

University of Leeds

Healthcare Professionals', Patients', and Caregivers' Views about Cancer Pain and its Management in Libya

Salim M. Makhoulf

Submitted in accordance with the requirements for the degree of
Doctor of Philosophy

The University of Leeds

School of Medicine

Academic Unit of Palliative Care

May 2022

Intellectual Property and Publication Statement

The candidate confirms that the work submitted is his own, except where work, which has formed part of jointly-authored publications, has been included. The contribution of the candidate and the other authors to this work has been explicitly indicated below. The candidate confirms that appropriate credit has been given within the thesis where reference has been made to the work of others. To date, the following papers have been published or awaiting final acceptance after invited revisions from the journals.

Peer-reviewed publications:

- SALIM M. Makhlouf; SIMON PINI; SHENAZ AHMED; MICHAEL BENNETT. 2019. Managing Pain in People with Cancer—a Systematic Review of the Attitudes and Knowledge of Professionals, Patients, Caregivers, and Public. *Journal of Cancer Education*, 35:214–240. Available from: <https://doi.org/10.1007/s13187-019-01548-9>.
- SALIM M. Makhlouf; SHENAZ AHMED; Matthew Mulvey; MICHAEL BENNETT. 2022. Attitudes, knowledge, and perceived barriers towards cancer pain management among healthcare professionals in Libya: A national multicentre survey. *Journal of Cancer Education*, 10(1007):01-08. Available from: <https://link.springer.com/article/10.1007/s13187-022-02185-5#citeas>

The papers are awaiting final acceptance after invited revisions from the journals:

- SALIM M. Makhlouf; SHENAZ AHMED; MICHAEL BENNETT. Libyan healthcare professionals', patients' and caregivers' perceptions and religious beliefs about cancer pain and its management: A qualitative study. *Journal of Health and Religion*.

Conference abstracts:

- SALIM M. Makhoulf; SIMON PINI; SHENAZ AHMED; MICHAEL BENNETT. 2020. Managing Pain in People with Cancer—a Systematic Review of the Attitudes and Knowledge of Professionals, Patients, Caregivers, and Public. North-East Postgraduate Conference, Diversity; November 13; United Kingdom [Accepted]. (See appendix 41).
- SALIM M. Makhoulf; SHENAZ AHMED; MICHAEL BENNETT. 2021. Libyan healthcare professionals', patients' and caregivers' perceptions and religious beliefs about cancer pain and its management: A qualitative study. North-East Postgraduate Conference, Diversity; November 11-12; United Kingdom [Accepted]. (See appendix 41).

Declaration

The author of this thesis was the first and corresponding author for all the publications. He drafted the papers, revised them as per supervisors' feedback, formatted them according to the journal style, submitted them to the respective journals, and answered the queries raised by the editorial office, reviewers, and the production office.

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 acknowledgment.

The right of Salim M. Makhoulf to be identified as the author of this work has been asserted by him in accordance with the Copyright, Designs and Patents Act 1988.

Acknowledgments

First and foremost, I would like to thank Allah Almighty for providing me with strength, patience, and perseverance throughout my Ph.D. journey. I would have never completed this thesis without His guidance, blessings, and mercies.

I do not have words to thank my supervisors, Professor Michael Bennett, Dr. Shenaz Ahmed, and Dr. Matthew Mulvey, for their encouragement, help, guidance, and immense support throughout these years. Their knowledge, skills, collaboration, and professionalism inspired me. I also received excellent support from the Lead for Postgraduate Research Studies, Dr. Rebecca Beeken, and the Co-lead for Postgraduate Research, Dr. Ghazala Mir. I am also thankful to Dr. Joesph Hicks and Professor Sarah Brown for their help with statistical analysis, Rachel De Souza for her help with ethics applications, Sally Dalton for her advice as Library Research Support Advisor, Dr. Catriona Marshall and Dr. Samuel Rolton for reading the chapters of this thesis, and Jane Hetherington for help with Microsoft word of thesis and organisation.

Last but not least, I would like to express my gratitude to all the patients, caregivers, and HCPs who participated in this study and to all oncology centres and departments in Libya and Egypt for permitting me to recruit participants in their medical settings. I also would like to thank Dr. Raouf Azzuz, Dr. Amal Elarebi, Najah Alsabir, Dr. Khalid Enowyli, Hanan Algedafi, and Dr. Jummah Jamal for their help with the recruitment at each oncology setting in Libya.

Abstract

Background: Cancer pain remains a significant problem worldwide. It presents in about 50% of cancer patients with advanced stages. Although several guidelines and pharmacological interventions for Cancer Pain Management (CPM) exist, inadequate assessment and undertreatment of cancer pain are well-documented globally, especially in developing countries, including Libya. Lack of knowledge and negative attitudes and perceptions towards cancer pain and opioids among Healthcare Professionals (HCPs), patients, and caregivers are reported as barriers to effective CPM in Libya and worldwide.

Aim: This study aimed to explore Libyan HCPs', patients', and caregivers' views about cancer pain and its management.

Methods: The research design in this study is an exploratory sequential mixed-methods approach, which is more appropriate for this study based on the study's purpose to answer the research questions. This thesis consists of three studies: A systematic review, a qualitative descriptive study involving semi-structured interviews with 36 participants: 18 Libyan cancer patients, 6 caregivers, and 12 Libyan HCPs, and a cross-sectional survey involving a convenience sample of 152 oncology nurses and physicians working in six oncology settings in Libya.

Results: Libyan patients, caregivers, and newly qualified HCPs were concerned about the social stigma of opioids and feared drug addiction. Some patients and caregivers relied on religious and cultural beliefs for managing cancer pain, including the use of the Qur'an and cauterization as coping strategies for CPM. Libyan HCPs perceived a lack of policies and guidelines, pain rating scales, and professional education and training in CPM as barriers to effective CPM.

Conclusion: Our results suggest that Libyan patients, caregivers, and oncology HCPs hold perceived barriers, lack of knowledge, and negative attitudes towards CPM. Professional education and training in CPM among HCPs, addressing phobia and myths on opioid usage, and the benefits and complications of using opioids will likely result in reduced barriers to CPM in Libya.

Table of Contents

Intellectual Property and Publication Statement.....	I
Acknowledgments	IV
Abstract	V
Table of Contents.....	VI
List of Figures	XV
List of Tables.....	XVI
Abbreviations.....	XVII
Chapter 1 Introduction and background.....	1
1.1 Introduction	1
1.2 Background of the study	1
1.2.1 Brief an overview of the study setting (Libya)	1
1.2.1.1 The location and population of Libya	1
1.2.1.2 The religion and language of Libya.....	2
1.2.1.3 The culture of Libya	3
1.2.1.4 The education system in Libya	4
1.2.2 Overview of the healthcare system in Libya	5
1.2.2.1 The Libyan Ministry of Health (MoH)	5
1.2.2.2 The Libyan National Healthcare Services (LNHS)	6
1.2.2.3 The structure of the Libyan healthcare system	7
1.2.2.4 The Libyan healthcare system during and after the revolution.....	9
1.2.2.5 Education and training for Libyan HCPs	9
1.2.2.6 Overview of oncology services in Libya	10
1.3 Brief an overview of cancer.....	11
1.3.1 Cancer causes, mortality, and Prevalence	11
1.3.2 Cancer survivors.....	13
1.4 The stigma of cancer and opioids	13
1.5 Islamic religious worldview of cancer.....	17
1.6 Islamic perspectives on cancer care and CPM	18
1.7 Overview of the WHO and Palliative Care (PC).....	21
1.7.1 The concept of PC worldwide	21
1.7.2 Palliative Care (PC) in Libya	22
1.8 Overview of cancer pain and its management	23

1.8.1	Definition and classification of pain	23
1.8.2	Cancer pain	25
1.8.3	Prevalence of cancer pain	26
1.8.4	Cancer pain assessment	27
1.8.5	Cancer Pain Management (CPM)	28
1.9	Barriers to effective CPM	30
1.9.1	HCPs related barriers	30
1.9.1.1	HCPs' knowledge and attitudes towards CPM.....	30
1.9.1.2	HCPs' perceptions and beliefs about CPM	33
1.9.2	Patients and caregivers related barriers	34
1.9.2.1	Patients' and caregivers' knowledge and attitudes to CPM	34
1.9.2.2	Patients' and caregivers' perceptions and beliefs about CPM.....	34
1.9.3	Healthcare system-related barriers.....	37
1.9.3.1	policies and guidelines for CPM.....	37
1.9.3.2	Limits on access to opioids for CPM.....	38
1.10	Hypothesis, aims, and Objectives	39
1.10.1	Statement of the problem.....	39
1.10.2	Research Question	41
1.10.3	The overall research aims and individual research objectives	41
1.10.4	Research Hypothesis.....	41
1.11	Significance of the Study.....	42
1.12	Outline of the thesis	42
Chapter 2	Research Methodology and Methods	44
2.1	Introduction.....	44
2.2	Study Overview	44
2.3	Mixed-methods design for this study	46
2.3.1	Pragmatism	46
2.3.2	Justification for using pragmatism in this study	47
2.3.3	The rationale for adopting a mixed-methods design in this study.....	48
2.3.4	Classification of a mixed-methods design	49
2.3.4.1	The exploratory sequential design.....	49
2.3.4.1.1	Justification of using an exploratory mixed-methods design	51
2.4	Study Design Specifics.....	52

