Acting Chair, LIHS/LIGHT/LIMM Joint REC, University of Leeds

# Appendix D: Lagos Ethical/School Approval

## LAGOS UNIVERSITY TEACHING HOSPITAL HEALTH RESEARCH AND ETHICS COMMITTEE

PRIVATE MAIL BAG 12003, LAGOS, NIGERIA  
e-mail address: luthethics@yahoo.com



**Chairman**  
ASSOC. PROF. N. U. OKUBADEJO  
Mb. ChB, FMCP

**Administrative Secretary**  
MR. D. J. AKPAN  
B.Sc. BUS. ADMIN, MIHSAN

**Chief Medical Director:**  
PROF. AKIN. OSIBOGUN  
MBBS (Lagos), MPH (Columbia), FMCPh FWACP

**Chairman, Medical Advisory Committee**  
DR. M. O. OGUNLEWE  
BDS, FWACS.

LUTH HREC REGISTRATION NUMBER: NHREC: 19/12/2008a  
Office Address: Room 107, 1st floor, LUTH Administrative Block  
Telephone: 234-1-5850737, 5852187, 5852209, 5852158, 5852111

30th May, 2013

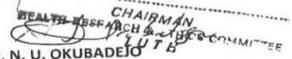
### NOTICE OF EXPEDITED REVIEW AND APPROVAL

PROJECT TITLE: "ADOLESCENT CANNABIS USE IN NIGERIA: EXPLORING THE CONTEXT OF USE AND ASSOCIATED FACTORS".  
HEALTH RESEARCH COMMITTEE ASSIGNED NO.: ADM/DCST/HREC/990  
NAME OF PRINCIPAL INVESTIGATOR: DR. OSASUYI DIRISU  
ADDRESS OF PRINCIPAL INVESTIGATOR: LEEDS INSTITUTE OF HEALTH SCIENCES, CHARLES THACKRAH BUILDING, UNIVERSITY OF LEEDS LS2 8LJ, UNITED KINGDOM.  
DATE OF RECEIPT OF VALID APPLICATION: 08-05-13

This is to inform you that the research described in the submitted protocol, the consent forms, and all other related materials where relevant have been reviewed and given full approval by the Lagos University Teaching Hospital Health Research Ethics Committee (LUTHHREC).

This approval dates from 30-05-2013 to 30-05-2014. If there is delay in starting the research, please inform the HREC so that the dates of approval can be adjusted accordingly. Note that no participant accrual or activity related to this research may be conducted outside of this dates. 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 your annual report to the HREC early in order to obtain renewal of your approval and avoid disruption of your 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 visits to your research site without previous notification.

  
DR. N. U. OKUBADEJO  
CHAIRMAN, LUTH HEALTH RESEARCH ETHICS COMMITTEE



## LAGOS STATE GOVERNMENT MINISTRY OF EDUCATION

The Secretariat,  
Block No.:5  
Alausa-Ikeja,  
PMB No.:2104311  
Ikeja.

E-mail: edunet.lagosstate.gov.ng  
Website: www.lagosstate.gov.ng

LED/PPR&S/01/70

30<sup>th</sup> May, 2013.

Dr. Osasuyi Dirisu  
73A Lafajai Way  
Dolphin Estate  
Ikoyi  
Lagos.

### RE: ADOLESCENT CANNABIS USE IN NIGERIA: EXPLORING THE CONTEXT OF USE AND ASSOCIATED FACTORS

Above subject refers, please.

2. I am directed to refer to your letter dated 21<sup>st</sup> May, 2013 on the above subject and to inform you that you have been granted an approval to administer 1,000 Nos. questionnaires to Senior Secondary Students in District III.
3. You are required to furnish the Ministry with a copy of your findings. Please be reminded that you are to adhere strictly to your research work, wishing you fruitful research.
4. Congratulations.

  
Mrs. Oduyebbo, S.A.  
For: Permanent Secretary

## Appendix E: Survey information sheet

Information Sheet (Questionnaire survey) Vs 2.



### Information Sheet (Questionnaire Survey)

**Title of Project:** Young people's views about life, experiences and cannabis use.

**Lead researcher:** Osasuyi Dirisu, Research Student, University of Leeds, UK.

You are being invited to take part in a research project. Before you decide, it is important for you to understand what taking part might involve for you. Please take time to read and discuss this information sheet with me or others if you would like to.

#### What is this project about?

This research will find out about young people's lives, their views and experiences with friends, family and cannabis use (marijuana).

#### Why have I been chosen to take part?

You have been chosen among other adolescents from schools in your area because we want young people to share their views and opinions on issues that affect them by filling out a questionnaire.

#### Do I have to take part?

Taking part in this research is completely voluntary and there are no consequences for not taking part. It is up to you to decide whether or not to take part. You can only withdraw from taking part anytime before or during the questionnaire survey. We cannot identify your completed form after you submit because no one will write their names on the forms.

#### What will happen to me if I take part?

You will be asked to fill a paper based questionnaire which is expected to last about 45 minutes. Prior to this, I will meet with you to discuss the research and answer questions you may have. You will be required to provide honest and accurate responses; no personal identification is required.

#### What are the possible benefits or disadvantages and risks of taking part?

The research is not expected to provide any direct benefit to you; it is also not expected to place you at any risk. It is hoped that the results will be beneficial to young people in general. If you experience some discomfort during the session, please let me know and I can stop your survey and guide you to get support.

Information Sheet (Questionnaire survey) Vs 2.

#### Will my taking part in the study be kept confidential?

You will never be asked to identify yourself during this research. Neither you nor your participating school will be identified at anytime in reports or publications. You will not be asked to provide your name at anytime and no information on your survey form requires your identity. All the information that is collected about you during this research will be kept strictly confidential.

#### What type of information will be required from me and how is it useful?

You will be asked general questions about yourself, your relationship with your parents and friends and about cannabis use. This will be useful in finding out how this affects adolescent life and wellbeing and helping to plan adolescent health programs.

#### What will happen to the results of this research?

The results will be used to prepare reports for my program at the University of Leeds. A summary may also be shared with relevant officials who are involved in planning adolescent health programs. The results may also be useful for future research.

#### Who can I contact for further information?

Feel free to contact me, I have worked with young people and would be happy to help. If you decide to take part, you will sign a consent form and a copy of the signed consent form and this information sheet will be retained by you.



08179100243



umood@leeds.ac.uk



Osasuyi Dirisu, C/o Leeds Institute of Health Sciences,  
Charles Thackrah Building, University of Leeds, LS2 9LJ

Thank you for thinking about taking part in this project! ☺

# Appendix F: Risk Assessment

## Fieldwork Risk Assessment (Low Risk Activities)

Fieldwork Project Details	
Faculty School/Service	Medicine and Health
Location of Fieldwork	Lagos State, Nigeria
Brief description of Fieldwork activity and purpose	The research aims to explore reasons why adolescents in Nigeria use cannabis (marijuana) and to find out what cannabis use means to them. The fieldwork activity will entail administering a questionnaire survey among 1,200 adolescents in sampled secondary schools and also conducting paired interviews and focus groups among 40 adolescents (estimate) recruited in community settings.
<b>Organiser Details</b>	<b>Contact details</b>
Fieldwork Activity Organiser / Course Leader	Name, email, telephone <span style="float: right;">0113 343 7213</span>
Departmental Co-ordinator	Professor Darren Shickle
Nature of visit Size of Group, lone working, staff, postgraduate, undergraduate	3 members. Researcher and two assistants.
<b>Participant Details</b> Attach information as separate list if required	<b>Contact details</b> Name, Address, email, telephone, Next of Kin contact details
	Participants have not been recruited yet.

Risk Assessment Form Vs 2

1

HAZARD IDENTIFICATION	
Identify all hazards specific to fieldwork trip and activities, describe existing control measures and identify any further measures required.	
HAZARD(S) IDENTIFIED	CONTROL MEASURES <i>(e.g. alternative work methods, training, supervision, protective equipment)</i>
<b>Nature of the site</b> <i>School, college, university, remote area, laboratory, office, workshop, construction site, farm, etc.</i>	1. Secondary school classrooms for the survey. 2. Community/sports centres. Interviews and focus groups are likely to be conducted in seminar rooms within the sport centres or in a youth counselling centre.
<b>Transport</b> <i>Mode of transport</i>	Private transportation will be used to securely transport survey and interview documents. The researcher will contract a private car hire company during transportation of research materials.
<b>Violence</b> <i>potential for violence (previous incidents etc)</i>	No violence or potential for violence is anticipated. The research is conducted in low risk settings.
<b>Individual(s)</b> <i>medical condition(s), young, inexperienced, disabilities etc</i>	Adolescents above the age of 16 years are going to be recruited to take part in the research.
<b>Work Pattern</b> <i>time and location e.g. shift work, work at night</i>	Interviews and focus groups will be conducted in public, neutral locations and will take place in the afternoon. The timing will give an opportunity for all involved to safely travel to and from the meeting venue during the day and no activity will take place after 6pm.
<b>Other</b> <i>e.g. temperature, humidity, confined spaces</i>	I will evaluate the conditions of classrooms to be used for the survey and explore avenues to make them as comfortable as possible for questionnaire administration.  For the interviews and focus groups, spacious, well ventilated rooms will be used to ensure the participants are comfortable.

Additional Control Measures	
<b>Pre-departure Briefing</b> <i>Carried out and attended</i>	As part of field preparations, the field assistants will be fully briefed on the project and we will jointly develop a safety protocol to guide the data collection period.
<b>Training</b> <i>Identify level and extent of information, instruction and training required consider experience of workers</i>	The assistants have extensive field work experience working with substance users. Thus the training required would be specific to this project and its requirements.

2

# Appendix G: Consent Form

  
**UNIVERSITY OF LEEDS**

<b>Supervision</b> <i>Identify level of supervision required e.g. full time, Periodic telephone/radio contact</i>	Normal supervision will be maintained by periodic phone and online contact by emails.				
<b>Other Controls</b> <i>e.g. background checks for site visits</i>	As part of fieldwork preparations all recruitment and data collection sites will be assessed and checked prior to use. If any potential risk is identified, alternative sites will be used.				
<b>Identify Persons at Risk</b> <i>This may include more individuals than the fieldwork participants e.g. other employees of partner organisations</i>  <i>Copy of other Organisation's risk assessment attached?</i>	No risk is foreseen at this time but individuals who relate to the project in anyway will be assessed to ensure they are not at risk.				
<b>Additional Information</b> <i>relevant to the one working activity including existing control measures, information instruction and training received, supervision, security, increased lighting, emergency procedures, first aid provision etc.</i>	Filed notes will document all activity that take place on the field. All training, procedures, sites and security will be documented.				
<b>Residual Risk</b> <i>Is the residual risk acceptable with the identified controls?</i>	<table border="1"> <tr> <td>Yes</td> <td>Yes</td> </tr> <tr> <td>No</td> <td></td> </tr> </table>	Yes	Yes	No	
Yes	Yes				
No					

<b>Assessment carried out by</b>	Name:	PROFESSOR DARREN SHICKLE
	Signature:	
	Date:	27-2-13
<b>Names of person(s) involved in Fieldwork</b> <i>N.B: This can take the form of a signed class register when large group work</i>	Name:	OSASUYI DIRISU
	Signature:	
	Date:	27-02-13.
<b>Fieldwork Activity Organiser / Course Leader e.g. PI, etc</b>	Name:	PROFESSOR DARREN SHICKLE
	Signature:	
	Date:	27-2-13

Consent Form Vs 2

## Participant Consent Form

**Title of Project:** Young people's views about life, experiences and cannabis use.

**Lead researcher:** Osasuyi Dirisu, Research Student, University of Leeds, UK.

<i>Please tick the box if you agree with the statement to the left</i>		
1	I confirm that I have read and understand the information sheet dated May 1, 2013 explaining the above research project and I have had the opportunity to ask questions about the project.	<input type="checkbox"/>
2	I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason and without there being any negative consequences.	<input type="checkbox"/>
3	I understand that my responses will be kept strictly confidential and I give permission for direct quotes of my interview to be used in project write ups and documents without disclosing my name.	<input type="checkbox"/>
4	I agree for the data collected from me to be used in future research	<input type="checkbox"/>
5	I agree to take part in the above research project and will inform the lead researcher should my contact details change.	<input type="checkbox"/>

Name of participant \_\_\_\_\_ Date \_\_\_\_\_ Signature \_\_\_\_\_  
*(or legal representative)*

Lead researcher \_\_\_\_\_ Date \_\_\_\_\_ Signature \_\_\_\_\_  
*To be signed and dated in presence of the participant*

Date: \_\_22/01/2013\_\_

Name of Applicant: \_\_Osasuyi Dirisu\_\_

# Appendix H: Interview topic guide

## TOPIC GUIDE

### Adolescent Cannabis Use in Nigeria: exploring the context of use and associated factors.

#### 1. Introduction and briefing on the purpose and format of discussion 5 minutes.

This session is expected to last about five minutes and clarifies the purpose of carrying out the study. It also highlights the format of the discussion, confidentiality and agreed ground rules.

#### 2. Participant Introductions 5- 10 minutes:

This session will last 5 to 10 minutes and will cover sharing general aspects of the participants' lives such as leisure activities, hobbies, occupation or school activity.

##### Leisure/Hobbies:

1. What do you do currently? ( school, work)
2. What things do you regularly do when you want to relax?
3. What things do you do when you spend time with your friends?
4. What are the most important things in your life presently?

#### 3. Main Topical discussion: 40 minutes.

The objectives of this study will be shared under the following areas:

- Adolescent life and social networks
- Challenges of adolescence and coping strategies
- Adolescent cigarette smoking: initiation, motivations, experiences
- Adolescent cannabis use: initiation, motivations, experiences, context and settings in which it is initiated and used, effects on general wellbeing.
- Adolescent cigarette and cannabis use: perceptions about dual use, motivations for dual use, meanings attached to dual use and perceived impact of the effect of stopping one or both.
- Neighbourhood Factors: influence of adolescents' neighbourhood on their lives, exploring the relationship between neighbourhood characteristics and lifestyle choices.

##### Cigarette Smoking

1. Have you ever tried smoking? When was the first time you tried to smoke?
2. Why did you start smoking, how does smoking make you feel?

##### Cannabis use

1. Can you recall the first time you tried using cannabis?
2. Why did you start using cannabis, how does using cannabis make you feel?
3. How easy is it for you to get cannabis when you want to use it? Where do you get cannabis from?
4. What does using cannabis mean to you?

5. How has smoking
6. Can you give exa
7. How do the expe
- to continue to use
8. Where do you ha
9. Do you smoke al
10. Have you observ
- life, family, scho

##### Can

1. Can you com
- cigarettes?
2. Which did ye
3. In your exper
4. Why do you i
5. What does st
6. Which of the

##### Neig

1. How does it f
- way you live'
2. Has your neig
- choices?

#### 4. Summary: 5 to 10 minutes:

This aims to round up the session questions as the session draws to

##### Thank

Information Sheet (Paired Interviews and Focus Groups) Vs 2.

##### Will my taking part in the study be kept confidential?

You will never be asked to identify yourself during this research. Your responses will be kept confidential and you will not be identified at anytime in reports or publications. Only a code name assigned to you will be used to record or report your responses. All the information that is collected about you during this research will be kept strictly confidential.