2.4.1	Systematic Review (study one)	52
2.4.1.1	Review Question	52
2.4.1.2	Review Aim	52
2.4.1.3	Review Hypothesis	52
2.4.1.4	Review Methods	52
2.4.1.4.1	Protocol and registration	52
2.4.1.4.2	Adapting PICO into PCO for the current SR	53
2.4.1.4.3	Eligibility criteria for considering studies for this SR (PCO)	53
2.4.1.4.3.1	Types of studies (study designs)	54
2.4.1.4.3.2	Types of participants/population	55
2.4.1.4.3.3	Types of Contexts	55
2.4.1.4.3.4	Types of outcome measures	55
2.4.1.4.4	Search strategy for identification of studies	55
2.4.1.4.4.1	Search sources	56
2.4.1.4.4.2	Search Terms	57
2.4.1.4.4.3	Data Extraction	58
2.4.1.4.4.4	Quality Assessment of the Included Studies	59
2.4.1.4.4.5	Analysis of included studies	59
2.4.1.4.4.6	Justification for conducting this systematic review	60
2.4.2	Qualitative Study (study two)	60
2.4.2.1	Research Question	60
2.4.2.2	Study Aim	60
2.4.2.3	Study Hypothesis	60
2.4.2.4	Qualitative Method	61
2.4.2.5	Justification of using the qualitative method	61
2.4.2.5.1	Justification for choosing a qualitative description	62
2.4.2.5.2	Description of the inclusion and exclusion criteria	63
2.4.2.5.3	Research sampling, participants, and settings	64
2.4.2.5.4	Recruiting procedure	64
2.4.2.5.5	Qualitative sample size	65
2.4.2.5.6	Qualitative data collection procedure	67
2.4.2.5.7	Semi-structured interviews	68
2.4.2.5.7.1	Justification of using the semi-structured interview	69
2.4.2.5.8	Pilot study for qualitative interviews	70

2.4.2.5.9	Qualitative data analysis	71
2.4.2.5.9.1	Justification for using thematic analysis	71
2.4.2.5.9.2	Process of data analysis	72
2.4.2.6	Validity and reliability of the qualitative study	75
2.4.2.6.1	Credibility (internal validity)	76
2.4.2.6.2	Consistency (Reliability).....	76
2.4.2.6.3	Transferability (external validity)	77
2.4.3	Quantitative Study (study three).....	77
2.4.3.1	Study question	77
2.4.3.2	Study aims and objectives	78
2.4.3.3	Survey Hypotheses.....	79
2.4.3.4	A quantitative method	79
2.4.3.4.1	Justification of the need for a quantitative method....	79
2.4.3.4.2	Exploratory quantitative design.....	80
2.4.3.4.2.1	The rationale for adopting exploratory quantitative design	81
2.4.3.4.3	The process of recruiting	81
2.4.3.4.4	Quantitative data collection.....	82
2.4.3.4.5	Description of the inclusion and exclusion criteria	82
2.4.3.4.6	Participants and setting.....	82
2.4.3.4.7	Quantitative sample size.....	83
2.4.3.4.8	Justification of using the BQ-II questionnaire.....	84
2.4.3.4.9	Questionnaire (Survey)	85
2.4.3.4.10	Pilot study for survey.....	87
2.4.3.5	The credibility of the study	88
2.4.3.5.1	Validity of survey.....	88
2.4.3.5.2	Reliability of survey.....	88
2.4.3.6	The response rate for the survey	89
2.4.3.7	Quantitative data analysis.....	91
2.5	Ethical considerations	91
2.5.1	Ethical procedure	92
2.5.1.1	Researching sensitive subjects	92
2.5.1.2	Informed consent.....	92
2.5.1.3	Anonymity.....	92
2.5.1.4	Confidentiality	93
2.5.1.5	Data Storage	93

Chapter 3 Managing Pain in People with Cancer– a Systematic Review of the Attitudes and Knowledge of Professionals, Patients, Caregivers, and Public.....	95
3.1 Introduction.....	95
3.2 Systematic Review Findings.....	95
3.2.1 Information sources and study selection.....	95
3.2.2 Included studies.....	98
3.2.3 Results.....	108
3.2.3.1 Patients’ knowledge and attitudes towards CPM.....	108
3.2.3.2 HCPs’ knowledge and attitudes towards CPM.....	108
3.2.3.2.1 Comparison of knowledge and attitudes to CPM between Physicians and Nurses.....	108
3.2.3.2.2 Comparison of nurses’ attitudes and knowledge towards CPM between different countries.....	109
3.2.3.3 Caregivers’ knowledge and attitudes towards CPM.....	110
3.2.3.4 Public’s knowledge and attitudes towards CPM.....	111
3.3 Summary of the Key findings.....	112
Chapter 4 Libyan healthcare professionals', patients' and caregivers' perceptions and religious beliefs about cancer pain and its management: A qualitative study.....	114
4.1 Introduction.....	114
4.2 Characteristics of participants.....	114
4.3 Key Themes.....	116
4.3.1 Influence of religion on CPM.....	116
4.3.1.1 Belief and trust in Allah (God).....	116
4.3.1.2 Use of the Qur’an as a coping strategy for CPM.....	118
4.3.2 Influence of culture on CPM.....	119
4.3.2.1 Use of the cautery (Kaiy) for CPM.....	119
4.3.2.2 The social stigma of opioids.....	121
4.3.3 Influence of economic factors on CPM.....	121
4.3.3.1 Financial hardship with cancer and pain.....	121
4.3.4 Patients and caregivers related barriers.....	122
4.3.4.1 Patients’ misconceptions about cancer pain.....	122
4.3.4.2 Patients’ and caregivers’ attitudes and perceptions of opioids.....	123
4.3.5 HCPs related barriers.....	124
4.3.5.1 HCPs’ attitudes and perceptions of opioids.....	124
4.3.5.2 Lack of knowledge among HCPs.....	125

4.3.6 Healthcare system-related barriers	126
4.3.6.1 Absence of policies and guidelines for CPM	126
4.3.6.2 Limit access to opioids for CPM.....	127
4.3.6.3 Shortage of HCPs and heavy workload	127
4.4 Summary of the key findings.....	128
Chapter 5 Attitudes, knowledge, and perceived barriers towards CPM among HCPs in Libya: A national multicentre survey.....	129
5.1 Introduction	129
5.2 Quantitative Results.....	129
5.2.1 Characteristics of participants.....	129
5.2.2 The distribution of the overall BQ-II scores	131
5.2.3 Barriers to effective CPM among HCPs.....	133
5.2.4 Common barriers to CPM among Libyan HCPs.....	135
5.2.5 Comparison between Libyan HCPs' demographic variables and the mean overall BQ-II	137
5.2.6 Comparison between the mean BQ-II subscale physiological effects and Libyan HCPs' demographic variables	138
5.2.7 Comparison between the mean BQ-II subscale fatalism and Libyan HCPs' demographic variables	140
5.2.8 Comparison between the mean BQ-II subscale communication and Libyan HCPs' demographic variables.....	141
5.2.9 Comparison between the mean BQ-II subscale harmful effects and Libyan HCPs' demographic variables.....	143
5.2.10 Comparison of mean overall BQ-II and subscales scores between Libyan, Jordanian, and Albanian HCPs	144
5.2.11 The most common barriers to CPM among HCPs from three countries.....	146
5.3 Summary of the key findings.....	147
Chapter 6 Comprehensive Discussion and Conclusion.....	149
6.1 Introduction	149
6.2 Integration and summary of results.....	149
6.3 Discussion of findings from three studies.....	151
6.3.1 Discussion of findings from study one.....	151
6.3.1.1 Patient's Knowledge and Attitudes Towards CPM	153
6.3.1.2 HCPs' Knowledge and Attitudes Towards CPM	154
6.3.1.3 Caregivers' Knowledge and Attitudes Towards CPM.....	157
6.3.1.4 Public's Knowledge and Attitudes Towards CPM	158
6.3.1.5 Summary of discussion from study one	158