##### Will I be recorded?

To ensure our discussion is not interrupted by me trying to write what is being said, I will record the meeting with a digital voice recorder. No one outside this project will have access to the recordings and they will only be used towards writing up reports on this project. It will be securely stored on a university computer file which can only be accessed by me. The recording will be deleted at the end of my project.

##### What type of information will be required from me and how is it useful?

You will be asked general questions about yourself, your cannabis use habits, your relationship with your parents and friends and how cannabis use has affected your life. This will be useful in finding out how this affects adolescent life and wellbeing.

##### What will happen to the results of this research?

The results will be used to prepare reports for my program at the University of Leeds. A summary may also be shared with relevant officials who are involved in planning adolescent health programs. The results may also be useful for future research.

##### Who can I contact for further information?

Feel free to contact me, I have worked with young people and would be happy to help. If you decide to take part, you will sign a consent form and a copy of the signed consent form and this information sheet will be retained by you.



08179100243



umood@leeds.ac.uk



Osasuyi Dirisu , C/o Leeds Institute of Health Sciences,  
Charles Thackrah Building, University of Leeds, LS2 9LJ

Thank you for thinking about taking part in this project. ☺

# Appendix I: Interview Information Sheet

Information Sheet (Paired Interviews and Focus Groups) Vs 2.



## Information Sheet (Paired Interviews and Focus Groups)

**Title of Project:** Young people's views about life, experiences and cannabis use.

**Lead researcher:** Osasuyi Dirisu, Research Student, University of Leeds, UK.

You are being invited to take part in a research project. Before you decide, it is important for you to understand what taking part might involve for you. Please take time to read and discuss this information sheet with me or others if you would like to.

### What is this project about?

This research will find out about young people's lives, their views and experiences with friends, family and cannabis use (marijuana).

### Why have I been chosen to take part?

You have been chosen because we want to hear young people share their views and opinions on issues that affect them. We will have group discussions or a session along with a friend you trust.

### Do I have to take part?

Taking part in this research is completely voluntary and there are no consequences for not taking part. It is up to you to decide whether or not to take part. You can withdraw from taking part anytime during the interview and if you withdraw, your responses will be deleted. After the interview process is completed, you cannot withdraw from taking part.

### What will happen to me if I take part?

You will be asked to participate in a group discussion or an interview with a friend you trust. These sessions are expected to last about one hour. Prior to sessions, I will meet with you to discuss the research and answer questions you may have. You will receive 250 naira towards your time and transportation after the meeting.

### What are the possible benefits or disadvantages and risks of taking part?

The research is not expected to provide any direct benefit to you; it is also not expected to place you at any risk. It is hoped that the results will be beneficial to young people in general. If you experience some discomfort during the session, please let me know and I can stop your interview and guide you to get support.

Information Sheet (Paired Interviews and Focus Groups) Vs 2.

### Will my taking part in the study be kept confidential?

You will never be asked to identify yourself during this research. Your responses will be kept confidential and you will not be identified at anytime in reports or publications. Only a code name assigned to you will be used to record or report your responses. All the information that is collected about you during this research will be kept strictly confidential.

### Will I be recorded?

To ensure our discussion is not interrupted by me trying to write what is being said, I will record the meeting with a digital voice recorder. No one outside this project will have access to the recordings and they will only be used towards writing up reports on this project. It will be securely stored on a university computer file which can only be accessed by me. The recording will be deleted at the end of my project.

### What type of information will be required from me and how is it useful?

You will be asked general questions about yourself, your cannabis use habits, your relationship with your parents and friends and how cannabis use has affected your life. This will be useful in finding out how this affects adolescent life and wellbeing.

### What will happen to the results of this research?

The results will be used to prepare reports for my program at the University of Leeds. A summary may also be shared with relevant officials who are involved in planning adolescent health programs. The results may also be useful for future research.

### Who can I contact for further information?

Feel free to contact me, I have worked with young people and would be happy to help. If you decide to take part, you will sign a consent form and a copy of the signed consent form and this information sheet will be retained by you.



08179100243



umood@leeds.ac.uk



Osasuyi Dirisu ,C/o Leeds Institute of Health Sciences,  
Charles Thackrah Building, University of Leeds, LS2 9LJ

Thank you for thinking about taking part in this project. 😊

## Appendix J: Latent class model estimates

Class 1: Conditional model estimates of participants classified as non-users are shown in red				
Lifetime cannabis use	Estimate	Standard Error(S.E)	Estimate/S.E	Two tailed p-value
<b>Not used</b>	<b>0.987</b>	<b>0.004</b>	<b>221.678</b>	<b>0.000</b>
<b>1-2 times</b>	<b>0.007</b>	<b>0.003</b>	<b>2.170</b>	<b>0.030</b>
3-5 times	0.002	0.002	0.987	0.324
6-9 times	0.001	0.001	0.807	0.419
10-19 times	0.003	0.002	1.375	0.169
20-39 times	0.000	0.000	0.000	1.000
40 or more times	0.000	0.000	0.000	1.000
<b>12 months cannabis use</b>				
<b>Not used</b>	<b>0.996</b>	<b>0.002</b>	<b>431.232</b>	<b>0.000</b>
1-2 times	0.004	0.002	1.530	0.126
3-5 times	0.000	0.000	0.000	1.000
6-9 times	0.000	0.000	0.000	1.000
10-19 times	0.000	0.000	0.000	1.000
20-39 times	0.000	0.000	0.000	1.000
40 or more times	0.000	0.000	0.000	1.000
<b>30 day cannabis use</b>				
<b>Not used</b>	<b>0.996</b>	<b>0.002</b>	<b>431.232</b>	<b>0.000</b>
1-2 times	0.004	0.002	1.530	0.126
3-5 times	0.000	0.000	0.000	1.000
6-9 times	0.000	0.000	0.000	1.000
10-19 times	0.000	0.000	0.000	1.000
20-39 times	0.000	0.000	0.000	1.000
40 or more times	0.000	0.000	0.000	1.000

Class 2: Model estimates of participants classified as mild-moderate users are shown in red					
Lifetime cannabis use	Estimate	Standard Error(S.E)	Estimate/S.E	Two tailed p-value	
<b>Not used</b>	<b>0.051</b>	<b>0.025</b>	<b>2.047</b>	<b>0.041</b>	
<b>1-2 times</b>	<b>0.412</b>	<b>0.053</b>	<b>7.816</b>	<b>0.000</b>	
<b>3-5 times</b>	<b>0.371</b>	<b>0.052</b>	<b>7.160</b>	<b>0.000</b>	
<b>6-9 times</b>	<b>0.119</b>	<b>0.035</b>	<b>3.351</b>	<b>0.001</b>	
10-19 times	0.035	0.021	1.697	0.090	
20-39 times	0.000	0.000	0.000	1.000	
40 or more times	0.012	0.012	0.999	0.318	
<b>12 months cannabis use</b>					
<b>Not used</b>	<b>0.097</b>	<b>0.037</b>	<b>2.659</b>	<b>0.008</b>	
<b>1-2 times</b>	<b>0.408</b>	<b>0.054</b>	<b>7.517</b>	<b>0.000</b>	
<b>3-5 times</b>	<b>0.450</b>	<b>0.053</b>	<b>8.499</b>	<b>0.000</b>	
6-9 times	0.000	0.000	0.000	1.000	
10-19 times	0.035	0.032	1.076	0.282	
20-39 times	0.000	0.000	0.000	1.000	
40 or more times	0.010	0.011	0.868	0.385	
<b>30 day cannabis use</b>					
<b>Not used</b>	<b>0.177</b>	<b>0.043</b>	<b>4.096</b>	<b>0.000</b>	
<b>1-2 times</b>	<b>0.448</b>	<b>0.056</b>	<b>7.969</b>	<b>0.000</b>	
<b>3-5 times</b>	<b>0.246</b>	<b>0.046</b>	<b>5.309</b>	<b>0.000</b>	
<b>6-9 times</b>	<b>0.103</b>	<b>0.040</b>	<b>2.551</b>	<b>0.011</b>	
10-19 times	0.012	0.012	0.998	0.319	
20-39 times	0.013	0.014	0.950	0.342	
40 or more times	0.000	0.000	0.000	1.000	

Class 3: Model estimates of participants classified as moderate-heavy users are shown in red				
Lifetime cannabis use	Estimate	Standard Error(S.E)	Estimate/S.E	Two tailed p-value
Not used	0.000	0.000	0.000	1.000
1-2 times	0.047	0.046	1.012	0.311
3-5 times	0.094	0.060	1.570	0.116
<b>6-9 times</b>	<b>0.284</b>	<b>0.079</b>	<b>3.620</b>	<b>0.000</b>
<b>10-19 times</b>	<b>0.188</b>	<b>0.072</b>	<b>2.623</b>	<b>0.009</b>
<b>20-39 times</b>	<b>0.166</b>	<b>0.063</b>	<b>2.659</b>	<b>0.008</b>
<b>40 or more times</b>	<b>0.220</b>	<b>0.074</b>	<b>2.982</b>	<b>0.003</b>
<b>12 months cannabis use</b>				
Not used	0.025	0.035	0.700	0.484
1-2 times	0.032	0.033	0.946	0.344
3-5 times	0.000	0.000	1.279	0.201
<b>6-9 times</b>	<b>0.445</b>	<b>0.086</b>	<b>5.169</b>	<b>0.000</b>
<b>10-19 times</b>	<b>0.218</b>	<b>0.093</b>	<b>2.337</b>	<b>0.019</b>
<b>20-39 times</b>	<b>0.056</b>	<b>0.038</b>	<b>1.459</b>	<b>0.144</b>
<b>40 or more times</b>	<b>0.226</b>	<b>0.075</b>	<b>3.021</b>	<b>0.003</b>
<b>30 day cannabis use</b>				
Not used	0.002	0.012	0.136	0.892
1-2 times	0.062	0.043	1.444	0.149
3-5 times	0.086	0.048	1.808	0.071
<b>6-9 times</b>	<b>0.302</b>	<b>0.093</b>	<b>3.248</b>	<b>0.001</b>
<b>10-19 times</b>	<b>0.276</b>	<b>0.076</b>	<b>3.623</b>	<b>0.000</b>
<b>20-39 times</b>	<b>0.106</b>	<b>0.059</b>	<b>1.788</b>	<b>0.074</b>
<b>40 or more times</b>	<b>0.167</b>	<b>0.066</b>	<b>2.530</b>	<b>0.011</b>

## Appendix K: Leeds Ethics Amendment



UNIVERSITY OF LEEDS

Faculty of Medicine and Health Research Office  
School of Medicine Research Ethics Committee (SoMREC)

Room 10.110, level 10  
Worsley Building  
Clarendon Way  
Leeds, LS2 9NL  
United Kingdom

☎ +44 (0) 113 343 4361

26 September 2013

Dirisu Oasuyi  
PhD Students Office, Room G.02  
Leeds Institute of Health Sciences  
Charles Thackrah Building  
101 Clarendon Road  
University of Leeds, LS2 9LJ

Dear Dirisu

Ref no: HSLTLM/12/035 – Amendment\_1

Title: Adolescent Cannabis Use in Nigeria: exploring the context of use and associated factors

We are pleased to inform you that your amendment to your research ethics application has been approved following review by the School of Medicine Research Ethics Committee (SoMREC). This approval is based on the following documents received from you:

Document	Version	Date
view	1	17.09.13
view.pdf 2	1	17.09.13
view.pdf 3	1	17.09.13

Please notify the committee if you intend to make any further amendments to the original research as submitted and approved to date. This includes recruitment methodology; all changes must receive ethical approval prior to implementation. Please contact the Faculty Research Ethics Administrator for further information ([fmhethics@leeds.ac.uk](mailto:fmhethics@leeds.ac.uk))

Ethics approval does not infer you have the right of access to any member of staff or student or documents and the premises of the University of Leeds. Nor does it imply any right of access to the premises of any other organisation, including clinical areas. The committee takes no responsibility for you gaining access to staff, students and/or premises prior to, during or following your research activities.

*Please note:* You are expected to keep a record of all your approved documentation, as well as documents such as sample consent forms, and other documents relating to the study. This should be kept in your study file, which should be readily available for audit purposes. You will be given a two week notice period if your project is to be audited.

It is our policy to remind everyone that it is your responsibility to comply with Health and Safety, Data Protection and any other legal and/or professional guidelines there may be.

We wish you every success with the project.

Yours sincerely

Dr Roger Parslow  
Co-Chair, SoMREC, University of Leeds

Dr John Sanders  
Co-Chair, SoMREC, University of Leeds

SoMREC Amendment approval letter vs2\_0

September 2013

## References

- (EMCDDA), E. M. C. F. D. A. D. A. 2012. *General population surveys — an overview of the methods and definitions used* [Online]. Available: <http://www.emcdda.europa.eu/stats12/gps/methods> [Accessed February 26 2014].
- (UBEC), U. B. E. C. 2010. *2010 BASIC EDUCATION PROFILE, NATIONAL & REGIONAL STATISTICS* [Online]. Available: <http://ubeconline.com/Pre/2010%20Basic%20Education%20Profile%20Facts%20&%20Figures%20-%20South%20West%20Zone.pdf> [Accessed September 26 2015].
- ABUSE, G. A. P. O. D. 2003. *Conducting School Surveys on Drug Abuse*, United Nations Publications.
- ADAMS, J., PARKINSON, L., SANSON-FISHER, R. W. & WALSH, R. A. 2008. Enhancing self-report of adolescent smoking: The effects of bogus pipeline and anonymity. *Addictive Behaviors*, 33, 1291-1296.
- ADAMSON, T. A., ONIFADE, P. O. & OGUNWALE, A. 2010. Trends in sociodemographic and drug abuse variables in patients with alcohol and drug use disorders in a Nigerian treatment facility. *West African Journal of Medicine*, 29, 12-8.
- ADELEKAN, M. 1989. Self-reported drug use among secondary school students in the Nigerian State of Ogun. *Bulletin on Narcotics*, 41, 109-116.
- ADELEKAN, M. L. 1996. West African Subregion: An overview of substance abuse problems. *Drugs: Education, Prevention, and Policy*, 3, 231-237.
- ADELEKAN, M. L., ABIODUN, O. A., IMOOUOKHOME-OBAYAN, A. O., ONI, G. A. & OGUNREMI, O. O. 1993. Psychosocial correlates of alcohol, tobacco and cannabis use: findings from a Nigerian university. *Drug and Alcohol Dependence*, 33, 247-256.
- ADELEKAN, M. L., ABIODUN, O. A., OBAYAN, A. O., ONI, G. & OGUNREMI, O. O. 1992. Prevalence and pattern of substance use among undergraduates in a Nigerian University. *Drug & Alcohol Dependence*, 29, 255-61.
- ADELEKAN, M. L., NDOM, R. & OBAYAN, A. I. 1996. Monitoring Trends in Substance Use through a Repeat Cross-sectional Survey in a Nigerian University. *Drugs: Education, Prevention, and Policy*, 3, 239-247.
- ADELEKAN, M. L. & ODEJIDE, O. A. 1989. The reliability and validity of the WHO student drug-use questionnaire among Nigerian students. *Drug and Alcohol Dependence*, 24, 245-249.
- ADERINTO, A. A. 2000. Social correlates and coping measures of street-children: a comparative study of street and non-street children in south-western Nigeria. *Child Abuse & Neglect*, 24, 1199-1213.
- AFFINNIH, Y. H. 1999. A Review of Literature on Drug Use in Sub-Saharan Africa Countries and Its Economic and Social Implications. *Substance Use & Misuse*, 34, 443-454.
- AGNES, I. A. I. 2010. Youth unemployment in Nigeria: causes and related issues. *Canadian Social Science*, 6, 231-237.
- AGNEW, R. 1991a. The interactive effects of peer variables on delinquency. *Criminology*, 29, 47-72.
- AGNEW, R. 1991b. A longitudinal test of social control theory and delinquency. *Journal of Research in Crime and Delinquency*, 28, 126-156.