6.3.2 Discussion of findings from study two.....	160
6.3.2.1 Influence of religion on CPM.....	160
6.3.2.2 Influence of culture on CPM	162
6.3.2.3 Influence of economic factors on CPM	165
6.3.2.4 Barriers to CPM related to patients and caregivers	167
6.3.2.5 Barriers to CPM related to HCPs.....	168
6.3.2.6 Barriers related to the healthcare system	172
6.3.2.7 Summary of discussion from study two	175
6.3.3 Discussion of findings from study three	175
6.3.3.1 Barriers to CPM related to HCPs' attitudes.....	176
6.3.3.2 Barriers to CPM related to HCPs' Knowledge.....	177
6.3.4 Summary of key discussion from three studies.....	181
6.4 Research strengths and limitations	182
6.4.1 Strengths and limitations for mixed-methods design	182
6.4.2 Strengths and limitations for study one	184
6.4.3 Strengths and limitations for study two	185
6.4.4 Strengths and limitations for study three.....	186
6.5 Reflections on Undertaking the Study.....	187
6.6 Research contributions	188
6.6.1 Contributions to research.....	188
6.6.2 Contributions to practice	190
6.7 Conclusion and recommendations.....	191
6.7.1 Conclusion	191
6.7.2 Future areas for development.....	193
References	195

Appendix 1 Search strategy for six databases.....	249
Appendix 2 Data Extraction Form	256
Appendix 3 The JBI-ACSSA tool	257
Appendix 4 Appraisal quality of 36 included studies	258
Appendix 5 List of excluded studies with reasons	260
Appendix 6 Permission letter for Libyan Consulate (for recruiting Libyan patients and caregivers).....	264
Appendix 7 Permission letter for data collection to SUN (for recruiting Libyan patients and caregivers).....	265
Appendix 8 Permission letter for data collection to SUN (for recruiting Libyan HCPs)	266
Appendix 9 Permission letter for data collection to Libyan Consulate (for recruiting Libyan HCPs).....	267
Appendix 10 An invitation letter	268
Appendix 11 Information sheet for Participants	269
Appendix 12 Background information for participants	271
Appendix 13 Participant Consent Form.....	272
Appendix 14 Questions for the interview with caregivers.....	273
Appendix 15 Questions for the interview with patients.....	275
Appendix 16 Questions for the interview with HCPs	277
Appendix 17 Approval letter from University of Leeds for study two	279
Appendix 18 Authorisation letter from the Libyan Consulate of Alexandria (for study two)	281
Appendix 19 Approval from SUN for pts and CGs (for study two)	282
Appendix 20 Approval letter from SUN for HCPs (for study two).....	283
Appendix 21 Approval letter from NCCB to SUN (for study two)	284
Appendix 22 Approval letter from NCCB (for study three).....	285
Appendix 23 Approval letter from NCIS (for study three).....	286
Appendix 24 Approval letter from NCIM (for study three)	287
Appendix 25 Approval letter from TMC (for study three)	288
Appendix 26 Approval letter from TMC (for study three)	289
Appendix 27 Information sheet for participants (for study three)	290
Appendix 28 Background information for participants (for study three)	293
Appendix 29 An invitation letter for study three	295
Appendix 30 Approval letter from the University of Leeds for study three.....	296
Appendix 31 Barriers Questionnaire II (BQ-II) English version	297

Appendix 32 Mean scores for Libyan nurses' and physicians' responses in the BQ-II	302
Appendix 33 Interpreting Alpha for Likert scale question	303
Appendix 34 Interval Scale	304
Appendix 35 Barriers Questionnaire II (BQ-II) Arabic version	305
Appendix 36 Consolidated criteria for reporting qualitative studies (COREQ): a 32-item checklist.....	307
Appendix 37 Normal Q-Q Plot of all BQ-II scores for males and females	310
Appendix 38 Normal box plots for males and females.....	311
Appendix 39 Permission from Ward for using the BQ-II in this study	312
Appendix 40 Permission for using the Arabic version of the BQ-II in this study	313
Appendix 41 Abstracts for poster presentations (Conferences).....	314
Appendix 42 Gantt Chart shows study progress during 4 years for this a Ph.D. study.....	316

List of Figures

Figure 1-1 Map of Libya	3
Figure 1-2 Structure of the Libyan healthcare system.....	8
Figure 1-3 Analgesic ladder designed by the WHO	29
Figure 2-1 Summary of research methods used in this thesis	46
Figure 2-2 An exploratory sequential mixed-methods design	51
Figure 2-3 Response Rate.....	90
Figure 3-1 PRISMA diagram for the strategy of the study selection	97
Figure 4-1 Thematic Map: themes and sub-themes.....	116
Figure 5-1 Normally Distributed of the overall BQ-II Scores for Males and Females	132
Figure 5-2 The distribution of the BQ-II scores for HCPs.....	133
Figure 5-3 Comparison of the most common barriers to CPM between Libyan nurses and physicians.....	136
Figure 5-4 Comparison of the mean most common barriers between Libyan, Jordanian, and Albanian HCPs	146

List of Tables

Table 1-1 Comparison between North African countries and the UK regarding the consumption of morphine for CPM (2014-2018 average).....	23
Table 2-1 Example of SR: PICO modified to PCO (Population, Context, and Outcome).....	53
Table 2-2 Summary of inclusion and exclusion criteria	54
Table 2-3 Example of PCO Search Terms.....	57
Table 2-4 The process of data analysis (thematic analysis)	74
Table 2-5 Illustration of hypotheses for this study	79
Table 2-6 Internal consistency for BQ-II and its subscales.....	89
Table 3-1 Number of articles excluded and the reason for exclusion...96	
Table 3-2 Summarised studies addressing HCPs', patients', caregivers', and the general public's attitudes and knowledge towards CPM100	
Table 4-1 Participants' demographic characteristics	115
Table 5-1 Participants' demographic characteristics	131
Table 5-2 Perceived Barriers to CPM on the BQ-II by Libyan HCPs (n = 152), using an independent t-test (unadjusted estimate).....	135
Table 5-3 Summary of multiple linear regression findings between mean overall BQ-II and the socio-demographic factors	138
Table 5-4 Summary of multiple linear regression findings between mean BQ-II subscale physiological Effects (PE) and the socio-demographic factors	139
Table 5-5 Summary of multiple linear regression findings between mean BQ-II subscale Fatalism (F) and the socio-demographic factors	141
Table 5-6 Summary of multiple linear regression findings between mean BQ-II subscale Communication (C) and the socio-demographic factors.....	142
Table 5-7 Summary of multiple linear regression findings between mean BQ-II subscale Harmful Effects (HE) and the socio-demographic factors.....	144
Table 5-8 Mean barrier scores on the overall BQ-II and its subscales between Libyan, Jordanian, and Albanian HCPs	145

Abbreviations

A&E	Accident and Emergency
ANOVA	Analysis of variance
BMC	Benghazi Medical Centre
BMC	Benghazi Medical Centre
BPS	British Pain Society
BPI-C	the Brief Pain Inventory Chinese version
BQ-II	Barries Questionnaire II
BQ-T	Barries Questionnaire-Taiwan version
CP	Cancer Pain
CPM	Cancer Pain Management
COREQ	Consolidated Criteria for Reporting Qualitative research
CTS	the cross-sectional telephone surveys
FPQ	the Family Pain Questionnaire
GP	General Practitioner
HBM	the Health Belief Model questionnaire
HDRC	Human Development Resource Centre
HRW	Human Rights Watch
HCPs	Healthcare Professionals
IARC	International Agency for Research on Cancer
INCB	International Narcotics Control Board
JBI-ACSSA	Joanna Briggs Institute Analytical Cross-Sectional Studies
KASP	Assessment
KAS	the Knowledge and Attitudes Survey Regarding Pain the Knowledge and Attitudes Survey
KG	Kilogram
MB	Michael Bennett
MENA	Middle East and North Africa
MOH	Ministry of Health
NCCB	National Cancer Centre Benghazi
NCCPI	North Carolina Cancer Pain Initiative survey
NCIM	National Cancer Institute of Misratah
NICE	National Institute for Health and Care Excellence
NHS	National Health Service
NOIS	National Oncology Institute of Sabratha
NKARSP	The Nurses' Knowledge and Attitudes Survey Regarding Pain
PC	Palliative care
PCPA	Physicien Cancer Pain Attitude Questionnaire
PCPQ	Physicien Cancer Pain Questionnaire

PPQK	Patient Pain Questionnaire Knowledge Subscale
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analysis
PROSPERO	International Prospective Register of Systematic Reviews
PKQ	Pain Knowledge Questionnaire
PPQ	Patient Pain Questionnaire
PSI	the physician survey instrument
QoL	Quality of Life
RH	Regional Hospitals
SA	Shenaz Ahmed
SI	Simon Pini
SD	Standard Deviation
SM	Salim Makhoulf
SPSS	Statistical Package for the Social Sciences
SR	Systematic Review
TCHs	Tertiary Care Hospitals
TMC1	Tobruk Medical Centre 1
TMC2	Tripoli Medical Centre 2
IPA	Interpretative Phenomenological Analysis
TA	Thematic Analysis
UK	United Kingdom
USA	United States of America
WBG	World Bank Group
WHO	World Health Organisation

Chapter 1

Introduction and background

1.1 Introduction

The chapter aims to present an overview and background to this exploratory sequential mixed-methods study: Firstly, the chapter starts with the background of the study in section 1.2. Secondly, section 1.3 presents a brief overview of cancer. Thirdly, this chapter highlights the stigma of cancer and opioids for CPM in section 1.4. Fourthly, sections 1.5 and 1.6 deliberate the Islamic worldview of cancer and Islamic perspectives on cancer care and CPM, respectively. Furthermore, the chapter provides an overview of the WHO and palliative care (PC) in section 1.7. Moreover, section 1.8 reviews an overview of cancer pain and its management. Additionally, the chapter discusses barriers to effective Cancer Pain Management (CPM) in section 1.9. Likewise, section 1.10 briefly outlines the research hypothesis, aims, and objectives. Besides, the chapter describes and discusses the significance of this mixed-methods study in section 1.11. Finally, the chapter will end with the outline of this thesis in section 1.12.