- AGRAWAL, A., BUDNEY, A. J. & LYNSKEY, M. T. 2012. The co-occurring use and misuse of cannabis and tobacco: a review. *Addiction*, 107, 1221-1233.
- AGRAWAL, A. & LYNSKEY, M. T. 2006. The genetic epidemiology of cannabis use, abuse and dependence. *Addiction*, 101, 801-812.
- AGRAWAL, A. & LYNSKEY, M. T. 2009. Tobacco and cannabis co-occurrence: Does route of administration matter? *Drug and Alcohol Dependence*, 99, 240-247.
- AJAEGBU, O. O. 2012. Rising youth unemployment and violent crime in Nigeria. *American Journal of Social Issues and Humanities*, 2.
- AJZEN, I. 1991. The theory of planned behavior. *ORGANIZATIONAL BEHAVIOR AND HUMAN DECISION PROCESSES*, 50, 179-211.
- AJZEN, I. 2011. The theory of planned behaviour: Reactions and reflections. *Psychology & Health*, 26, 1113-1127.
- AKERS, R. L. & LEE, G. 1996. A longitudinal test of social learning theory: Adolescent smoking. *Journal of Drug Issues*, 26, 317-343.
- AKRE, C., MICHAUD, P.-A., BERCHTOLD, A. & SURIS, J.-C. 2010. Cannabis and tobacco use: where are the boundaries? A qualitative study on cannabis consumption modes among adolescents. *Health Education Research*, 25, 74-82.
- ALLEN, J. P., CHANGO, J., SZWEDO, D., SCHAD, M. & MARSTON, E. 2012. Predictors of susceptibility to peer influence regarding substance use in adolescence. *Child Development*, 83, 337-350.
- ALLISON, K. W., CRAWFORD, I., LEONE, P. E., TRICKETT, E., PEREZ-FEBLES, A., BURTON, L. M. & LE BLANC, R. 1999. Adolescent Substance Use: Preliminary Examinations of School and Neighborhood Context. *American Journal of Community Psychology*, 27, 111-141.
- ALOISE-YOUNG, P. A., GRAHAM, J. W. & HANSEN, W. B. 1994. Peer Influence on Smoking Initiation During Early Adolescence: A Comparison of Group Members and Group Outsiders. [Article]. *Journal of Applied Psychology April*, 79, 281-287.
- ALUTU, A. N. & ALUEDE, O. 2006. Secondary schools students' perception of examination malpractices and examination ethics. *Journal of human ecology*, 20, 295-300.
- AMECHI ANUMONYE. 1980. Drug use among young people in Lagos, Nigeria Available: [http://www.unodc.org/unodc/en/data-and-analysis/bulletin/bulletin\\_1980-01-01\\_4\\_page005.html](http://www.unodc.org/unodc/en/data-and-analysis/bulletin/bulletin_1980-01-01_4_page005.html) [Accessed February 23, 2012].
- AMOS, A., WILTSHIRE, S., BOSTOCK, Y., HAW, S. & MCNEILL, A. 2004. 'You can't go without a fag...you need it for your hash'--a qualitative exploration of smoking, cannabis and young people. *Addiction*, 99, 77-81.
- ANDRÉASSON, S., ENGSTRÖM, A., ALLEBECK, P. & RYDBERG, U. 1987. CANNABIS AND SCHIZOPHRENIA A Longitudinal Study of Swedish Conscripts. *The Lancet*, 330, 1483-1486.
- ANIMASAHUN, R. 2014. Marital Conflict, Divorce and Single Parenthood as Predictors of Adolescent Antisocial Behaviour in Ibadan. *British Journal of Education, Society and Behavioural Science*, 4, 592-602.
- ARCHER, K. J. & LEMESHOW, S. 2006. Goodness-of-fit test for a logistic regression model fitted using survey sample data. *Stata Journal*, 6, 97-105.
- ARMITAGE, C. J., CONNER, M., LOACH, J. & WILLETTS, D. 1999. Different Perceptions of Control: Applying an Extended Theory of Planned Behavior to Legal and Illegal Drug Use. *Basic and Applied Social Psychology*, 21, 301-316.

- ARMSDEN, G. & GREENBERG, M. 1987. The inventory of parent and peer attachment: Individual differences and their relationship to psychological well-being in adolescence. *Journal of Youth and Adolescence*, 16, 427-454.
- ARMSDEN, G. C. & GREENBERG, M. T. 2009. Inventory of Parent and Peer Attachment. Available: <http://prevention.psu.edu/pubs/documents/IPPAManual0809.pdf>.
- ARNETT, J. J. 2007. The myth of peer influence in adolescent smoking initiation. *Health Education & Behavior*, 34, 594-607.
- ASHTON, C. H. 2001. Pharmacology and effects of cannabis: a brief review. *The British Journal of Psychiatry*, 178, 101-106.
- ASHTON, H. 2002. Cannabis or health? *Current Opinion in Psychiatry*, 15, 247-253.
- ASUNI, T. & PELA, O. 1986. Drug abuse in Africa. *Bulletin on Narcotics*, 38, 55-56.
- ATKINSON, R. & FLINT, J. 2001. Accessing Hidden and Hard-to-Reach Populations: Snowball Research Strategies  
*Social Research Update*, 33.
- ATOYEBI, O. A. & ATOYEBI, O. E. 2013. Pattern of substance abuse among senior secondary school students in a south-western Nigerian city. *International Review of Social Sciences and Humanities*, 4, 54-65.
- BANDURA, A. 1989. Social cognitive theory. *Annals of child development. Six theories of child development (pp. 1-60)*. Greenwich, CT: JAI Press, 6.
- BANK, W. 2015. *Nigeria at a Glance* [Online]. Available: <http://www.worldbank.org/en/country/nigeria> [Accessed August 25 2015].
- BATES, M. E. & LABOUIE, E. W. 1997. Adolescent risk factors and the prediction of persistent alcohol and drug use into adulthood. *Alcoholism: Clinical & Experimental Research*, 21, 944-50.
- BAUMAN, K. E. & ENNETT, S. E. 1994. Tobacco use by black and white adolescents: the validity of self-reports. *American Journal of Public Health*, 84, 394-398.
- BAUMAN, K. E. & ENNETT, S. T. 1996. On the importance of peer influence for adolescent drug use: Commonly neglected considerations. *Addiction*, 91, 185-198.
- BAUMAN, K. E., FOSHEE, V. A., LINZER, M. A. & KOCH, G. G. 1990. Effect of parental smoking classification on the association between parental and adolescent smoking. *Addictive Behaviors*, 15, 413-22.
- BAUMRIND, D. 1985. Familial antecedents of adolescent drug use: A developmental perspective. *NIDA Research Monograph Series*, NO. 56, 13-44.
- BECHARA, A. 2005. Decision making, impulse control and loss of willpower to resist drugs: a neurocognitive perspective. *Nat Neurosci*, 8, 1458-1463.
- BECKER, H. S. 1953. Becoming a Marijuana User. *American Journal of Sociology*, 59, 235-242.
- BÉLANGER, R. E., AKRE, C., KUNTSCHKE, E., GMEL, G. & SURIS, J.-C. 2011. Adding tobacco to cannabis—its frequency and likely implications. *Nicotine & Tobacco Research*, 13, 746-750.
- BIDSTRUP, P. E., FREDERIKSEN, K., SIERSMA, V., MORTENSEN, E. L., ROSS, L., VINTHER-LARSEN, M., GRONBAEK, M. & JOHANSEN, C. 2008. Social-cognitive and school factors in lifetime smoking among adolescents. *Cancer Epidemiology Biomarkers and Prevention*, 17, 1862-1871.
- BIDSTRUP, P. E., FREDERIKSEN, K., SIERSMA, V., MORTENSEN, E. L., ROSS, L., VINTHER-LARSEN, M., GRONBAEK, M. & JOHANSEN, C. 2009. Social-cognitive and school

- factors in initiation of smoking among adolescents: a prospective cohort study. *Cancer Epidemiology, Biomarkers & Prevention*, 18, 384-92.
- BLACKMAN, S. 2010. Youth subcultures, normalisation and drug prohibition: The politics of contemporary crisis and change&quest. *British politics*, 5, 337-366.
- BOLES, S. M. & MIOTTO, K. 2003. Substance abuse and violence: A review of the literature. *Aggression and Violent Behavior*, 8, 155-174.
- BOTVIN, G. J. 2000. Preventing drug abuse in schools: Social and competence enhancement approaches targeting individual-level etiologic factors. *Addictive Behaviors*, 25, 887-897.
- BOTVIN, G. J., BAKER, E., BOTVIN, E. M., DUSENBURY, L., CARDWELL, J. & DIAZ, T. 1993. Factors promoting cigarette smoking among black youth: a causal modeling approach. *Addictive Behaviors*, 18, 397-405.
- BOTVIN, G. J., BAKER, E., FILAZZOLA, A. D. & BOTVIN, E. M. 1990. A cognitive-behavioral approach to substance abuse prevention: One-year follow-up. *Addictive Behaviors*, 15, 47-63.
- BOTVIN, G. J., BAKER, E., GOLDBERG, C. J., DUSENBURY, L. & BOTVIN, E. M. 1992. Correlates and predictors of smoking among black adolescents. *Addictive Behaviors*, 17, 97-103.
- BOWLBY, J. 1977. The making and breaking of affectional bonds. I. Aetiology and psychopathology in the light of attachment theory. An expanded version of the Fiftieth Maudsley Lecture, delivered before the Royal College of Psychiatrists, 19 November 1976. *The British Journal of Psychiatry*, 130, 201-10.
- BOYS, A. & MARSDEN, J. 2003. Perceived functions predict intensity of use and problems in young polysubstance users. *Addiction*, 98, 951-963.
- BOYS, A., MARSDEN, J., GRIFFITHS, P., FOUNTAIN, J., STILLWELL, G. & STRANG, J. 1999. Substance use among young people: the relationship between perceived functions and intentions. *Addiction*, 94, 1043-1050.
- BOYS, A., MARSDEN, J. & STRANG, J. 2001. Understanding reasons for drug use amongst young people: a functional perspective. *Health Education Research*, 16, 457-469.
- BOYS, A. F. 2001. *Young substance users: modelling consumption patterns, problems and expectations*. University of London.
- BOYS, J. M., PAUL GRIFFITHS, JOHN STRANG, ANNABEL 2000. Drug use functions predict cocaine-related problems in young people. *Drug and Alcohol Review*, 19, 181-190.
- BRADY, K. T., MYRICK, H. & MCELROY, S. 1998. The Relationship Between Substance Use Disorders, Impulse Control Disorders, and Pathological Aggression. *American Journal on Addictions*, 7, 221-230.
- BRAUN, V. & CLARKE, V. 2006. Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3, 77-101.
- BRAUN, V. A. C., V. *Frequently asked questions, Thematic analysis* [Online]. Available: <http://www.psych.auckland.ac.nz/en/about/our-research/research-groups/thematic-analysis/frequently-asked-questions-8.html> [Accessed May 4 2015].
- BRENER, N. D., BILLY, J. O. G. & GRADY, W. R. 2003. Assessment of factors affecting the validity of self-reported health-risk behavior among adolescents: Evidence from the scientific literature. *Journal of Adolescent Health*, 33, 436-457.
- BRENER, N. D., GRUNBAUM, J. A., KANN, L., MCMANUS, T. & ROSS, J. 2004. Assessing health risk behaviors among adolescents: The effect of question wording and appeals for honesty. *Journal of Adolescent Health*, 35, 91-100.

- BRENER, N. D., KANN, L., MCMANUS, T., KINCHEN, S. A., SUNDBERG, E. C. & ROSS, J. G. 2002. Reliability of the 1999 youth risk behavior survey questionnaire. *Journal of Adolescent Health*, 31, 336-342.
- BRETTEVILLE-JENSEN, A. L., MELBERG, H. O. & JONES, A. M. 2008. Sequential patterns of drug use initiation-Can we believe in the gateway theory? *The BE Journal of Economic Analysis & Policy*, 8.
- BRETTEVILLE-JENSEN, A. L. & ROSSOW, I. 2011. Questionable conclusions on cannabis and crime. *Addiction*, 106, 449-450.
- BRICK, J. M. & KALTON, G. 1996. Handling missing data in survey research. *Statistical Methods in Medical Research*, 5, 215-238.
- BRICKER, J. B., RAJAN, K. B., ZALEWSKI, M., RAMEY, M., PETERSON, A. V. & ANDERSEN, M. R. 2009. Psychological and social risk factors in adolescent smoking transitions: a population-based longitudinal study. *Health Psychology*, 28, 439-47.
- BROOK, D. W., BROOK, J. S., RUBENSTONE, E., ZHANG, C. & SAAR, N. S. 2011a. Developmental Associations Between Externalizing Behaviors, Peer Delinquency, Drug Use, Perceived Neighborhood Crime, and Violent Behavior in Urban Communities. *Aggressive Behavior*, 37, 349-361.
- BROOK, D. W., MOROJELE, N. K., ZHANG, C. & BROOK, J. S. 2006a. South African adolescents: Pathways to risky sexual behavior. *AIDS Education & Prevention*, 18, 259-272.
- BROOK, J., MOROJELE, N., BROOK, D. & ROSEN, Z. 2005. Predictors of cigarette use among South African adolescents. *International Journal of Behavioral Medicine*, 12, 207-217.
- BROOK, J. S., BALKA, E. B. & WHITEMAN, M. 1999. The risks for late adolescence of early adolescent marijuana use. *American Journal of Public Health*, 89, 1549-54.
- BROOK, J. S., BROOK, D. W., DE LA ROSA, M., WHITEMAN, M., JOHNSON, E. & MONTOYA, I. 2001. Adolescent Illegal Drug Use: The Impact of Personality, Family, and Environmental Factors. *Journal of Behavioral Medicine*, 24, 183-203.
- BROOK, J. S., BROOK, D. W., LA ROSA, M. D., DUQUE, L. F., RODRIGUEZ, E., MONTOYA, I. D. & WHITEMAN, M. 1998. Pathways to Marijuana Use Among Adolescents: Cultural/Ecological, Family, Peer, and Personality Influences. *Journal of the American Academy of Child & Adolescent Psychiatry*, 37, 759-766.
- BROOK, J. S., MOROJELE, N. K., BROOK, D. W., ZHANG, C. & WHITEMAN, M. 2006b. Personal, interpersonal, and cultural predictors of stages of cigarette smoking among adolescents in Johannesburg, South Africa. (Special issue: Building tobacco control research around the world: the Fogarty International Center's Tobacco Research and Capacity Building Initiative.). *Tobacco Control*, 15, i48-i53.
- BROOK, J. S., MOROJELE, N. K., PAHL, K. & BROOK, D. W. 2006c. Predictors of drug use among South African adolescents. *Journal of Adolescent Health*, 38, 26-34.
- BROOK, J. S., NOMURA, C. & COHEN, P. 1989. A network of influences on adolescent drug involvement: neighborhood, school, peer, and family. *Genetic, Social, & General Psychology Monographs*, 115, 123-45.
- BROOK, J. S., PAHL, K. & NING, Y. 2006d. Peer and parental influences on longitudinal trajectories of smoking among African Americans and Puerto Ricans. *Nicotine and Tobacco Research*, 8, 639-651.

- BROOK, J. S., WHITEMAN, M., BALKA, E. B., WIN, P. T. & GURSEN, M. D. 1997. African-American and Puerto Rican drug use: a longitudinal study. *Journal of the American Academy of Child & Adolescent Psychiatry*, 36, 1260-8.
- BROOK, J. S., ZHANG, C. S. & BROOK, D. W. 2011b. Developmental trajectories of marijuana use from adolescence to adulthood: personal predictors. *Archives of Pediatrics & Adolescent Medicine*, 165, 55-60.
- BRYMAN, A. 2008. *Social research methods*, Oxford university press.
- BUCHAN, B. J., L. DENNIS, M., TIMS, F. M. & DIAMOND, G. S. 2002. Cannabis use: consistency and validity of self-report, on-site urine testing and laboratory testing. *Addiction*, 97, 98-108.
- BUETOW, S. 2010. Thematic analysis and its reconceptualization as 'saliency analysis'. *Journal of Health Services Research & Policy*, 15, 123-125.
- BURKETT, S. R. & JENSEN, E. L. 1975. Conventional Ties, Peer Influence, and the Fear of Apprehension: a Study of Adolescent Marijuana Use\*. *The Sociological Quarterly*, 16, 522-533.
- BURKETT, S. R. & WARREN, B. O. 1987. RELIGIOSITY, PEER ASSOCIATIONS, AND ADOLESCENT MARIJUANA USE: A PANEL STUDY OF UNDERLYING CAUSAL STRUCTURES\*. *Criminology*, 25, 109-132.
- BUSS, A. H. & PERRY, M. 1992. The aggression questionnaire. *Journal of Personality and Social Psychology*, 63, 452.
- BUTTERS, J. E. 2002. Family stressors and adolescent cannabis use: a pathway to problem use. *Journal of Adolescence*, 25, 645-654.
- CARR, E. C. & WORTH, A. 2001. The use of the telephone interview for research. *Nursing Times Research*, 6, 511-524.
- CARVAJAL, S. C. & GRANILLO, T. M. 2006. A prospective test of distal and proximal determinants of smoking initiation in early adolescents. *Addictive Behaviors*, 31, 649-660.
- CARVAJAL, S. C., HANSON, C., DOWNING, R. A., COYLE, K. K. & PEDERSON, L. L. 2004. Theory-based determinants of youth smoking: A multiple influence approach. *Journal of Applied Social Psychology*, 34, 59-84.
- CATFORD, J. 2001. Illicit drugs: effective prevention requires a health promotion approach. *Health Promotion International*, 16, 107-110.
- CHABROL, H., CHAUCHARD, E., MABILA, J. D., MANTOULAN, R., ADELE, A. & ROUSSEAU, A. 2006. Contributions of social influences and expectations of use to cannabis use in high-school students. *Addictive Behaviors*, 31, 2116-2119.
- CHAKRAVARTHY, B., SHAH, S. & LOTFIPOUR, S. 2013. Adolescent drug abuse-Awareness & prevention. *The Indian journal of medical research*, 137, 1021.
- CHASSIN, L., PRESSON, C. C., SHERMAN, S. J., MONTELLO, D. & MCGREW, J. 1986. Changes in Peer and Parent Influence During Adolescence: Longitudinal Versus Cross-Sectional Perspectives on Smoking Initiation. *Developmental Psychology*, 22, 327-334.
- CHUKUEZI, C. O. 2009. Poverty and youth restiveness in Nigeria: Implications for national development. *Ozean Journal of social sciences*, 2, 97-103.
- CHUNG, H., FLAHERTY, B. P. & SCHAFFER, J. L. 2006. Latent class logistic regression: application to marijuana use and attitudes among high school seniors. *Journal of the Royal Statistical Society: Series A (Statistics in Society)*, 169, 723-743.

- CITIES, J. W. E. O. W. 2000. "Lagos." [Online]. Encyclopedia.com. Available: <http://www.encyclopedia.com/topic/Lagos.aspx> [Accessed September 4 2015].
- CLARK, T. T., NGUYEN, A. B. & BELGRAVE, F. Z. 2011. Risk and Protective Factors for Alcohol and Marijuana Use among African-American Rural and Urban Adolescents. *Journal of Child & Adolescent Substance Abuse*, 20, 205-220.
- CLEVELAND, M. J., FEINBERG, M. E., BONTEMPO, D. E. & GREENBERG, M. T. 2008. The Role of Risk and Protective Factors in Substance Use Across Adolescence. *Journal of Adolescent Health*, 43, 157-164.
- COCHRAN, J. K. & AKERS, R. L. 1989. Beyond hellfire: An exploration of the variable effects of religiosity on adolescent marijuana and alcohol use. *Journal of Research in Crime and Delinquency*, 26, 198-225.
- COMMISSION, N. P. 2014. ICF International. Nigeria. Demographic and health survey 2013. *Abuja, Nigeria*.
- CONNELL, C. M., GILREATH, T. D., AKLIN, W. M. & BREX, R. A. 2010. Social-ecological influences on patterns of substance use among non-metropolitan high school students(). *American Journal of Community Psychology*, 45, 36-48.
- CONNER, M. & MCMILLAN, B. 1999. Interaction effects in the theory of planned behaviour: Studying cannabis use. *British Journal of Social Psychology*, 38, 195-222.
- CONNER, M. & NORMAN, P. 2005. *Predicting Health Behaviour*, Open University Press.
- CONNER, M., SANDBERG, T., MCMILLAN, B. & HIGGINS, A. 2006. Role of anticipated regret, intentions and intention stability in adolescent smoking initiation. *British Journal of Health Psychology*, 11, 85-101.
- CONRAD, K. M., FLAY, B. R. & HILL, D. 1992. Why children start smoking cigarettes: predictors of onset. *British Journal of Addiction*, 87, 1711-1724.
- COURVOISIER, D. S., COMBESURE, C., AGORITSAS, T., GAYET-AGERON, A. & PERNEGER, T. V. 2011. Performance of logistic regression modeling: beyond the number of events per variable, the role of data structure. *Journal of Clinical Epidemiology*, 64, 993-1000.
- CRESWELL, J. W. 2012. *Qualitative inquiry and research design: Choosing among five approaches*, Sage publications.
- CRESWELL, J. W. 2013. *Research design: Qualitative, quantitative, and mixed methods approaches*, Sage.
- CRESWELL, J. W. & CLARK, V. L. P. 2011. *Designing and conducting mixed methods research*, Los Angeles : SAGE Publications.
- CRESWELL, J. W. & MILLER, D. L. 2000. Determining Validity in Qualitative Inquiry. *Theory into Practice*, 39, 124-130.
- CRIME, U. N. O. O. D. A. 2003. Conducting School Surveys on Drug Abuse. *Global Assessment Programme on Drug Abuse: Toolkit Module 3* [Online]. Available: <http://www.unodc.org/documents/GAP/GAP%20Toolkit%20Module%203%20ENGLISH.pdf> [Accessed October 30, 2012].
- CUIJPERS, P. 2002. Effective ingredients of school-based drug prevention programs: A systematic review. *Addictive Behaviors*, 27, 1009-1023.
- DANIEL, I. A. 2012. Poverty, Road Culture and Deviance among Areaboy in Lagos Central Neighbourhood. *International Journal of Prevention and Treatment*, 1, 1-10.
- DAVIES, M. & MACDOWALL, W. 2005. *Health promotion theory*, McGraw-Hill International.

- DAY, N. L. & ROBLES, N. 1989. Methodological Issues in the Measurement of Substance Use. *Annals of the New York Academy of Sciences*, 562, 8-13.
- DE LOOZE, M., JANSSEN, I., ELGAR, F. J., CRAIG, W. & PICKETT, W. 2015. Neighbourhood crime and adolescent cannabis use in Canadian adolescents. *Drug and alcohol dependence*, 146, 68-74.
- DEDERING, U. 2010. *Map locator of Nigeria* [Online]. Available: [https://commons.wikimedia.org/wiki/File:Nigeria\\_Lagos\\_State\\_map.png](https://commons.wikimedia.org/wiki/File:Nigeria_Lagos_State_map.png) [Accessed April 15 2015].
- DEGENHARDT, L., CHIU, W.-T., SAMPSON, N., KESSLER, R. C., ANTHONY, J. C., ANGERMEYER, M., BRUFFAERTS, R., DE GIROLAMO, G., GUREJE, O., HUANG, Y., KARAM, A., KOSTYUCHENKO, S., LEPINE, J. P., MORA, M. E. M., NEUMARK, Y., ORMEL, J. H., PINTO-MEZA, A., POSADA-VILLA, J., STEIN, D. J., TAKESHIMA, T. & WELLS, J. E. 2008. Toward a global view of alcohol, tobacco, cannabis, and cocaine use: findings from the WHO World Mental Health Surveys. *PLoS Medicine / Public Library of Science*, 5, e141.
- DEGENHARDT, L., FERRARI, A. J., CALABRIA, B., HALL, W. D., NORMAN, R. E., MCGRATH, J., FLAXMAN, A. D., ENGELL, R. E., FREEDMAN, G. D. & WHITEFORD, H. A. 2013a. The global epidemiology and contribution of cannabis use and dependence to the global burden of disease: results from the GBD 2010 study.
- DEGENHARDT, L. & HALL, W. 2012. Extent of illicit drug use and dependence, and their contribution to the global burden of disease. *The Lancet*, 379, 55-70.
- DEGENHARDT, L., WHITEFORD, H. A., FERRARI, A. J., BAXTER, A. J., CHARLSON, F. J., HALL, W. D., FREEDMAN, G., BURSTEIN, R., JOHNS, N., ENGELL, R. E., FLAXMAN, A., MURRAY, C. J. L. & VOS, T. 2013b. Global burden of disease attributable to illicit drug use and dependence: findings from the Global Burden of Disease Study 2010. *The Lancet*, 382, 1564-1574.
- DERZON, J. H. & LIPSEY, M. W. 1999. Predicting tobacco use to age 18: A synthesis of longitudinal research. *Addiction*, 94, 995-1006.
- DEYKIN, E. Y. 1987. Adolescent depression, alcohol and drug abuse. *American Journal of Public Health*, 77.
- DICKSON-SWIFT, V., JAMES, E. L., KIPPEN, S. & LIAMPUTTONG, P. 2007. Doing sensitive research: what challenges do qualitative researchers face? *Qualitative Research*, 7, 327-353.
- DIELMAN, T. E., CAMPANELLI, P. C., SHOPE, J. T. & BUTCHART, A. T. 1987. Susceptibility to Peer Pressure, Self-Esteem, and Health Locus of Control as Correlates of Adolescent Substance Abuse. *Health Education & Behavior*, 14, 207-221.
- DIKE, V. E. 2009. Addressing youth unemployment and poverty in Nigeria: A call for action, not rhetoric. *Journal of sustainable Development in Africa*, 11, 129-151.
- DILLARD, J. P. & PFAU, M. (eds.) 2002. *The Persuasion Handbook: Developments in Theory and Practice*: Sage Publications.
- DIXEY, R. 2013. *Health promotion: Global principles and practice*, CABI.
- DONATH, C., GRASZEL, E., BAIER, D., PFEIFFER, C., BLEICH, S. & HILLEMACHER, T. 2012. Predictors of binge drinking in adolescents: ultimate and distal factors - a representative study. *BMC Public Health*, 12, 263.
- DONOVAN, J. E. & JESSOR, R. 1985. Structure of Problem Behavior in Adolescence and Young Adulthood. *Journal of Consulting & Clinical Psychology*, 53, 890-904.

- DUFF, C. 2003. Drugs and youth cultures: Is Australia experiencing the 'normalization' of adolescent drug use? *Journal of youth studies*, 6, 433-447.
- DZIAK, J. J., COFFMAN, D. L., LANZA, S. T. & LI, R. 2012. Sensitivity and specificity of information criteria. *The Methodology Center and Department of Statistics, Penn State, The Pennsylvania State University*.
- EBIE, J. C. & PELA, O. A. 1981a. Some aspects of drug use among students in Benin City, Nigeria. *Drug and Alcohol Dependence*, 8, 265-270.
- EBIE, J. C. & PELA, O. A. 1981b. Some sociocultural aspects of the problem of drug abuse in Nigeria. *Drug and Alcohol Dependence*, 8, 301-306.
- EGBE, C. O. 2013. *Risk Influences for Smoking among the Youth in Southern Nigeria*. University of KwaZulu-Natal, Durban.
- EGBE, C. O., MEYER-WEITZ, A., ASANTE, K. O. & PETERSEN, I. 2014. "A Woman is not Supposed To Smoke": Exploring Gendered Stereotypes in Smoking Patterns in a Nigerian Setting.
- ELLIOTT, D. S., AGETON, S. S. & CANTER, R. J. 1979. An Integrated Theoretical Perspective on Delinquent Behavior. *Journal of Research in Crime and Delinquency*, 16, 3-27.
- ELLIS, S. 2009. West Africa's International Drug Trade. *African Affairs*, 108, 171-196.
- ENOCH, M. A. 2011. The role of early life stress as a predictor for alcohol and drug dependence. *Psychopharmacology*, 214, 17-31.
- ERICKSON, P. G. 1976. Deterrence and deviance: the example of cannabis prohibition. *The Journal of Criminal Law and Criminology (1973-)*, 67, 222-232.
- ESTROFF, T. W. 2008. *Manual of adolescent substance abuse treatment*, American Psychiatric Pub.
- FAGGIANO, F., VIGNA-TAGLIANTI, F. D., VERSINO, E., ZAMBON, A., BORRACCINO, A. & LEMMA, P. 2005. School-based prevention for illicit drugs' use. *Cochrane Database Syst Rev*, 2.
- FALOLA, T. & HEATON, M. M. 2008. *A history of Nigeria*, Cambridge University Press.
- FARRELL, A. D., DANISH, S. J. & HOWARD, C. W. 1992. Risk factors for drug use in urban adolescents: identification and cross-validation. *American Journal of Community Psychology*, 20, 263-86.
- FATOYE, F. & MORAKINYO, O. 2002. Substance use among secondary school students in rural and urban communities in south western Nigeria. *East African Medical Journal*, 79, 299-305.
- FAUGIER, J. & SARGEANT, M. 1997. Sampling hard to reach populations. *Journal of advanced nursing*, 26, 790-797.
- 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, 6-16.
- FEINGOLD, A., TIBERIO, S. S. & CAPALDI, D. M. 2014. New approaches for examining associations with latent categorical variables: Applications to substance abuse and aggression. *Psychology of addictive behaviors*, 28, 257.
- FERGUSON, D. M., BODEN, J. M. & HORWOOD, L. 2006. Testing the cannabis gateway hypothesis: Replies to Hall, Kandel et al. and Maccoun (2006). *Addiction*, 101, 474-476.