1.2 Background of the study

1.2.1 Brief an overview of the study setting (Libya)

1.2.1.1 The location and population of Libya

Libya is situated in the North of Africa and covers around 1750 million km², making it the third-largest country in Africa (Kidd, 2018). It is situated on the southern Mediterranean coast and lies in the geographic coordinates 25°N and 17°E, as shown in Figure 1.1. Libya neighbours Egypt on the east, Tunisia and Algeria on the west, and Chad, Sudan, and Niger on the west (Otman and Karlberg, 2007; Worldatlas, 2018a; CIA, 2021a). Due to Libya having a Mediterranean coastline of roughly 1900 km, it is considered a gateway to Europe and a strategic location for the African continent (History World Net, 2019; CIA, 2021a; Fadel, 2014). (Fadel, 2014). The Libyan population is relatively small, at about 6,678.570 people (WBG, 2020).

1.2.1.2 The religion and language of Libya

The official religion of Libya is Islam, and most Libyan people are Muslim Sunni, with approximately 97% of the population practicing this religion (Worldatlas, 2018a; CIA, 2021b). The influence of Islamic religion can be seen in Libya, as a majority of the Libyan population practices their faith daily and in their everyday work or study (Worldatlas, 2018a). Muslim Sunnis follow the customs (sunnah) of the Prophet Muhammad (peace be upon him); precisely, the branch of Islam that agrees as legitimate the “reigning caliphs” who followed the Prophet. The majority of Muslim Sunnis acknowledge the authority of the Qur’an and Sunnah as interpreted by the (ulama) scholars (St John, 2006). Arabic is the official language in Libya, and Italian and English are also widely understood and spoken among educated Libyan people (Worldatlas, 2018a; Kidd, 2018; CIA, 2021b). Other languages, such as Berber and Amazigh, are spoken in some areas by Berber and Amazigh peoples, who live in the southern region of Libya (Worldatlas, 2018a; CIA, 2021b).



Figure 1-1 Map of Libya

Source: Adopted from Worldatlas (2018b).

1.2.1.3 The culture of Libya

The culture of Libya is predominantly Arabic Islamic culture, which has similarities to other Arabic countries in the Middle East and North Africa (MENA) region (Ajaj, 2012). The Arabic culture often comprises people's beliefs, rituals, and values (Al Qadire, 2011b). However, depending on the region cultures, traditions, and dialects can be remarkably different from one country to another. For instance, the Levant: Lebanon, Syria, Palestine, and Jordan; Mesopotamia: Iraq; the Arabian Peninsula: Kuwait, Bahrain, Qatar, Saudi Arabia, Oman, Yemen, and the United Arab Emirates; and the Maghreb (Northwest Africa): Libya, Tunisia, Algeria, Morocco and Mauritania (Ajaj, 2012). Libya appears socially homogenous with a common language and religion, making smooth communication between Libyan people and other MENA countries (Alhmali,

2007). Although the majority of Libyan people (97%) identify themselves as Arab and Berbers, the Libyan nation has mixed ethnic groups (3%), including Greek, Egyptian, Maltese, Italian, Tunisian, Armenians, Cretans, and Turkish (Elkharam, 2014; CIA, 2021b).

1.2.1.4 The education system in Libya

Education in Libya has been rapidly developed since 1963 due to oil income (Alhmali, 2007). In Libya, education is free for all Libyan people, and it is compulsory for all children between ages 6 and 18. Education development in Libya was noticeable, particularly during the 1970s and 1980s (Yousif et al., 1996). During this period, the number of pupils who attended the schools doubled. There was a noticeable increase of female students, approximately 30%, whereas male students were higher, with 80% attendance compared with females (Khalifa, 2002; El-Fallah, 2014). In 1975, compulsory education for both primary and secondary schools was established. The government fully funded these levels of education by covering all costs, including the curriculums, training, and teaching (Khalifa, 2002). The Libyan government has continuously encouraged high-performing students to continue their studies abroad, as this will assist them to extend their knowledge, and they will learn and develop their skills in developed countries such as the United Kingdom (UK) and the United States (US) (Clark, 2004).

The expenditure on education among the Libyan public is roughly 4% of the Gross Domestic Product (GDP), which is around the average for the MENA regions. The rates of reported adult literacy and educational enrolment in Libya were one of the highest in the North African region, which was around 86% for both genders (males 91%, females 81%), with the highest rate for youth literacy among neighbouring countries, which accounted for approximately 99% (WHO, 2007a). However, the quality of education in Libya is under-standard. Therefore, many different educational institutions need to be built to educate a significant number of students in a relatively short time (Alhmali, 2007). Subsequently, the overall quality of the educational system can be affected by poor-quality inputs and several serious structural challenges (Youssef, 2006) and its worldwide

competitiveness ranking (Schwab, 2010). In addition, the facilities of education and teaching methods are not benchmarked against international standards or any educational system in other countries. Moreover, there are no linkages between research institutions and businesses, commonly seen in developed countries (UNESCO, 2005). It is possible, therefore, that HCPs in Libya might not have international standards of education and training in the medical field, especially CPM.

1.2.2 Overview of the healthcare system in Libya

Health systems are defined by the World Health Organisation (WHO) as including all the institutions, resources, and organisations dedicated to producing health actions (WHO, 2000). In principle, the health system is designed to promote and progress the population's health; health systems have existed to treat diseases and protect people's health (WHO, 2000). According to the WHO, the essential health indicators in Libya are part of the MENA region, especially Egypt and Tunisia (WHO, 2007a).

1.2.2.1 The Libyan Ministry of Health (MoH)

The MoH in Libya is responsible for financing all public healthcare systems, whereas the private healthcare sectors are funded by their owners, who can be either a group of people such as doctors and business people, two doctors, or just one doctor. The private sectors have to follow the regulations and policies of the MOH but can independently. The MoH is responsible for monitoring, evaluation, regulation, planning, and resource allocation (El-Fallah, 2014). The national organisations, including general and specialised hospitals, training and research institutions, and the District Health Authorities (DHAs), are inspected and supervised by the MoH. The DHA aims to provide comprehensive healthcare services, including preventive, promotional, curative, and rehabilitative services through primary healthcare facilities and rural hospitals. Additional healthcare services in Libya are supplied by the army and the national oil companies to their employees.

Furthermore, a sector called Social Security (welfare) can provide numerous healthcare and rehabilitation services for individuals with special needs and disabled people. Despite private health services in Libya currently having a limited role, they are dramatically growing and developing (El-Fallah, 2014). However, the Health sector capacity in Libya needs to upgrade functions at the national level of practicing healthcare system governance. As well as, the development of facilities of the DHAs (El-Fallah, 2014). It has been stated that the quality of the healthcare system in Libya can be seemingly questionable in several areas, which include the policy and planning of the health system, the capacities of institutions, and individuals-related sectors (WHO, 2010b). Therefore, reviewing and upgrading the legislation of health and frameworks should be realised to enable joint work between institutions and health-related sectors (WHO, 2007a; 2010b).

1.2.2.2 The Libyan National Healthcare Services (LNHS)

The LNHS consists of two main sectors, namely the public and private. The current public health system in Libya was established following the independence of the country in 1951 (Abudejaja and Singh, 2000). The health legislation in Libya was agreed upon and signed under the health law, number 106, dated 1973, which stated that the healthcare services are free of charge for all Libyan citizens (El Taguri et al., 2008). Thus, all citizens across the country had free access to healthcare services through a chain of LNHS (WHO, 2010b). However, today many Libyan people perceive that the public healthcare services in Libya are inadequate (McGregor, 1998; El-Fallah, 2016), and maintain that the quality of the Libyan public healthcare services has deteriorated (WHO, 2007a), resulting in a lack of trust and unequal access to quality healthcare services (Osborne, 2010). Subsequently, Libyan people who can afford to pay for private healthcare services opt out of the public healthcare system (Osborne, 2010). This could be one reason why Libyan patients seek private medical services either inside or outside the county (El-Fallah, 2016).

1.2.2.3 The structure of the Libyan healthcare system

The Libyan healthcare system consists of five different sectors: Public Healthcare Centres (PHCCs), Regional Hospitals (RH), Tertiary Care Hospitals (TCHs), Private Hospitals and Clinics (PH&C), and Accident and Emergency Hospitals (A&EH) (Daw et al., 2016). Libya has 96 public hospitals with 20,289 beds and 25 specialised units available with 5,970 beds (Health Information Centre, 2009 cited in WHO, 2011, p. 23; Hassounah, 2013). Furthermore, there are 1,355 centres of primary healthcare and 37 polyclinics, as well as 17 isolation units (Hassounah, 2013; WHO, 2010a).

Although the model of healthcare is a mixture of public and private sectors, the main provider of health services in Libya is the public sector with healthcare services, such as curative, preventive, and rehabilitation services, and these are provided as free services to all Libyan people (WHO, 2007a; 2012). Most levels of the health service in Libya are devolved and supplied through a series of centres, primary healthcare units, rehabilitation centres, polyclinics, tertiary care specialised hospitals, and general hospitals in both urban and rural areas. There are three levels of operation for the Libyan healthcare system, delivered in Figure 1.2 below (WHO, 2007a; 2012).

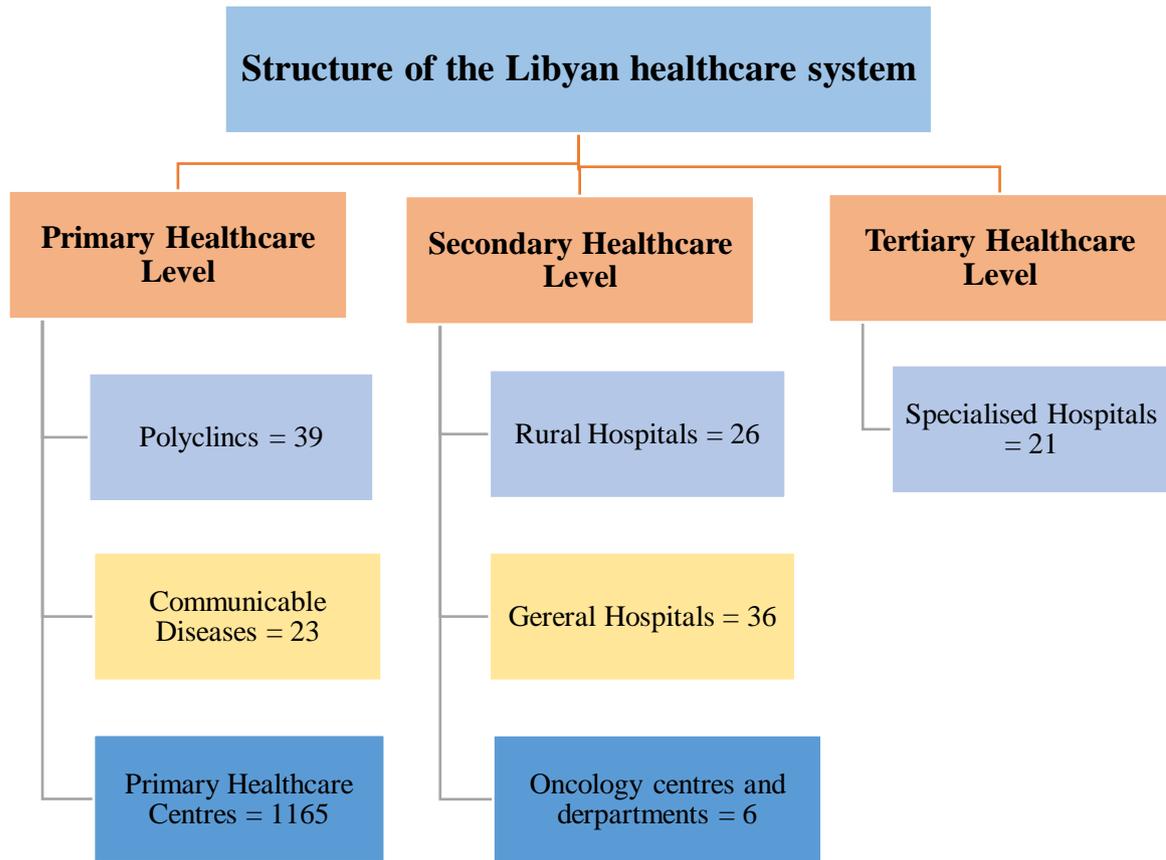


Figure 1-2 Structure of the Libyan healthcare system

Source: Adopted from WHO (2007a).

In comparison to the UK healthcare system (Nuffieldtrust, 2021), the Libyan healthcare system has poor quality services and management, as well as a lack of suitable training for HCPs (El Oakley et al., 2013a; Jabeal and Rashid, 2018). Furthermore, corruption and delays in the building, maintenance, and supply of medical equipment have led to a significant shortcoming in operations (El Taguri et al., 2008; Mohapatra and Al Shekteria, 2009). Elkhammas and Singh (2010); stated that the Libyan healthcare system suffers from poor management and insufficient resourcing, resulting from the old regime's negligence over many years. Hence, Libyan people are dissatisfied with the current healthcare services and lack confidence in the quality of healthcare facilities, which has resulted in several patients seeking healthcare services abroad (Salam et al., 2010). The Libyan healthcare system focuses on the quantity rather than the quality of the healthcare services (WHO, 2007b). A study conducted by El Oakley et al. (2013a) emphasised that the current Libyan healthcare system does not function well and

provides inadequate healthcare quality. Thus, the whole system needs to be rehabilitated.

1.2.2.4 The Libyan healthcare system during and after the revolution

The healthcare system was heavily damaged and underfunded during and after the revolution that Libya had in 2011 (Daw et al., 2016; El Oakley et al., 2013a). The damage to Libyan healthcare services resulted in the ailing and collapse of the health system associated with extra demand imposed during that time (El Oakley et al., 2013a). A study by Daw et al. (2016) reported that due to the war, about 62 (29%) of Libyan healthcare services were structurally damaged among the 216 healthcare facilities that were studied. Among 62 damages, 11 (5%) healthcare services were wholly destroyed, whereas 51 (24%) had significant damage/ were damaged but not completely destroyed. Similarly, Primary healthcare clinics had 49 (23%) damaged services, followed by Accident and Emergency (A&E) departments. The damage to the Libyan healthcare system resulted in a significant lack of medical supplies, such as medical disposables and essential medications (Daw et al., 2016). This was followed by a lack of security for medical staff and miscommunication between patients, HCPs, and staff management (Ghobarah et al., 2004; Betsi et al., 2006; Daw et al., 2016). Following the revolution against Gaddafi's regime in 2011, the healthcare system in particular and the whole political system, in general, have been transformed in Libya (Rages, 2014).

1.2.2.5 Education and training for Libyan HCPs

According to the Human Development Resource Centre (HDRC, 2011), many Libyan nurses are qualified with high-school-level qualifications (equivalent to UK A levels), so they are seemingly not well qualified and did not receive adequate training. Consequently, the standard of nursing care is inadequate. Shukri (2005); also argued that several safety issues related to Libyan patients in their hospitals are associated with nurses who had high-school-level qualifications delivering healthcare services with a low level of knowledge, lack of skills, and incompetence. Likewise, it has been stated that there is a lack of knowledge and

training in different specialist areas among doctors, nurses, paramedics, and pharmacists in the healthcare services in Libya (El-Fallah, 2014). Since 2018, more oncology centres and departments have been established in Libya. Thus, some Libyan HCPs were sent overseas for oncology training.

Furthermore, the Libyan government sent several medical students abroad to achieve postgraduate level qualifications (Jabeal and Rashid, 2018). However, the focus of education and training was only on cancer management. Thus, no training or education in palliative care or CPM for Libyan HCPs is shown. A possible explanation for this might be that palliative care (El Ansary et al., 2014a) and pain management services (Petropoulos et al., 2016; Elzahaf et al., 2016a) do not exist in the Libyan healthcare system.

1.2.2.6 Overview of oncology services in Libya

Cancer care is delivered to Libyan patients through seven main national cancer centres and departments located in different regions across Libya (Eastern, Central, Southern, and Western). These are: Tobruk Medical Centre (TMC), Benghazi Medical Centre (BMC), National Cancer Centre Benghazi (NCCB), National Cancer Institute of Misratah (NCIM), Sabha Oncology Centre (SOC), Tripoli Medical Centre (TMC), and National Institute of Oncology-Sabratha (NIOS). One oncology department is located in Tobruk city, and one oncology department and one national cancer centre are located in Benghazi, in the Eastern region of Libya. Western Libya's main national cancer institute is in Sabratha city, which is the closest city to Tripoli. There is also one oncology department in Tripoli city, which is the capital city of Libya.