- FERGUSON, D. M., BODEN, J. M. & HORWOOD, L. J. 2008. The developmental antecedents of illicit drug use: Evidence from a 25-year longitudinal study. *Drug and Alcohol Dependence*, 96, 165-177.
- FERGUSON, D. M. & HORWOOD, L. J. 2000. Does cannabis use encourage other forms of illicit drug use? *Addiction*, 95, 505-520.
- FERGUSON, D. M., HORWOOD, L. J. & BEAUTRAIS, A. L. 2003. Cannabis and educational achievement. *Addiction*, 98, 1681-1692.
- FLAY, B. R. 1999. Understanding environmental, situational and intrapersonal risk and protective factors for youth tobacco use: the Theory of Triadic Influence. *Nicotine & Tobacco Research*, 1, S111-S114.
- FLAY, B. R., HU, F. B. & RICHARDSON, J. 1998. Psychosocial predictors of different stages of cigarette smoking among high school students. *Preventive Medicine*, 27, A9-A18.
- FLAY, B. R., SNYDER, F. & PETRAITIS, J. 2009. The theory of triadic influence. *Emerging theories in health promotion practice and research*, 2, 451-510.
- FLEMING, R., LEVENTHAL, H., GLYNN, K. & ERSHLER, J. 1989. The role of cigarettes in the initiation and progression of early substance use. *Addictive Behaviors*, 14, 261-272.
- FLOERSCH, J., LONGHOFER, J. L., KRANKE, D. & TOWNSEND, L. 2010. Integrating Thematic, Grounded Theory and Narrative Analysis. *Qualitative Social Work*, 9, 407-425.
- FOSSEY, E., HARVEY, C., MCDERMOTT, F. & DAVIDSON, L. 2002. Understanding and evaluating qualitative research\*. *Australian and New Zealand journal of psychiatry*, 36, 717-732.
- FOURCHARD, L. 2006. Lagos and the Invention of Juvenile Delinquency in Nigeria, 1920–60. *The Journal of African History*, 47, 115-137.
- FREELAND, J. B. & CAMPBELL, R. S. 1973. The Social Context of First Marijuana Use. *Substance Use & Misuse*, 8, 317-324.
- FREEMAN, T. 2006. 'Best practice' in focus group research: making sense of different views. *Journal of Advanced Nursing*, 56, 491-497.
- FREESE, J. & LONG, J. S. 2006. Regression models for categorical dependent variables using Stata. *College Station*.
- FULLER, E. 2011. Smoking, drinking and drug use among young people in England in 2011. *Health and Social Care Information Centre*.
- FURR-HOLDEN, C. D., LEE, M., JOHNSON, R., MILAM, A., DUNCAN, A., REBOUSSIN, B., LEAF, P. & IALONGO, N. 2015. Neighborhood Environment and Marijuana Use in Urban Young Adults. *Prevention Science*, 16, 268-278.
- FURR-HOLDEN, C. D. M., LEE, M. H., MILAM, A. J., JOHNSON, R. M., LEE, K.-S. & IALONGO, N. S. 2011. The growth of neighborhood disorder and marijuana use among urban adolescents: a case for policy and environmental interventions. *Journal of studies on alcohol and drugs*, 72, 371.
- GANDY, M. 2006. Planning, anti-planning and the infrastructure crisis facing metropolitan Lagos. *Urban studies*, 43, 371-396.
- GHANBARI, S. 2011. Problems of development and human security in Nigeria.
- GILLESPIE, N. A., NEALE, M. C. & KENDLER, K. S. 2009. Pathways to cannabis abuse: a multi-stage model from cannabis availability, cannabis initiation and progression to abuse. *Addiction*, 104, 430-8.
- GILLMORE, M. R., CATALANO, R. F., MORRISON, D. M., WELLS, E. A., IRITANI, B. & HAWKINS, J. D. 1990. Racial differences in acceptability and availability of drugs and early

- initiation of substance use. *American Journal of Drug and Alcohol Abuse*, 16, 185-206.
- GLANZ, K., LEWIS, F. M. & RIMER, B. 1997. *Health Education and Health Behaviour*, Jossey-Bass.
- GONZALES, N., CAUCE, A., FRIEDMAN, R. & MASON, C. 1996. Family, peer, and neighborhood influences on academic achievement among African-American adolescents: One-year prospective effects. *American Journal of Community Psychology*, 24, 365-387.
- GOODE, E. 1972. A Sociological Perspective on Drugs and Drug Use. *Drugs in American Society* [Online]. Available: <http://www.psychedelicalibrary.org/goode.htm>.
- GORRESE, A. & RUGGIERI, R. 2012. Peer attachment: A meta-analytic review of gender and age differences and associations with parent attachment. *Journal of youth and adolescence*, 41, 650-672.
- GOSSOP, M., DARKE, S., GRIFFITHS, P., HANDO, J., POWIS, B., HALL, W. & STRANG, J. 1995. The Severity of Dependence Scale (SDS): psychometric properties of the SDS in English and Australian samples of heroin, cocaine and amphetamine users. *Addiction*, 90, 607-614.
- GOTTFREDSON, D. C. & WILSON, D. B. 2003. Characteristics of effective school-based substance abuse prevention. *Prevention Science*, 4, 27-38.
- GRAVES, K. N., FERNANDEZ, M. E., SHELTON, T. L., FRABUTT, J. M. & WILLIFORD, A. P. 2005. Risk and protective factors associated with alcohol, cigarette, and marijuana use during adolescence. *Journal of Youth and Adolescence*, 34, 379-387.
- GREEN, J. 2000. The role of theory in evidence-based health promotion practice. *Health Education Research*, 15, 125-129.
- GREENE, J. C. 2008. Is Mixed Methods Social Inquiry a Distinctive Methodology? *Journal of Mixed Methods Research*, 2, 7-22.
- GRIFFIN, K. W., BOTVIN, G. J., NICHOLS, T. R. & DOYLE, M. M. 2003. Effectiveness of a universal drug abuse prevention approach for youth at high risk for substance use initiation. *Preventive Medicine*, 36, 1-7.
- GUBA, E. G. & LINCOLN, Y. S. 1994. Competing paradigms in qualitative research. *Handbook of qualitative research*, 2, 163-194.
- GUILLEMIN, M. & GILLAM, L. 2004. Ethics, reflexivity, and "ethically important moments" in research. *Qualitative inquiry*, 10, 261-280.
- GUO, G. & ZHAO, H. 2000. Multilevel Modeling for Binary Data. *Annual Review of Sociology*, 26, 441 - 462.
- HAINES-SAAH, R. J., MOFFAT, B., JENKINS, E. K. & JOHNSON, J. L. 2014. The Influences of Health Beliefs and Identity on Adolescent Marijuana and Tobacco Co-Use. *Qualitative health research*, 1049732314539854.
- HALL, W. 2006. Dissecting the causal anatomy of the link between cannabis and other illicit drugs.
- HALL, W. 2009. The adverse health effects of cannabis use: what are they, and what are their implications for policy? *International Journal of Drug Policy*, 20, 458-66.
- HAMMERSLEY, R., JENKINS, R. & REID, M. 2001. Cannabis use and Social Identity. *Addiction Research & Theory*, 9, 133-150.
- HARAKEH, Z., SCHOLTE, R. H., VERMULST, A. A., DE VRIES, H. & ENGELS, R. C. 2004. Parental factors and adolescents' smoking behavior: An extension of The theory of planned

- behavior. *Preventive Medicine: An International Journal Devoted to Practice and Theory*, 39, 951-961.
- HARRISON, E. R., HAAGA, J. & RICHARDS, T. 1993. Self-Reported Drug Use Data: What Do They Reveal? *The American Journal of Drug and Alcohol Abuse*, 19, 423-441.
- HARRISON, L. D. & HUGHES, A. 1997. *The validity of self-reported drug use: Improving the accuracy of survey estimates*, US Department of Health and Human Services, National Institutes of Health, National Institute on Drug Abuse, Division of Epidemiology and Prevention Research.
- HATHAWAY, A. D. 1997. Marijuana and lifestyle: Exploring tolerable deviance. *Deviant Behavior*, 18, 213-232.
- HATHAWAY, A. D. 2003. Cannabis effects and dependency concerns in long-term frequent users: a missing piece of the public health puzzle\*. *Addiction Research & Theory*, 11, 441-458.
- HATHAWAY, A. D. 2004. Cannabis users' informal rules for managing stigma and risk. *Deviant Behavior*, 25, 559-577.
- HATHAWAY, A. D., COMEAU, N. C. & ERICKSON, P. G. 2011. Cannabis normalization and stigma: Contemporary practices of moral regulation. *Criminology and criminal justice*, 1748895811415345.
- HAWKINS, J., CATALANO, R. F. & MILLER, J. Y. 1992a. Risk and protective factors for alcohol and other drug problems in adolescence and early adulthood: Implications for substance abuse prevention. *Psychological Bulletin*, 112, 64-105.
- HAWKINS, J. D., CATALANO, R. F. & MILLER, J. Y. 1992b. Risk and Protective Factors for Alcohol and Other Drug Problems in Adolescence and Early Adulthood: Implications for Substance Abuse Prevention. [Review]. *Psychological Bulletin July*, 112, 64-105.
- HAWKINS, J. D. & WEIS, J. G. 1985. The social development model: An integrated approach to delinquency prevention. *The Journal of Primary Prevention*, 6, 73-97.
- HAYNIE, D. L. 2001. Delinquent peers revisited: Does network structure matter? 1. *American journal of sociology*, 106, 1013-1057.
- HAYS, S. P., HAYS, C. E. & MULHALL, P. F. 2003. Community Risk and Protective Factors and Adolescent Substance Use. *Journal of Primary Prevention*, 24, 125-142.
- HEAP, S. 2010. "Their Days are Spent in Gambling and Loafing, Pimping for Prostitutes, and Picking Pockets": Male Juvenile Delinquents on Lagos Island, 1920s-1960s. *Journal of family history*, 35, 48-70.
- HEARY, C. M. & HENNESSY, E. 2002. The Use of Focus Group Interviews in Pediatric Health Care Research. *Journal of Pediatric Psychology*, 27, 47-57.
- HEMPHILL, S. A., HEERDE, J. A., HERRENKOHL, T. I., PATTON, G. C., TOUMBOUROU, J. W. & CATALANO, R. F. 2011. Risk and Protective Factors for Adolescent Substance Use in Washington State, the United States and Victoria, Australia: A Longitudinal Study. *Journal of Adolescent Health*, 49, 312-320.
- HENRIKSEN, L., SCHLEICHER, N. C., FEIGHERY, E. C. & FORTMANN, S. P. 2010. A longitudinal study of exposure to retail cigarette advertising and smoking initiation. *Pediatrics*, 126, 232-238.
- HENRY, G. T. 1990. *Practical sampling*, Sage.
- HIGGINS, A. & CONNER, M. 2003. Understanding adolescent smoking: The role of the Theory of Planned Behaviour and implementation intentions. *Psychology, Health & Medicine*, 8, 173-186.

- HIGHET, G. 2003. Cannabis and smoking research: interviewing young people in self-selected friendship pairs. *Health Education Research*, 18, 108-118.
- HIGHET, G. 2004. The role of cannabis in supporting young people's cigarette smoking: a qualitative exploration. *Health Education Research*, 19, 635-643.
- HOFLEER, M., LIEB, R., PERKONIGG, A., SCHUSTER, P., SONNTAG, H. & WITTCHEM, H.-U. 1999. Covariates of cannabis use progression in a representative population sample of adolescents: A prospective examination of vulnerability and risk factors. *Addiction*, 94, 1679-1694.
- HON, R. O. B. S. 2007. Prevalence and correlates of substance use among high school students in South Africa and the United States. *American Journal of Public Health*, 97, 1859.
- HOSMER, D. W., TABER, S. & LEMESHOW, S. 1991. The importance of assessing the fit of logistic regression models: a case study. *American journal of public health*, 81, 1630-1635.
- HOSMER JR, D. W. & LEMESHOW, S. 2004. *Applied logistic regression*, John Wiley & Sons.
- HOWE, K. R. 1988. Against the quantitative-qualitative incompatibility thesis or dogmas die hard. *Educational researcher*, 17, 10-16.
- HOWITT, D. 2010. *Introduction to qualitative methods in psychology*, Prentice Hall New Jersey NJ.
- HOYLE, R. H., STEPHENSON, M. T., PALMGREEN, P., LORCH, E. P. & DONOHEW, R. L. 2002. Reliability and validity of a brief measure of sensation seeking. *Personality and Individual Differences*, 32, 401-414.
- HUNDLEBY, J. D. & MERCER, G. W. 1987. Family and friends as social environments and their relationship to young adolescents' use of alcohol, tobacco, and marijuana. *Journal of Marriage and the Family*, 151-164.
- HUVER, R. M., ENGELS, R. C., VAN BREUKELEN, G. & DE VRIES, H. 2007. Parenting style and adolescent smoking cognitions and behaviour. *Psychology & Health*, 22, 575-593.
- HYMAN, S. M. & SINHA, R. 2009. Stress-related factors in cannabis use and misuse: Implications for prevention and treatment. *Journal of Substance Abuse Treatment*, 36, 400-413.
- ICEK AJZEN 1991. The Theory of Planned Behavior. *ORGANIZATIONAL BEHAVIOR AND HUMAN DECISION PROCESSES* 50, 179-211.
- INL, U. S. 2010. International Narcotics Control Strategy Report , Volume II Money Laundering and Financial Crimes.
- IROBI, E. G. 2005. Ethnic conflict management in Africa: A comparative case study of Nigeria and South Africa. *Development Policy Management Network Bulletin*, 13.
- ISIDORE S, O. 1990a. Substance abuse, health and social welfare in Africa: An analysis of the Nigerian experience. *Social Science & Medicine*, 31, 699-704.
- ISIDORE S, O. 1990b. The use of tobacco products among Nigerian adults: a general population survey. *Drug and Alcohol Dependence*, 26, 203-208.
- ISIDORE S, O. 1992. Ethical and legal issues in the control of drug abuse and drug trafficking: The Nigerian case. *Social Science & Medicine*, 35, 481-493.
- ISIDORE S, O. 2004. Assessing Nigeria's drug control policy, 1994-2000. *International Journal of Drug Policy*, 15, 17-26.
- J. NEVADOMSKY. 1981. Patterns of self-reported drug use among secondary school students in Bendel State, Nigeria Available: <http://www.unodc.org/unodc/en/data-and->

[analysis/bulletin/bulletin\\_1981-01-01\\_1\\_page003.html](#) [Accessed FEBRUARY 23, 2012].