Between 1970 and 1994, there were only two oncology departments in Libya, which are the oncology department at the Benghazi Howari hospital and the oncology department at the Tripoli Central Hospital (Adel Attia et al., 2022). The oncology unit of Benghazi Howari Hospital was the only oncology department in Eastern Libya, and the oncology unit of Tripoli Central Hospital was the only oncology department in Western Libya. After that, the national cancer institute in

Sabratha (NIOS) was established in 1994, which is located (80 km) west of Tripoli. In 2007, the National Cancer Institute of Misratah (NCIM) was also lunched. Followed by Sabha Oncology Centre (SOC), which was established in 2016. Then, in 2017, another new oncology department was established in Tobruk Medical Centre (TMC) in Tobruk city (Adel Attia et al., 2022). In 2018, the National Cancer Centre Benghazi (NCCB) was also newly established in Benghazi city. Although oncology services (Benghazi Howari hospital and Tripoli Central Hospital) have been established since 1970 (Adel Attia et al., 2022), there are still no specialists in cancer care (Oncologists) in Libya. Cancer care service in Libya is delivered to the patients by the general practitioners (GPs), who usually hold the Libyan Board Licences in different general specialties (e.g., surgeon, general internal medicine, and paediatric), which equals to the Membership of the Royal Colleges of Physicians (MRCPUK). Some of them (the Libyan GPs) received a short-period of training in oncology.

Unfortunately, there is a lack of information and sources about healthcare services, especially around oncology, palliative care, and pain management services in Libya (Rajagopal et al., 2003; De Lima and Hamzah, 2004; De Lima et al., 2004). This statement also was supported by Elkhammas and Singh (2010), who stated that the Libyan healthcare system suffers from poor management and insufficient resourcing, which resulted from neglect by the old regime over many years.

1.3 Brief an overview of cancer

1.3.1 Cancer causes, mortality, and Prevalence

The WHO defines cancer as *“the rapid creation of abnormal cells that grow beyond their usual boundaries, which can then invade adjoining parts of the body and spread to other organs”* (WHO, 2018a). Cancer is a severe health problem, as it has become one of the most common causes of death worldwide (Siegel et al., 2015; WHO, 2020a). According to Global Cancer Incidence, Mortality and Prevalence’s (GLOBOCAN) estimation, by 2030, the number of new cancer cases will reach about 21.4 million cases, and about 13.3 million are expected to

die worldwide every year (WHO and IARC, 2019h). This disease has become the most common cause of death in Libya (Alhdiri et al., 2017). According to WHO and IARC (2019c), in 2018, there were approximately 3,375 deaths due to cancer in Libya. Cancer can be caused by either external factors, such as chemicals, tobacco, infectious organisms, and radiation, or internal factors, including hormones, immune conditions, inherited mutations, and mutations, which can occur due to metabolism (ACS, 2018; NCI, 2015).

Some interventions can be used to help control the causes of cancer. Such interventions are typically related to educational programmes, which can help by raising awareness among the patients and their caregivers about cancer and its causes and management, resulting in changes in the behaviour of patients (Hosseini et al., 2016). Stressful factors that might be associated with cancer can be managed by various solutions, including psychological interventions (Hosseini et al., 2016). Several studies highlighted the positive effects of psychological interventions, including reducing stress and depression and helping cancer patients to cope with their physical and psychological damages (Brown et al., 2003; Kubzansky and Thurston, 2007; Abu Khait and Lazenby, 2021).

Other interventions that have been shown to generate positive effects on cancer patients are spirituality and religion, as such interventions might help to fight against emotional, stressful, and physical issues, which can be caused by cancer, such as chronic pain, loss of hope, fear of death, and mental health (Abu Khait and Lazenby, 2021; Meraviglia, 2006; Kappelman et al., 2007; Mahfudh, 2010; Basri et al., 2015). However, spiritual and religious beliefs can also be barriers to cancer and pain management, especially if patients and their caregivers preferred to use spiritual and religious intervention instead of medical treatment (Pathmawathi et al., 2015; Ibrahim et al., 2020). This issue will be discussed in detail in the following sections and in the discussion chapter (Chapter 6).

1.3.2 Cancer survivors

The term cancer survivors has been used first by Mullan (1985) as the concept of patients who are living with and beyond cancer. He grouped cancer survivorship into three phases: acute, extended and permanent survival (Mullan, 1985). Following Mullan, Feuerstein (2007) defined cancer survivors as embracing the entire cancer continuum from the patients, who have been diagnosed with cancer, through to those who are living with any type of cancer for a period of five years or longer after active cancer treatment, including physical, mental and social aspects of living with and after a cancer diagnosis. The cancer survival rate has increased globally in recent years (Rowland and Yabroff, 2019). In 2018, the prevalence of cancer survivors within the previous 5-years was around 43.8 million cancer survivors universally (Rowland and Yabroff, 2019), and in Libya, there were almost 13727 cases in the same year (WHO and IARC, 2019d).

The rising of cancer survivors could be due to the availability of many cancer treatment options, such as chemotherapy, radiotherapy, and immunotherapy (Institute, 2021). However, such radical treatments can be associated with severe side effects, such as fatigue, hair loss, infection, anaemia, nausea and vomiting, constipation, diarrhoea, sore skin, stiff joints and muscles (NHS, 2020; Institute, 2019), as well as pain, (van den Beuken-van Everdingen et al., 2016a) and a heavy financial burden to both cancer patients and family caregivers, (Carrera et al., 2018; Longo et al., 2021; Yabroff and Kim, 2009), especially in developing countries (Kankeu et al., 2013; Bloom et al., 2011; Pisani, 2011). Studies found that medical treatment and pain prescriptions were more likely to be delayed or avoided by cancer patients who were economically affected by cancer procedures and treatment (Azzani et al., 2015; Weaver et al., 2010; Zafar et al., 2013), resulting in pain, depression, and anxiety (Ell et al., 2008; Kim et al., 2010).

1.4 The stigma of cancer and opioids

Stigma can be one of the psychosocial issues that are associated with a serious illness (e.g., cancer), resulting in a negative effect on social relationships and

behavioural responses, and it can lead to adverse health outcomes (Pachankis et al., 2018; Ohlsson-Nevo et al., 2020). Such stigma might be described as an internalised sense of shame about having an unwanted health condition, such as cancer, which is usually associated with fear of discrimination because of imputed inferiority or unacceptability (Goffman, 2009). Health-related stigmatisation has been defined by Pachankis et al. (2018) as a process by which a patient is associated with negative properties due to his/her serious illness.

Several signs and symptoms of the disease can be associated with health-related stigma, and thus, some patients may have distress, which might negatively affect their quality of life (Earnshaw and Quinn, 2012; Browne et al., 2013). For example, smoking and alcohol abuse that are related to certain behaviours or conditions (Mons et al., 2018; Matejic et al., 2017), might be perceived by some people as having been caused by the person's lifestyle, and therefore this can lead to more stigmatisation, resulting in internalised feelings of guilt (Butt, 2008; Weiss et al., 2017). Among patients with breast and prostate cancers, stigma can be additionally influenced by losing of the female or male identity or sexual functioning, resulting in severe distress and withdrawal from physical and social activities (Fang et al., 2015; Lin et al., 2016; Ou et al., 2019; Phelan et al., 2013).

The stigma that is associated with cancer can be one of the main reasons for some patients to avoid seeing a clinician (Ermiah et al., 2012; Akin-Odanye and Husman, 2021). A study showed that the stigma of fear and shame about breast cancer was reported among Libyan cancer patients, as one of the main reasons for delaying the diagnosis of cancer, resulting in preventing them to visit the HCPs (Ermiah et al., 2012). A study conducted in Taiwan by Tang et al. (2016) found that the stigma of cancer among patients was related to the concepts of “cancer equals death” (e.g., the feeling of death approaching and awareness of disease severity); “cancer equals menace to social life,” which means social life is affected and includes other individuals’ uncomfortable attitudes towards cancer (e.g., shame, sympathy, pity, suffering, and over-cautiousness) and external physical changes; and “cancer equals cancer-ridden life” (e.g., being sensitive to the topic of death and calculating the number of remaining survival days).

The stigma of opioids can be another problematic aspect that is associated with patients with cancer pain (Bulls et al., 2022a). The term opiate is used for a drug derived from the opium poppy, which is a naturally occurring alkaloid (Trescot et al., 2008). The such term refers to any substance that binds specifically to endogenous opioid receptors, which are found within the body, and produces a complete or partial stimulation (Stannard and Booth, 2005; Trescot et al., 2008). Opioids are neurotransmitters and neurohormones in complex signalling systems, which produce both inhibition (mainly in the spinal cord) and stimulation (in the chemoreceptor trigger zone) inside the human body (Trescot et al., 2008; Stannard and Booth, 2005). Opioid analgesics include weak opioids (e.g., codeine) and strong opioids (e.g., morphine) act on the opioid receptors, which work in the central and peripheral nervous systems via the mu, delta, or kappa-opioid receptors in the body (Trescot et al., 2008). In the short term, the opioid effect is of a neuromodulator origin, whereas in the long term, opioids can bring the adaptative phenomena, which are known as poor tolerance, dependence, and addiction to drugs (Waldhoer et al., 2004), which may lead to opioid stigma.

For example, in Western countries, prescribing opioids for pain and CPM contributed to sharp increases in morbidity and mortality that are related to opioids, resulting in opioid stigma due to negative attitudes towards the prescription of opioids among the general public and heightened scrutiny towards practices of opioid prescribing (National Academies of Sciences, 2017; Paice et al., 2016). This could be why some patients with cancer pain still experience adverse consequences (Paice, 2018; Schenker et al., 2021b), including the stigma of opioids (Bulls et al., 2019). However, opioid stigmatisation in Eastern countries, particularly among Muslims, might be due to cultural or/and religious beliefs (Rajeh Saifan et al., 2019; Nasser et al., 2016; Kagawa-Singer, 2011; Al Qadire, 2012b; Colak et al., 2014b).

An American study reported that opioid stigma was recognised among 59 out of 97 patients, among approximately 40% out of 60% of patients, who were prescribed opioids, had opioid stigma due to fear of drug addiction (Bulls et al., 2019). Three manifestations of opioid stigma were highlighted, including patient

direct experience with opioid stigma and discrimination in healthcare settings; the concern about opioid stigma can affect patient's care in the future, or anticipated stigma; and the attitudes and behaviours of opioid-restricting, which may reflect internalised the stigma and fear of drug addiction (Bulls et al., 2022b).

Cancer patients might also refuse opioids for CPM, as people surrounding them (e.g., caregivers and HCPs) might be negatively impacted by opioid stigma (Corrigan et al., 2011; Earnshaw and Chaudoir, 2009; Earnshaw et al., 2013; Schenker et al., 2021a). This result reflects those of Lou and Shang (2017), who also emphasised that cancer patients' attitudes towards opioids were influenced by their family caregivers' attitudes towards cancer pain and opioids. Another study highlighted that one of the main barriers to effective CPM was that cancer patients, who received opioids for CPM, feel stigmatised by HCPs, pharmacists, and society (Schenker et al., 2021a).

Some HCPs also showed their concern about the stigma of opioids due to a fear of poor tolerance and drug addiction, which could be related to their religious and cultural beliefs, resulting in barriers to effective CPM (Rajeh Saifan et al., 2019; Nasser et al., 2016; Kagawa-Singer, 2011). A survey reported that about 45% of Lebanese physicians hesitated to prescribe morphine for CPM due to the stigma of opioids, which was related to fear of side effects, poor tolerance, and drug addiction (Nasser et al., 2016).

Yet, no data describing Libyan patients', and caregivers', and HCPs' views about cancer pain and its management, including the stigma of opioids in the Libyan population. Thus, the extent to which people generally view and stigmatise cancer pain and opioids for CPM is unknown. Therefore, one of the aims of this study was to fill important knowledge gaps by exploring and understanding Libyan HCPs', patients', and family caregivers' views about cancer pain and its management.

1.5 Islamic religious worldview of cancer

Cancer has been characterised by high mortality worldwide (Szpytma et al., 2019; Moser et al., 2014; Arndt et al., 2007). In Islam, dying is usually perceived as a time for reflection and repentance, which is bringing oneself closer to God (Almighty) through immersion in Islamic activities, such as recitation of verses from the Qur'an and prayers (Choong, 2015). Cancer in Islamic society can be attributed according to the Qur'an as a natural occurrence, penance for sin, or a test of the Muslim faith (Silbermann and Hassan, 2011). For example, some Muslim patients and their caregivers usually perceive cancer as the death penalty or infer illness, pain, and dying as a test from God (Szpytma et al., 2019; Attum et al., 2022).

In the Islamic world, religious beliefs usually contribute to the health and well-being of its believers (Silbermann and Hassan, 2011). This could be therefore suggest that Muslims subscribe to the belief that their health is a gift from God as He is the (God) Almighty and therefore any illness, such as cancer takes place only through His will (Al-Shahri and Al-Khenaizan, 2005). Accordingly, it can be stated that religious activities are important for many cancer patients and their caregivers (Sprik et al., 2020). Evidence highlighted that the Qur'an and prayer were the most widely used among cancer patients as coping strategies to cope with their illness (Yates et al., 2005; Mahfudh, 2010; Bloomer and Al-Mutair, 2013; Sprik et al., 2020).

Islamic religious practices can reflect geographic and cultural differences (Silbermann and Hassan, 2011). However, social, cultural, and religious structures are difficult to separate, as they can affect the entire way of meaning and response to disease, such as cancer (Silbermann and Hassan, 2011). Religious and cultural beliefs may dictate some practices, which are related to healthcare, medical decisions, nondisclosure of bad news (e.g., cancer diagnosis), spiritual needs, and palliative care, particularly for care for patients with end-of-life (Silbermann and Hassan, 2011).

Although many studies showed that some patients and their caregivers used prayer and the Qur'an as coping strategies to cope with cancer (Yates et al., 2005; Mahfudh, 2010; Bloomer and Al-Mutair, 2013; Sprik et al., 2020), the preference of using such strategies could likewise negatively influence the management of pain or cancer. Evidence showed that some patients and their caregivers usually prefer to use prayers and the Qur'an instead of medical medications to help the patients cope with their anxiety and cancer (Pathmawathi et al., 2015; Ibrahim et al., 2020). More information about this topic will be discussed in the next sections and in Chapter 6.

1.6 Islamic perspectives on cancer care and CPM

For the last two decades, spiritual and religious interventions have been widely used as strategies to prevent or treat a range of physical difficulties, including the cope with a disease (e.g., cancer), mental health, pain management, and increasing the quality of life (Hosseini et al., 2016; Koenig, 2012; Abu Khait and Lazenby, 2021). Recently, many studies have emerged about religion and spirituality and coping with cancer and pain (Peteet and Balboni, 2013; Piderman et al., 2015; Fitchett G and Canada AL, 2010; Abu Khait and Lazenby, 2021; Oliveira et al., 2021). The positive effect that religious coping can have on people who have experienced serious illnesses, such as cancer, has been examined by many researchers (Ano and Vasconcelles, 2005; Rana et al., 2015; Tarakeshwar et al., 2006). A systematic review highlighted the importance of different psychosocial and spiritual approaches, including mental health (e.g., treating psychological distress without medication), spiritual well-being (e.g., depending on faith for spiritual well-being and relying on religious and spiritual sources), and quality of life (e.g., improving knowledge of cancer for improving QoL), which were commonly used for Muslim patients with cancer to cope with their disease (Abu Khait and Lazenby, 2021).

Many studies showed that cancer patients perceived that religious and/or spiritual beliefs are one of the most important factors that help them to cope with their illness and cancer pain (Conway, 2010; Puchalski et al., 2018; Balboni et al., 2007; Astrow et al., 2005). A survey reported that as the use of faith increases

among cancer patients, pain decreases in intensity by 0.394 points (Oliveira et al., 2021). Thus, spirituality can be used as a coping strategy to cope with cancer pain.

In Islamic countries, cultural traditions and religious beliefs play important roles in decision-making about the prevention, care, diagnosis, and management of disease (e.g., cancer), and CPM (Mahfudh, 2010; Manal Al-Zadjali et al., 2022). Religious and cultural beliefs can influence cancer care and how they affect the patients' and their family caregivers' attitudes and choices regarding cancer care and CPM (Manal Al-Zadjali et al., 2022; Mahfudh, 2010). For instance, Muslim patients recite verses of the Qur'an and prayer as coping strategies for coping with their cancer and pain (Mahfudh, 2010). In the stage of end-of-life, if the patient was no longer able to recite the Qur'an by him/herself, the family members recite the Qur'an for him or her. This would help imbue the relatives of terminally ill patients with peace, serenity, and a sense of closeness with God (Bloomer and Al-Mutair, 2013). However, this could be barriers to cancer and pain management because some patients and family caregivers prefer to use the Qur'an and prayer instead of medical treatments, as they believe that the Qur'an could cure illnesses, such as cancer, and relieve physical suffering like pain (Hatamipour et al., 2015; Erol et al., 2018).