- J.E. GYONG 2009. A Sociological Assessment of the National Drug Law Enforcement Agency's (Ndlea) Strategies of Arrest and Detention in Nigeria. *Current Research Journal of Social Science*, 2, 127-132.
- JAGOE, K., EDWARDS, R., MUGUSI, F., WHITING, D. & UNWIN, N. 2002. Tobacco smoking in Tanzania, East Africa: population based smoking prevalence using expired alveolar carbon monoxide as a validation tool. *Tobacco Control*, 11, 210-214.
- JÄRVINEN, M. & DEMANT, J. 2011. The normalisation of cannabis use among young people: Symbolic boundary work in focus groups. *Health, risk & society*, 13, 165-182.
- JARVIS, M. J., FIDLER, J., MINDELL, J., FEYERABEND, C. & WEST, R. 2008. Assessing smoking status in children, adolescents and adults: cotinine cut-points revisited. *Addiction*, 103, 1553-1561.
- JESSOR, R. 1982. Critical issues in research on adolescent health promotion. *Promoting adolescent health: A dialogue on research and practice*, 447-465.
- JESSOR, R. & JESSOR, S. L. 1977. Problem behavior and psychosocial development: A longitudinal study of youth.
- JIMOH, B. O., EBRAHIM, N. A., AHMED, S., TAHA, Z., JOLLY, O. & ALUEDE, O. 2009. Examination malpractice in secondary schools in Nigeria: What sustains it. *European Journal of Educational Studies*, 1, 101-108.
- JOFFE, H. 2011. Thematic Analysis. *Qualitative Research Methods in Mental Health and Psychotherapy*. John Wiley & Sons, Ltd.
- JOHNSON, R. B., ONWUEGBUZIE, A. J. & TURNER, L. A. 2007. Toward a Definition of Mixed Methods Research. *Journal of Mixed Methods Research*, 1, 112-133.
- JOHNSON, T. P. & MOTT, J. A. 2001. The reliability of self-reported age of onset of tobacco, alcohol and illicit drug use. *Addiction*, 96, 1187-1198.
- JOHNSTON, L., O'MALLEY, P., MIECH, R., BACHMAN, J. & SCHULENBERG, J. 2014. Monitoring the Future: National Results on Drug Use—2013 Overview: Key Findings on Adolescent Drug Use. The University of Michigan Institute for Social Research.
- JOHNSTON, L. D., O'MALLEY, P. M., BACHMAN, J. G. & SCHULENBERG, J. E. 2010. Monitoring the Future: National Results on Adolescent Drug Use. Overview of Key Findings, 2009. NIH Publication No. 10-7583. *National Institutes of Health*.
- JOHNSTON, L. D. & O'MALLEY, P. M. 1985. Issues of validity and population coverage in student surveys of drug use. *NIDA Res Monogr*, 57, 31-54.
- KANDEL, D. B. & JESSOR, R. 2002. The gateway hypothesis revisited. *Stages and pathways of drug involvement. Examining the gateway hypothesis*, 365-373.
- KANDEL, D. B., YAMAGUCHI, K. & KLEIN, L. C. 2006. Testing the gateway hypothesis.
- KANN, L., BRENER, N. D., WARREN, C. W., COLLINS, J. L. & GIOVINO, G. A. 2002. An assessment of the effect of data collection setting on the prevalence of health risk behaviors among adolescents. *Journal of Adolescent Health*, 31, 327-335.
- KAPLAN, H. B., MARTIN, S. S. & ROBBINS, C. 1982. Application of a General Theory of Deviant Behavior: Self-Derogation and Adolescent Drug use. *Journal of Health and Social Behavior*, 23, 274-294.
- KAPLAN, H. B., MARTIN, S. S. & ROBBINS, C. 1984. Pathways to Adolescent Drug Use: Self-Derogation, Peer Influence, Weakening of Social Controls, and Early Substance Use. *Journal of Health and Social Behavior*, 25, 270-289.

- KATZ, M. H. 2011. *Multivariable analysis: a practical guide for clinicians and public health researchers*, Cambridge university press.
- KEAR, M. E. 2002. Psychosocial determinants of cigarette smoking among college students. *Journal of Community Health Nursing*, 19, 245-257.
- KENDLER, K. S., MYERS, J. & PRESCOTT, C. A. 2000. Parenting and adult mood, anxiety and substance use disorders in female twins: An epidemiological, multi-informant, retrospective study. *Psychological Medicine*, 30, 281-294.
- KENDLER, K. S. M. D., JACOBSON, K. C. P. D., PRESCOTT, C. A. P. D. & NEALE, M. C. P. D. 2003. Specificity of Genetic and Environmental Risk Factors for Use and Abuse/Dependence of Cannabis, Cocaine, Hallucinogens, Sedatives, Stimulants, and Opiates in Male Twins. *American Journal of Psychiatry*, 160, 687-695.
- KIM, J.-O. & CURRY, J. 1977. The treatment of missing data in multivariate analysis. *Sociological Methods & Research*, 6, 215-240.
- KITZINGER, J. 1994. The methodology of focus groups: the importance of interaction between research participants. *Sociology of health & illness*, 16, 103-121.
- KITZINGER, J. 1995. Introducing Focus Groups. *BMJ: British Medical Journal*, 311, 299-302.
- KLANTSCHNIG, G. 2009. The politics of law enforcement in Nigeria: lessons from the war on drugs. *The Journal of Modern African Studies*, 47, 529-549.
- KLANTSCHNIG, G. 2015. The politics of drug control in Nigeria: Exclusion, repression and obstacles to policy change. *International Journal of Drug Policy*.
- KLANTSCHNIG, G., CARRIER, N. & AMBLER, C. 2014. *Drugs in Africa: Histories and Ethnographies of Use, Trade, and Control*, Palgrave Macmillan.
- KLEIN, A. 1994. Trapped in the Traffick: Growing Problems of Drug Consumption in Lagos. *The Journal of Modern African Studies*, 32, 657-677.
- KLEIN, A. 1999. Nigeria & the Drugs War. *Review of African Political Economy*, 26, 51-73.
- KLEIN, A. 2001. "Have a Piss, Drink Ogogoro, Smoke Igbo, but don't take Gbana"-Hard and Soft Drugs in Nigeria: A Critical Comparison of Official Policies and the View on the Street. *Journal of psychoactive drugs*, 33, 111-119.
- KLIEWER, W. & MURRELLE, L. 2007. Risk and Protective Factors for Adolescent Substance Use: Findings from a Study in Selected Central American Countries. *Journal of Adolescent Health*, 40, 448-455.
- KNIGHT, R. C., SHEPOSH, J. P. & BRYSON, J. B. 1974. College Student Marijuana Use and Societal Alienation. *Journal of Health and Social Behavior*, 15, 28-35.
- KOKKEVI, A., TERZIDOU, M., POLITIKOU, K. & STEFANIS, C. 2000. Substance use among high school students in Greece: Outburst of illicit drug use in a society under change. *Drug and Alcohol Dependence*, 58, 181-188.
- KORHONEN, T., HUIZINK, A. C., DICK, D. M., PULKKINEN, L., ROSE, R. J. & KAPRIO, J. 2008. Role of individual, peer and family factors in the use of cannabis and other illicit drugs: a longitudinal analysis among Finnish adolescent twins. *Drug and Alcohol Dependence*, 97, 33-43.
- KREEK, M. J. 2005. Genetic influences on impulsivity, risk taking, stress responsivity and vulnerability to drug abuse and addiction  
*Nature Neuroscience*, 8.
- KREMERS, S. P., MUDDE, A. N., DE VRIES, N. K., BRUG, J. & DE VRIES, H. 2004. Unplanned smoking initiation: new insights and implications for interventions. *Patient Education and Counseling*, 55, 345-352.

- KUMPFER, K. L. & TURNER, C. W. 1990. The social ecology model of adolescent substance abuse: implications for prevention. *International Journal of the Addictions*, 25, 435-63.
- L. U. AKAH & EMERIBE., V. C. 2011. Assessment of Awareness Level of Health, Psychological, and Social Implications of Cannabis Abuse Among Youths in Cross River State Nigeria. *International Review of Social Sciences and Humanities*, 1, 17-25.
- LAGOS STATE GOVERNMENT, N. 2011. *The Official website of Lagos State: Population* [Online]. Available: <http://www.lagosstate.gov.ng/pagelinks.php?p=6> [Accessed August 25 2015].
- LAIBLE, D. J., CARLO, G. & RAFFAELLI, M. 2000. The Differential Relations of Parent and Peer Attachment to Adolescent Adjustment. *Journal of Youth and Adolescence*, 29, 45-59.
- LAMBERT, S., BROWN, T., PHILLIPS, C. & IALONGO, N. 2004. The Relationship Between Perceptions of Neighborhood Characteristics and Substance Use Among Urban African American Adolescents. *American Journal of Community Psychology*, 34, 205-218.
- LANDRINE, H., RICHARDSON, J. L., KLONOFF, E. A. & FLAY, B. 1994. Cultural diversity in the predictors of adolescent cigarette smoking: the relative influence of peers. *Journal of Behavioral Medicine*, 17, 331-46.
- LECCESE, M. & WALDRON, H. B. 1994. Assessing adolescent substance use: A critique of current measurement instruments. *Journal of Substance Abuse Treatment*, 11, 553-563.
- LEE, R. M. & RENZETTI, C. M. 1990. The problems of researching sensitive topics an overview and introduction. *The American Behavioral Scientist (1986-1994)*, 33, 510.
- LEEUWEN, A. P. V., VERHULST, F. C., REIJNEVELD, S. A., VOLLEBERGH, W. A. M., ORMEL, J. & HUIZINK, A. C. 2011. Can the gateway hypothesis, the common liability model and/or, the route of administration model predict initiation of cannabis use during adolescence? A survival analysis - the TRAILS Study. *Journal of Adolescent Health*, 48, 73-78.
- LENTON, S. 2000. Cannabis policy and the burden of proof: is it now beyond reasonable doubt that cannabis prohibition is not working? *Drug and Alcohol Review*, 19, 95-100.
- LIAMPUTTONG, P. 2006. *Researching the vulnerable: A guide to sensitive research methods*, Sage.
- LIAMPUTTONG, P. 2009. Qualitative research methods.
- LYDDON, W. J., BRADFORD, E. & NELSON, J. P. 1993. Assessing adolescent and adult attachment: A review of current self-report measures. *Journal of Counseling and Development : JCD*, 71, 390-390.
- LYNSKEY, M. & HALL, W. 2000. The effects of adolescent cannabis use on educational attainment: A review. *Addiction*, 95, 1621-1630.
- MAAS, C. J. & HOX, J. J. 2004. Robustness issues in multilevel regression analysis. *Statistica Neerlandica*, 58, 127-137.
- MACCOUN, R. J. 2006. Competing accounts of the gateway effect: the field thins, but still no clear winner. *Addiction*, 101, 473-474.
- MACKENZIE, K., HUNT, G. & JOE-LAIDLER, K. 2006. Youth gangs and drugs: The case of marijuana. *Journal of ethnicity in substance abuse*, 4, 99-134.

- MACKENZIE, N. & KNIPE, S. 2006. Research dilemmas: Paradigms, methods and methodology. *Issues in educational research*, 16, 193-205.
- MADDEN, T. J., ELLEN, P. S. & AJZEN, I. 1992. A Comparison of the Theory of Planned Behavior and the Theory of Reasoned Action. *Personality and Social Psychology Bulletin*, 18, 3-9.
- MAKANJUOLA, A. B., DARAMOLA, T. O. & OBEMBE, A. O. 2007. Psychoactive substance use among medical students in a Nigerian university. *World Psychiatry*, 6, 112-114.
- MALETE, L. 2007. Aggressive and antisocial behaviours among secondary school students in Botswana: The influence of family and school based factors. *School Psychology International*, 28, 90-109.
- MALMBERG, M., OVERBEEK, G., MONSHOUWER, K., LAMMERS, J., VOLLEBERGH, W. A. & ENGELS, R. C. 2010. Substance use risk profiles and associations with early substance use in adolescence. *Journal of Behavioral Medicine*, 33, 474-485.
- MARTIN, G., COPELAND, J., GATES, P. & GILMOUR, S. 2006. The Severity of Dependence Scale (SDS) in an adolescent population of cannabis users: Reliability, validity and diagnostic cut-off. *Drug and Alcohol Dependence*, 83, 90-93.
- MAYET, A., LEGLEYE, S., FALISSARD, B. & CHAU, N. 2012. Cannabis use stages as predictors of subsequent initiation with other illicit drugs among French adolescents: use of a multi-state model. *Addictive Behaviors*, 37, 160-166.
- MAYOCK, P. 2005. 'Scripting' risk: Young people and the construction of drug journeys. *Drugs: Education, Prevention & Policy*, 12, 349-368.
- MAYS, N. & POPE, C. 1995. Qualitative research: rigour and qualitative research. *Bmj*, 311, 109-112.
- MAYS, N. & POPE, C. 2000. Qualitative research in health care: Assessing quality in qualitative research. *BMJ: British Medical Journal*, 320, 50.
- MCLEROY, K. R. & CRUMP, C. E. 1994. Health promotion and disease prevention: a historical perspective. *Generations, National Ataxia Foundation* [Online]. Available: [http://tamhsc.academia.edu/KennethMcLeroy/Papers/81900/Health\\_Promotion\\_and\\_Disease\\_Prevention\\_A\\_Historical\\_Perspective](http://tamhsc.academia.edu/KennethMcLeroy/Papers/81900/Health_Promotion_and_Disease_Prevention_A_Historical_Perspective) [Accessed April 10, 2012].
- MCMAHON, S. D. & WATTS, R. J. 2002a. Ethnic identity in urban African American youth: Exploring links with self-worth, aggression, and other psychosocial variables. *Journal of Community Psychology*, 30, 411-431.
- MCMAHON, S. D. & WATTS, R. J. 2002b. Ethnic identity in urban African American youth: Exploring links with self-worth, aggression, and other psychosocial variables. *Journal of Community Psychology*, 30, 411-431.
- MCMILLAN, B., HIGGINS, A. R. & CONNER, M. 2005. Using an extended theory of planned behaviour to understand smoking amongst schoolchildren. *Addiction Research & Theory*, 13, 293-306.
- MCNEILL, A. D., JARVIS, M. J., STAPLETON, J. A., RUSSELL, M. A., EISER, J. R., GAMMAGE, P. & GRAY, E. M. 1989. Prospective study of factors predicting uptake of smoking in adolescents. *Journal of Epidemiology & Community Health*, 43, 72-8.
- MEASHAM, F. & SHINER, M. 2009. The legacy of 'normalisation': The role of classical and contemporary criminological theory in understanding young people's drug use. *International Journal of Drug Policy*, 20, 502-508.

- MENEZES, A. M. B., HALLAL, P. C. & HORTA, B. L. 2007. Early determinants of smoking in adolescence: a prospective birth cohort study. *Cadernos de Saude Publica*, 23, 347-354.
- MENGHRAJANI, P., KLAUE, K., DUBOIS-ARBER, F. & MICHAUD, P.-A. 2005. Swiss adolescents' and adults' perceptions of cannabis use: a qualitative study. *Health Education Research*, 20, 476-484.
- MICHAUD, P.-A. 2003. Prevention and health promotion in school and community settings: a commentary on the international perspective. *Journal of Adolescent Health*, 33, 219-225.
- MILES, D. R., VAN DEN BREE, M. B. M., GUPMAN, A. E., NEWLIN, D. B., GLANTZ, M. D. & PICKENS, R. W. 2001. A twin study on sensation seeking, risk taking behavior and marijuana use. *Drug and Alcohol Dependence*, 62, 57-68.
- MILLER, P. G., STRANG, J. & MILLER, P. M. 2010. *Addiction research methods*, John Wiley & Sons.
- MILTON, B., WOODS, S., DUGDILL, L., PORCELLATO, L. & SPRINGETT, R. 2008. Starting young? Children's experiences of trying smoking during pre-adolescence. *Health Education Research*, 23, 298-309.
- MOORE, T. H., ZAMMIT, S., LINGFORD-HUGHES, A., BARNES, T. R., JONES, P. B., BURKE, M. & LEWIS, G. 2007. Cannabis use and risk of psychotic or affective mental health outcomes: a systematic review. *The Lancet*, 370, 319-328.
- MORAKINYO, J. & ODEJIDE, A. O. 2003. A community based study of patterns of psychoactive substance use among street children in a local government area of Nigeria. *Drug and Alcohol Dependence*, 71, 109-116.
- MORAKINYO, O. 1983. Aversion therapy of cannabis dependence in Nigeria. *Drug and Alcohol Dependence*, 12, 287-293.
- MORGAN, D. L. 2007. Paradigms lost and pragmatism regained methodological implications of combining qualitative and quantitative methods. *Journal of mixed methods research*, 1, 48-76.
- MORGAN, D. L. 2014. Pragmatism as a paradigm for social research. *Qualitative Inquiry*, 1077800413513733.
- MOROJELE, N. K. & BROOK, J. S. 2006. Substance use and multiple victimisation among adolescents in South Africa. *Addictive Behaviors*, 31, 1163-1176.
- MORRAL, A. R., MCCAFFREY, D. F. & PADDOCK, S. M. 2002. Reassessing the marijuana gateway effect. *Addiction*, 97, 1493-504.
- MORSE, J. M., BARRETT, M., MAYAN, M., OLSON, K. & SPIERS, J. 2008. Verification strategies for establishing reliability and validity in qualitative research. *International journal of qualitative methods*, 1, 13-22.
- MOSTAGHIM, A. & HATHAWAY, A. D. 2013. Identity Formation, Marijuana and "The Self": A Study of Cannabis Normalization among University Students. *Frontiers in Psychiatry*, 4, 160.
- MUNDI, I. 2012. Nigeria Demographics Profile 2012.
- MURRAY, D. M., O'CONNELL, C. M., SCHMID, L. A. & PERRY, C. L. 1987. The validity of smoking self-reports by adolescents: a reexamination of the bogus pipeline procedure. *Addictive Behaviors*, 12, 7-15.
- MURRAY, R. M., MORRISON, P. D., HENQUET, C. & DI FORTI, M. 2007. Cannabis, the mind and society: the hash realities. *Nature Reviews Neuroscience*, 8, 885-895.

- NAIDOO, J. & WILLS, J. 2010. *Developing practice for public health and health promotion*, Elsevier Health Sciences.
- NDLEA 1989. VISION AND MISSION.
- NDLEA. 2015. *National Drug Law Enforcement Agency (NDLEA)* [Online]. Available: <http://www.ndlea.gov.ng/v1/> [Accessed September 5 2015].
- NEALE, J., ALLEN, D. & COOMBES, L. 2005. Qualitative research methods within the addictions. *Addiction*, 100, 1584-1593.
- NICHOLS, T. R., BIRNBAUM, A. S., BIRNEL, S. & BOTVIN, G. J. 2006. Perceived smoking environment and smoking initiation among multi-ethnic urban girls. *Journal of Adolescent Health*, 38, 369-375.
- NICHTER, M., QUINTERO, G., NICHTER, M., MOCK, J. & SHAKIB, S. 2004. Qualitative Research: Contributions to the Study of Drug Use, Drug Abuse, and Drug Use(r)-Related Interventions. *Substance Use & Misuse*, 39, 1907-1969.
- NIVEAU, G. & DANG, C. 2003. Cannabis and violent crime. *Medicine, science and the law*, 43, 115-121.
- NOVICK, G. 2008. Is There a Bias Against Telephone Interviews In Qualitative Research? *Research in nursing & health*, 31, 391-398.
- NUTBEAM, D. 1997. Promoting health and preventing disease: An international perspective on youth health promotion. *Journal of Adolescent Health*, 20, 396-402.
- NUTBEAM, D., HARRIS, E. & MARILYN WISE 2010. *Theory in a Nutshell, A practical guide to health promotion theories*, McGraw-Hill Australia Pty Ltd.
- NWHATOR, S. O. 2012. Nigeria's costly complacency and the global tobacco epidemic. *J Public Health Pol*, 33, 16-33.
- O'MALLEY, P. M., BACHMAN, J. G. & JOHNSTON, L. D. 1983. Reliability and Consistency in Self-Reports of Drug Use. *Substance Use & Misuse*, 18, 805-824.
- O S OMADJOHWOEFE 2010. Drug Prohibition and the Problem of Conformity in Nigeria. *J Psychology*, 1, 91-97.
- O'SULLIVAN, L. F. 2008. Challenging Assumptions Regarding the Validity of Self-Report Measures: The Special Case of Sexual Behavior. *Journal of Adolescent Health*, 42, 207-208.
- ODEJIDE, O. A., OHAREI, J. U., L., A. M. & IKUESAN, B. A. 1989. ALCOHOL TREATMENT SYSTEMS IN NIGERIA. *Alcohol and Alcoholism*, 24, 347-353.
- OETTING, E., BEAUVAIS, F. & PEELE, S. 1988. Common elements in youth drug abuse: Peer clusters and other psychosocial factors. *Visions of addiction: Major contemporary perspective on addiction and alcoholism*, 141-161.
- OETTING, E. R. & BEAUVAIS, F. 1987. Peer Cluster Theory, Socialization Characteristics, and Adolescent Drug Use: A Path Analysis. [Article]. *Journal of Counseling Psychology April*, 34, 205-213.
- OHAERI, J. U. & ODEJIDE, O. A. 1993. Admissions for drug and alcohol-related problems in Nigerian psychiatric care facilities in one year. *Drug and Alcohol Dependence*, 31, 101-109.
- OKAFOR, E. E. 2011. Youth unemployment and implications for stability of democracy in Nigeria. *Journal of sustainable Development in Africa*, 13, 358-373.
- OKOLI, R., AIGBE, O., OHAJU-OBODO, J. & MENSAH, J. 2007. Medicinal herbs used for managing some common ailments among Esan people of Edo State, Nigeria. *Pakistan Journal of Nutrition*, 6, 490-496.

- OLORUNFEMI, A. 1984. The Liquor Traffic Dilemma in British West Africa: The Southern Nigerian Example, 1895-1918. *The International Journal of African Historical Studies*, 17, 229-241.
- OMOLUABI, P. F. 1995. A Review of the Incidence of Nonprescription Psychoactive Substance Use/Misuse in Nigeria. *Substance Use & Misuse*, 30, 445-458.
- ONIFADE, P. O., SOMOYE, E. B., OGUNWOBI, O. O., OGUNWALE, A., AKINHANMI, A. O. & ADAMSON, T. A. 2011. A descriptive survey of types, spread and characteristics of substance abuse treatment centers in Nigeria. *Substance Abuse Treatment, Prevention, & Policy*, 6, 25.
- ONWUEGBUZIE, A. J. & COLLINS, K. M. T. 2007. A Typology of Mixed Methods Sampling Designs in Social Science Research. *The Qualitative Report* 12, 281-316.
- ORPINAS, P. & FRANKOWSKI, R. 2001. The Aggression Scale. *The Journal of Early Adolescence*, 21, 50-67.
- ORPINAS, P., HOME, A. M. & STANISZEWSKI, D. 2003. School Bullying: Changing the Problem by Changing the School. *School Psychology Review*, 32, 431-444.
- OSHODI OY, A. O., ONAJOLE AT, 2010. Substance use among secondary school students in an urban setting in Nigeria: prevalence and associated factors. *African Journal of Psychiatry*, 13.
- OWOADE, M. A. 1989. The Military and the Criminal Law in Nigeria. *Journal of African Law*, 33, 135-148.
- PACULA, R. L. & KILMER, B. 2003. Marijuana and crime: Is there a connection beyond prohibition? : National bureau of economic research.
- PALEN, L.-A., SMITH, E. A., CALDWELL, L. L., FLISHER, A. J., WEGNER, L. & VERGNANI, T. 2008. Inconsistent Reports of Sexual Intercourse Among South African High School Students. *Journal of Adolescent Health*, 42, 221-227.
- PARKER, G., TUPLING, H. & BROWN, L. 1979. A parental bonding instrument. *british Journal of medical psychology*, 52, 1-10.
- PARKER, H., WILLIAMS, L. & ALDRIDGE, J. 2002. The Normalization of 'Sensible' Recreational Drug Use Further Evidence from the North West England Longitudinal Study. *Sociology*, 36, 941-964.
- PARKER, H. J., ALDRIDGE, J. & MEASHAM, F. 1998. *Illegal leisure: The normalization of adolescent recreational drug use*, Psychology Press.
- PARSAI, M., VOISINE, S., MARSIGLIA, F. F., KULIS, S. & NIERI, T. 2009. The protective and risk effects of parents and peers on substance use, attitudes, and behaviors of Mexican and Mexican American female and male adolescents. *Youth & Society*, 40, 353-376.
- PATRICK, D. L., CHEADLE, A., THOMPSON, D. C., DIEHR, P., KOEPEL, T. & KINNE, S. 1994. The validity of self-reported smoking: a review and meta-analysis. *American Journal of Public Health*, 84, 1086-1093.
- PATTON, L. H. 1995. Adolescent substance abuse: Risk factors and protective factors. *Pediatric Clinics of North America*, 42, 283-293.
- PEDERSEN, W. 1990. Reliability of drug use responses in a longitudinal study. *Scandinavian Journal of Psychology*, 31, 28-33.
- PEDERSEN, W. 2009. Cannabis use: Subcultural opposition or social marginality? A population-based longitudinal study. *Acta Sociologica*, 52, 135-148.

- PEDERSEN, W. & SKARDHAMAR, T. 2010. Cannabis and crime: findings from a longitudinal study. *Addiction*, 105, 109-118.
- PEDUZZI, P., CONCATO, J., KEMPER, E., HOLFORD, T. R. & FEINSTEIN, A. R. 1996. A simulation study of the number of events per variable in logistic regression analysis. *Journal of Clinical Epidemiology*, 49, 1373-1379.
- PELA, A. O. & J. C. EBIE. 1982. Drug abuse in Nigeria: a review of epidemiological studies. Available: [http://www.unodc.org/unodc/en/data-and-analysis/bulletin/bulletin\\_1982-01-01\\_3\\_page008.html](http://www.unodc.org/unodc/en/data-and-analysis/bulletin/bulletin_1982-01-01_3_page008.html) [Accessed FEBRUARY 23, 2012].
- PENG, C.-Y. J., LEE, K. L. & INGERSOLL, G. M. 2002. An introduction to logistic regression analysis and reporting. *The Journal of Educational Research*, 96, 3-14.
- PERETTI-WATEL, P. 2003. Neutralization theory and the denial of risk: some evidence from cannabis use among French adolescents\*. *The British Journal of Sociology*, 54, 21-42.
- PERRY, C. L. & JESSOR, R. 1985. The concept of health promotion and the prevention of adolescent drug abuse. *Health Education & Behavior*, 12, 169-184.
- PETRAITIS, J., FLAY, B. R. & MILLER, T. Q. 1995. Reviewing Theories of Adolescent Substance Use: Organizing Pieces in the Puzzle. [Review]. *Psychological Bulletin January*, 117, 67-86.
- PETRAITIS, J., FLAY, B. R., MILLER, T. Q., TORPY, E. J. & GREINER, B. 1998. Illicit substance use among adolescents: A matrix of prospective predictors. *Substance Use & Misuse*, 33, 2561-2604.
- PICK, W., NAIDOO, S., AJANI, F., ONWUKWE, V., HANSIA, R. & BIELU, O. 2003. Prevalence of alcohol and cannabis use and reported knowledge, attitudes and practice regarding its relationship with health and safety on mines in South Africa.
- POIKOLAINEN, K. 2002. Antecedents of substance use in adolescence. [Miscellaneous]. *Current Opinion in Psychiatry May*, 15, 241-245.
- PRESTI, D. E., ARY, D. V. & LICHTENSTEIN, E. 1992. The context of smoking initiation and maintenance: findings from interviews with youths. *Journal of Substance Abuse*, 4, 35-45.
- RALPH J. DICLEMENTE, RICHARD A. CROSBY & KEGLER, M. C. 2009. *Emerging Theories in Health Promotion Practice and Research*, John Wiley & Sons.
- RAYNOR, K., BHOLANATH, T. & SIMMONS, R. 2012. Copyright© 2012 Department for National Drug Control.
- REBOUSSIN, B. A., GREEN, K. M., MILAM, A. J., FURR-HOLDEN, C. D. M. & IALONGO, N. S. 2014. Neighborhood environment and urban African American marijuana use during high school. *Journal of Urban Health*, 91, 1189-1201.
- REBOUSSIN, B. A., GREEN, K. M., MILAM, A. J., FURR-HOLDEN, D. M., JOHNSON, R. M. & IALONGO, N. S. 2015. The role of neighborhood in urban black adolescent marijuana use. *Drug and Alcohol Dependence*, 154, 69-75.
- REBOUSSIN, B. A., SONG, E. Y., SHRESTHA, A., LOHMAN, K. K. & WOLFSON, M. 2006. A latent class analysis of underage problem drinking: Evidence from a community sample of 16-20 year olds. *Drug and Alcohol Dependence*, 83, 199-209.
- REED, D. 1998. Impact of Overage Middle School Students. Research Brief# 37.
- RHODES, J. E. & JASON, L. A. 1990. A social stress model of substance abuse. *Journal of Consulting and Clinical Psychology*, 58, 395-401.

- RICH, M. & GINSBURG, K. R. 1999. The reason and rhyme of qualitative research: why, when, and how to use qualitative methods in the study of adolescent health. *Journal of Adolescent Health*, 25, 371-378.
- RODERICK, M. 1994. Grade retention and school dropout: Investigating the association. *American Educational Research Journal*, 31, 729-759.
- RODRIGUEZ, G. & GOLDMAN, N. 1995. An Assessment of Estimation Procedures for Multilevel Models with Binary Responses. *Journal of the Royal Statistical Society Series A (Statistics in Society)*, 158, 73 - 89.
- ROEBUCK, M. C., FRENCH, M. T. & DENNIS, M. L. 2004. Adolescent marijuana use and school attendance. *Economics of Education Review*, 23, 133-141.
- ROSE, G. 1981. Strategy of prevention: lessons from cardiovascular disease. *British medical journal (Clinical research ed.)*, 282, 1847-1851.
- ROTH, P. L. 1994. Missing data: A conceptual review for applied psychologists. *Personnel psychology*, 47, 537-560.
- SADLER, G. R., LEE, H. C., LIM, R. S. H. & FULLERTON, J. 2010. Recruitment of hard-to-reach population subgroups via adaptations of the snowball sampling strategy. *Nursing & health sciences*, 12, 369-374.
- SALE, J. E., LOHFELD, L. H. & BRAZIL, K. 2002. Revisiting the quantitative-qualitative debate: Implications for mixed-methods research. *Quality and quantity*, 36, 43-53.
- SANDBERG, S. 2012a. Cannabis culture: A stable subculture in a changing world. *Criminology and criminal justice*, 1748895812445620.
- SANDBERG, S. 2012b. Is cannabis use normalized, celebrated or neutralized? Analysing talk as action. *Addiction Research & Theory*, 20, 372-381.
- SANDELOWSKI, M. 1995. Sample size in qualitative research. *Research in Nursing & Health*, 18, 179-183.
- SANDERS, B. 2012. Gang youth, substance use patterns, and drug normalization. *Journal of Youth Studies*, 15, 978-994.
- SCHAFER, J. L. & GRAHAM, J. W. 2002. Missing data: our view of the state of the art. *Psychological Methods*, 7, 147.
- SCHOFIELD, P. E., PATTISON, P. E., HILL, D. J. & BORLAND, R. 2003. Youth Culture and Smoking: Integrating Social Group Processes and Individual Cognitive Processes in a Model of Health-related Behaviours. *Journal of Health Psychology*, 8, 291-306.
- SEALE, C. & SILVERMAN, D. 1997. Ensuring rigour in qualitative research. *The European Journal of Public Health*, 7, 379-384.
- SHER, K. J., BARTHOLOW, B. D. & WOOD, M. D. 2000. Personality and Substance Use Disorders: A Prospective Study. *Journal of Consulting & Clinical Psychology*, 68, 818-829.
- SHILDRICK, T. 2002. Young people, illicit drug use and the question of normalization. *Journal of youth studies*, 5, 35-48.
- SHILLINGTON, A. M. & CLAPP, J. D. 2000. Self-report stability of adolescent substance use: are there differences for gender, ethnicity and age? *Drug & Alcohol Dependence*, 60, 19-27.
- SHILLINGTON, A. M., COTTLER, L. B., MAGER, D. E. & COMPTON III, W. M. 1995. Self-report stability for substance use over 10 years: data from the St. Louis Epidemiologic Catchment Study. *Drug and Alcohol Dependence*, 40, 103-109.

- SHINER, M. & NEWBURN, T. 1997. Definitely, maybe not? The Normalisation of Recreational Drug use amongst Young People. *Sociology*, 31, 511-529.
- SILBERG, J. L., RUTTER, M., D'ONOFRIO, B. & EAVES, L. 2003. Generic and environmental risk factors in adolescent substance use. *Journal of Child Psychology and Psychiatry and Allied Disciplines*, 44, 664-676.
- SIM, J. 1998. Collecting and analysing qualitative data: issues raised by the focus group. *Journal of advanced nursing*, 28, 345-352.
- SIQUEIRA, L., DIAB, M., BODIAN, C. & ROLNITZKY, L. 2001. The relationship of stress and coping methods to adolescent marijuana use. *Substance Abuse*, 22, 157-166.
- SKARA, S. & SUSSMAN, S. 2003. A review of 25 long-term adolescent tobacco and other drug use prevention program evaluations. *Preventive Medicine*, 37, 451-474.
- SMART, R. G., HUGHES, P. H., JOHNSTON, L. D., ANUMONYE, A., KHANT, U., MEDINA MORA, M. E., NAVARATNAM, V., POSHYACHINDA, V., VARMA, V. K. & WADUD, K. A. 1980. A Methodology for student drug-use surveys. Available: [http://whqlibdoc.who.int/offset/WHO\\_OFFSET\\_50.pdf](http://whqlibdoc.who.int/offset/WHO_OFFSET_50.pdf).
- SPOONER, C. J., FLAHERTY, B. J. & HOMEL, P. J. 1993. Illicit drug use by young people in sydney: results of a street intercept survey. *Drug and Alcohol Review*, 12, 159-168.
- STACY, A. W., FLAY, B. R., SUSSMAN, S., BROWN, K. S., SANTI, S. & BEST, J. A. 1990. Validity of alternative self-report indices of smoking among adolescents. *Psychological Assessment: A Journal of Consulting and Clinical Psychology*, 2, 442.
- STEPHENSON, M. T., HOYLE, R. H., PALMGREEN, P. & SLATER, M. D. 2003. Brief measures of sensation seeking for screening and large-scale surveys. *Drug and Alcohol Dependence*, 72, 279-286.
- STEPHENSON, M. T., MORGAN, S. E., LORCH, E. P., PALMGREEN, P., DONOHEW, L. & HOYLE, R. H. 2002. Predictors of Exposure from an Antimarijuana Media Campaign: Outcome Research Assessing Sensation Seeking Targeting. *Health Communication*, 14, 23-43.
- STEPHENSON, M. T., VELEZ, L. F., CHALELA, P., RAMIREZ, A. & HOYLE, R. H. 2007. The reliability and validity of the Brief Sensation Seeking Scale (BSSS-8) with young adult Latino workers: implications for tobacco and alcohol disparity research. *Addiction*, 102 Suppl 2, 79-91.
- STURGES, J. E. & HANRAHAN, K. J. 2004. Comparing telephone and face-to-face qualitative interviewing: a research note. *Qualitative Research*, 4, 107-118.
- SUSSMAN, S., DENT, C. W. & LEU, L. 2000a. The one-year prospective prediction of substance abuse and dependence among high-risk adolescents. *Journal of Substance Abuse*, 12, 373-386.
- SUSSMAN, S., DENT, C. W. & LEU, L. 2000b. The one-year prospective prediction of substance abuse and dependence among high-risk adolescents. *Journal of Substance Abuse*, 12, 373-86.
- SUTFIN, E. L., REBOUSSIN, B. A., MCCOY, T. P. & WOLFSON, M. 2009. Are college student smokers really a homogeneous group? A latent class analysis of college student smokers. *Nicotine & Tobacco Research*, ntp006.
- SVEND, J. & MORTEN, F. 2014. *An introduction to Stata for health researchers*, Stata Press.
- SWADI, H. 1999. Individual risk factors for adolescent substance use. *Drug and Alcohol Dependence*, 55, 209-224.

- SWAIM, R. C., BEAUVAIS, F., CHAVEZ, E. L. & OETTING, E. R. 1997. The effect of school dropout rates on estimates of adolescent substance use among three racial/ethnic groups. *American Journal of Public Health*, 87, 51-55.
- SYDNEY, R. 2007. *Lagos Map.PNG* [Online]. Available: [https://commons.wikimedia.org/wiki/File:Lagos\\_Map.PNG](https://commons.wikimedia.org/wiki/File:Lagos_Map.PNG) [Accessed December 30 2015].
- T. A. ADAMSON , P. O. O., O. I. IBIKUNLE , E. B. SOMOYE , 2010. Personality profiles of patients with alcohol and drug misuse in a Nigerian treatment facility  
*Journal affiliated to International Psychiatry: African Journal of Psychiatry*, 7.
- TARTER, R. E. 1988. Are There Inherited Behavioral Traits That Predispose to Substance Abuse? *Journal of Consulting and Clinical Psychology*, 56, 189-196.
- TOBIN, G. A. & BEGLEY, C. M. 2004. Methodological rigour within a qualitative framework. *Journal of Advanced Nursing*, 48, 388-396.
- TOWNSEND, L., FLISHER, A. J. & KING, G. 2007. A systematic review of the relationship between high school dropout and substance use. *Clinical Child and Family Psychology Review*, 10, 295-317.
- TRENZ, R. C., SCHERER, M., DUNCAN, A., HARRELL, P. T., MOLEKO, A. G. & LATIMER, W. W. 2013. Latent class analysis of polysubstance use, sexual risk behaviors, and infectious disease among South African drug users. *Drug and alcohol dependence*, 132, 441-448.
- TSIKRIKTSIS, N. 2005. A review of techniques for treating missing data in OM survey research. *Journal of Operations Management*, 24, 53-62.
- TUCKER, J. S., POLLARD, M. S., DE LA HAYE, K., KENNEDY, D. P. & GREEN JR, H. D. 2013. Neighborhood characteristics and the initiation of marijuana use and binge drinking. *Drug and Alcohol Dependence*, 128, 83-89.
- TURNER, D. W. 2010. Qualitative interview design: A practical guide for novice investigators. *The Qualitative Report*, 15, 754-760.
- UEBERSAX, J. S. 1994. Latent class analysis of substance abuse patterns. *NIDA research monograph*, 142, 64-64.
- ULIN, P. R., ELIZABETH T. ROBINSON & ELIZABETH E. TOLLEY 2004. *Qualitative methods in public health : a field guide for applied research*, Jossey Bass Ltd.
- UNICEF. 2012. *Global initiative on out- of- school children: Nigeria country study* [Online]. Available: <http://www.uis.unesco.org/Library/Documents/out-of-school-children-nigeria-country-study-2012-en.pdf> [Accessed November 6 2015].
- UNODC. 2005. *Data for Africa - Programme Description* [Online]. Available: <http://www.unodc.org/unodc/en/data-and-analysis/Data-for-Africa-description.html> [Accessed March 7, 2014].
- UNODC. 2009. Transnational Trafficking and the Rule of Law in West Africa: A Threat Assessment. Available: <http://www.unodc.org/nigeria/en/transnational-trafficking-and-the-rule-of-law-in-west-africa -a-threat-assessment.html> [Accessed February 7, 2012].
- UNODC. 2012. *Cannabis , A Short Review Discussion paper* [Online]. Available: [www.unodc.org/documents/drug-prevention-and-treatment/cannabis\\_review.pdf](http://www.unodc.org/documents/drug-prevention-and-treatment/cannabis_review.pdf) [Accessed December 18 2015].
- UNODC. 2015. *United Nations Office on Drugs and Crime, World Drug Report 2015* [Online]. Available:

[http://www.unodc.org/documents/wdr2015/World Drug Report 2015.pdf](http://www.unodc.org/documents/wdr2015/World_Drug_Report_2015.pdf)

[Accessed October 26, 2015].

- V. O. OVIASU 1976. Abuse of Stimulant Drugs in Nigeria. *British Journal of Addiction to Alcohol & Other Drugs*, 71, 51-53.
- VAN GUNDY, K. & REBELLON, C. J. 2010. A life-course perspective on the "Gateway Hypothesis". *Journal of Health and Social Behavior*, 51, 244-259.
- VAUGHN, M., WALLACE, J., PERRON, B., COPELAND, V. & HOWARD, M. 2008. Does marijuana use serve as a gateway to cigarette use for high-risk African-American youth? *American Journal of Drug & Alcohol Abuse*, 34, 782-91.
- VINER, R. M., OZER, E. M., DENNY, S., MARMOT, M., RESNICK, M., FATUSI, A. & CURRIE, C. 2012. Adolescence and the social determinants of health. *The Lancet*, 379, 1641-1652.
- VITARO, F., WANNER, B., BRENDGEN, M., GOSSELIN, C. & GENDREAU, P. L. 2004. Differential contribution of parents and friends to smoking trajectories during adolescence. *Addictive Behaviors*, 29, 831-5.
- VITTINGHOFF, E. & MCCULLOCH, C. E. 2007. Relaxing the Rule of Ten Events per Variable in Logistic and Cox Regression. *American Journal of Epidemiology*, 165, 710-718.
- VON SYDOW, K., LIEB, R., PFISTER, H., HOFER, M. & WITTCHEN, H.-U. 2002. What predicts incident use of cannabis and progression to abuse and dependence? A 4-year prospective examination of risk factors in a community sample of adolescents and young adults. *Drug & Alcohol Dependence*, 68, 49-64.
- WAGNER, M. K. 2001. Behavioral characteristics related to substance abuse and risk-taking, sensation-seeking, anxiety sensitivity, and self reinforcement. *Addictive Behaviors*, 26, 115-120.
- WAHYUNI, D. 2012. The research design maze: Understanding paradigms, cases, methods and methodologies. *Journal of Applied Management Accounting Research*, 10, 69-80.
- WEINBERG, N. Z., RAHDERT, E., COLLIVER, J. D. & GLANTZ, M. D. 1998. Adolescent substance abuse: A review of the past 10 years. *Journal of the American Academy of Child and Adolescent Psychiatry*, 37, 252-261.
- WHITTEMORE, R., CHASE, S. K. & MANDLE, C. L. 2001. Validity in Qualitative Research. *Qualitative Health Research*, 11, 522-537.
- WHO. 1986a. Ottawa Charter for Health Promotion. Available: [www.who.int/hpr/NPH/docs/ottawa\\_charter\\_hp.pdf](http://www.who.int/hpr/NPH/docs/ottawa_charter_hp.pdf) [Accessed April 11, 2012].
- WHO 1986b. Young people's health-a challenge for society: report of a WHO Study Group on Young People and "Health for All by the Year 2000"[meeting held in Geneva from 4 to 8 June 1984].
- WHO 1994. Lexicon of Alcohol and Drug Terms.
- WHO. 2004. Neuroscience of psychoactive substance use and dependence. Available: [http://www.who.int/substance\\_abuse/publications/en/Neuroscience.pdf](http://www.who.int/substance_abuse/publications/en/Neuroscience.pdf) [Accessed May 22,2012].
- WIATROWSKI, M. D., GRISWOLD, D. B. & ROBERTS, M. K. 1981. Social Control Theory and Delinquency. *American Sociological Review*, 46, 525-541.
- WIKIPEDIA, T. F. E. 2015. *Lagos*. [Online]. Available: <https://en.wikipedia.org/w/index.php?title=Lagos&oldid=678904313> [Accessed Retrieved 20:29, September 6, 2015].

- WILLS, T. A. & CLEARY, S. D. 1997. The validity of self-reports of smoking: Analyses by race/ethnicity in a school sample of urban adolescents. *American Journal of Public Health*, 87, 56-61.
- WILLS, T. A., MCNAMARA, G. & VACCARO, D. 1995. Parental education related to adolescent stress-coping and substance use: development of a mediational model. *Health Psychology*, 14, 464-78.
- WILLS, T. A., PIERCE, J. P. & EVANS, R. I. 1996. Large-Scale Environmental Risk Factors for Substance Use. *American Behavioral Scientist*, 39, 808-822.
- WILSON, J. Q. & KELLING, G. L. 1982. Broken windows. *Atlantic monthly*, 249, 29-38.
- WINDLE, M. 1990. A Longitudinal Study of Antisocial Behaviors in Early Adolescence as Predictors of Late Adolescent Substance Use: Gender and Ethnic Group Differences. *Journal of Abnormal Psychology*, 99, 86-91.
- WODAK, A., REINARMAN, C., COHEN, P. & DRUMMOND, C. 2002. Cannabis control: costs outweigh the benefits. *British Medical Journal*, 324, 105-108.
- WOLFF, K., FARRELL, M., MARSDEN, J., MONTEIRO, M. G., ALI, R., WELCH, S. & STRANG, J. 1999. A review of biological indicators of illicit drug use, practical considerations and clinical usefulness. *Addiction*, 94, 1279-1298.
- ZAMMIT, S., ALLEBECK, P., ANDREASSON, S., LUNDBERG, I. & LEWIS, G. 2002. Self reported cannabis use as a risk factor for schizophrenia in Swedish conscripts of 1969: historical cohort study. *Bmj*, 325, 1199.
- ZUCKERMAN, M. & LINK, K. 1968. CONSTRUCT VALIDITY FOR THE SENSATION-SEEKING SCALE. *Journal of Consulting & Clinical Psychology*, 32, 420-426.