Additionally, cultural and social characteristics can fundamentally affect the role of religion or spirituality that can be played in the coping process (Ahmadi and Ahmadi, 2018; DeMarinis, 2018). For instance, in Muslim countries, some cancer patients and their caregivers prefer to use traditional cautery (Kaiy – ironing the place of cancer or pain with fire) as alternative therapy instead of medical treatments for cancer and pain management (Farid and El-Mansoury, 2015; Elzahaf et al., 2016a; Aboushanab and Alsanad, 2018; Attum et al., 2022).

The cautery is a traditional therapy used by some people in Arabic Muslim countries for cancer and pain management, which should be discouraged (Abou-Elhamd, 2009b). The ancient Egyptians had great faith in the therapeutic values of fire; thus, they used cautery to stop bleeding (Abou-Elhamd, 2009b). Cautery

involves creating burns on the tissue (by overheating a knife or piece of iron using the fire) to either stop bleeding or close wounds, as the heat would remove part of the body or make the blood clot (Al Binali, 2004). Choosing the location for applying the cautery depends on the complaint by the patient (i.e., type of pain or disease) (Al Binali, 2004). For example, in cases of diabetic foot, the cautery can be applied to the dorsum of the patient's foot or the lateral aspect of his/her lower leg (Al-Wahbi, 2006). In case of jaundice, it might be applied to the patient's left hand. For treating sciatica, the cautery could be used in up to 17 different locations of the patient's body. If the patient was complaining about chest pain with shortness of breath (i.e., angina or myocardial infarction), cautery can be applied to the 4th and the 5th anterior or posterior ribs of the patient's body in the same location of pain (Al Binali, 2004). In this sense, cautery may act in the same way as acupuncture, stimulating the release of endogenous opioids and other neurotransmitters, which can prevent the feeling of pain (Abou-Elhamd, 2009b).

It seems clear that the preference for using cautery by some Muslim people to manage cancer and pain might be based on a specific account narrated by the Prophet Muhammed (PBUH). However, there was probably a misunderstanding about this narration, as the authentic narration is that the Prophet (PBUH) *said: "Healing is in three things: A gulp of honey, cupping and branding with fire (cauterising). Nevertheless, I forbid my followers to use (cauterisation) branding with fire."* (Al-Bukhari, 1996 cited in; Fitzpatrick and Walker, 2014, p. 264). Unfortunately, due to the apparent misinterpretation of this narration, some Muslim patients and their caregivers might prefer to use cautery instead of medical treatment to manage their cancer and pain. Many studies indicated that cultural beliefs, including the use of cautery, had an adverse effect on cancer and pain management (Farid and El-Mansoury, 2015; Abou-Elhamd, 2009b). For instance, Farid and El-Mansoury (2015) stated that due to the application of cautery by Libyan patients to cure their cancer, cancer management is usually delayed, increasing the aggressiveness of the disease.

Although seeking medical treatments is a must for Muslim patients to cure their diseases and pain (Mohd Azaman, 2021), many Muslims believe that medications

cannot prevent nor postpone death since the matters are believed to be in the hands of (God) Allah (Al-Kaaba Abdul Aziz et al., 2015). Furthermore, recreational narcotics are forbidden in Islam (Attum et al., 2022). Accordingly, it seems that due to religious and cultural beliefs, some patients believe that they should endure their pain courageously (Ho et al., 2013; Colak et al., 2014b). This could be the reason why some patients do not prefer to use medical treatments for managing their cancer and pain. For example, opioids are not frequently used by Muslims for CPM, and this may be because their use may be rejected by some Muslim HCPs, patients, and caregivers due to personal perceptions and views about opioids, which could be related to their religious beliefs (Cleary et al., 2013a). Consequently, there is evidence that cancer patients in such countries still hesitate to receive appropriate CPM (Saini and Bhatnagar, 2016; INCB, 2019).

1.7 Overview of the WHO and Palliative Care (PC)

1.7.1 The concept of PC worldwide

The WHO defines PC as *“an approach that improves the quality of life of patients (adults and children) and their families who are facing the problems associated with a life-threatening illness, through the prevention and relief of suffering by means of early identification and correct assessment and treatment of pain and other problems, whether physical, psychosocial or spiritual”* (WHO, 2014, p. 2). Therefore, it is the ethical responsibility of health systems and HCPs to recognise that it is a moral duty to alleviate patients’ pain and suffering, including physical, psychosocial, or spiritual (WHO, 2014). The concept of PC has been traditionally viewed as intensive care for terminally ill patients. However, its scope has recently expanded to include patients who may live longer with cancer or end-stage organ failure (Sanderson and Tieman, 2010; WHO, 2021). PC aims to improve the symptoms, dignity, and Quality of Life (QoL) of terminally ill patients and the care of and support of patients’ families (Meeker, 2004; WHO, 2021). Through PC services, relief from physical, psychosocial, and spiritual issues can be achieved in over 90% of advanced cancer patients (WHO, 2021). It is estimated that more than 20 million patients each year need PC at the end of their life, and from this number, about 6% of them are children (WHO, 2018b).

Pain management as a part of PC plays an essential role in the alleviation of symptoms, which are usually associated with cancer pain, as cancer pain can be a multifactorial experience, and it might be present together with several other symptoms (Meuser et al., 2001; WHO, 2020c). Interventions of the PC for cancer patients can help relieve symptoms associated with disease progressing, and it allows cancer patients to live comfortably (WHO, 2020b; 2018a), as well as helping to reduce the doses of opioid analgesics such as morphine, which are used for CPM (Strasser et al., 2005). Hence, a global approach with the PC must be used for CPM with the correct use of opioid analgesics, starting from the first stage of cancer and forwards (Maltoni, 2008; WHO, 2020d).

1.7.2 Palliative Care (PC) in Libya

Although the World Health Assembly (WHA67.19) resolution urges member states to integrate PC into the healthcare system to provide worldwide health coverage as an essential strategy (WHA, 2014), there is an absence of a policy for integrating PC into many healthcare systems in developing countries, including Libya (El Ansary et al., 2014a; Fadhil et al., 2017). Therefore, it is possible that the guidelines for CPM, including WHO (WHO, 2019) and NICE (NICE, 2012), are not used by many Libyan HCPs in cancer care settings (El Oakley et al., 2013b). This can indicate that pain management is not a high priority in the Libyan healthcare system (Shamieh and Jazieh, 2010a). There is also limited access to opioid analgesics, such as morphine for CPM, in many developing countries (El Ansary et al., 2014a; Shamieh and Jazieh, 2010a), including Libya (El Ansary et al., 2014a). For example, during the period from 2014 to 2018, no data were available regarding the consumption of opioids, such as morphine for CPM in Libya (INCB, 2019), compared with other North African countries, and the UK (See Table 1.1). A possible explanation for this might be that in developing countries, including Libya, there are shortages of oncologists, pain management, and PC specialists, and a lack of facilities in healthcare services (Size et al., 2007; Kumar, 2007; El Oakley et al., 2013a; El Ansary et al., 2014b; Alhdiri et al., 2017). Accordingly, Libya might face a significant challenge in improving CPM. PC services in the MENA region, including Libya, have been neglected (Shamieh and Jazieh, 2010a; El Ansary et al., 2014a). This can be due

to many reasons, which include lack of education among both HCPs and the general public, restricted access to opioid analgesics for CPM, limited resources, lack of appropriate policy to ensure availability and access to PC within the healthcare system (Rajagopal et al., 2003; De Lima and Hamzah, 2004; De Lima et al., 2004).

Table 1-1 Comparison between North African countries and the UK regarding the consumption of morphine for CPM (2014-2018 average)

COUNTRY	POPULATION IN 2018	NUMBER OF CANCER DEATHS IN 2018	MORPHINE (KG) 2014	MORPHINE (KG) 2017	MORPHINE (KG) 2018
ALGERIA	42,228.430	29,453	7	10	9
EGYPT	98,423.600	85,432	2	18	19
LIBYA	6,678.570	3,375	?	<<	?
MOROCCO	36,029.140	32,962	17	20	24
TUNISIA	11,565.200	10,092	27	33	33
THE UK	66,573.503	178,473	3145	8050	8040
TOTAL	194,924.940	161,314	40	50	54

Note: The symbol "<<" indicates an amount less than "1" defined daily dose for statistical purposes per million inhabitants per day. A question mark "?" signifies that none of the quarterly reports was received. The International Narcotics Control Board (INCB). The World Health Organisation and International Agency for Research on Cancer (WHO and IARC).

Source: Adopted from (WHO and IARC, 2019a; WBG, 2020; WHO and IARC, 2019b; f; e; INCB, 2019; WHO and IARC, 2019g).

1.8 Overview of cancer pain and its management

1.8.1 Definition and classification of pain

Although different authors have defined pain in various ways (Watson et al., 2010; Vaajoki, 2013), For example, Watson et al. (2010) claim that pain is a "common symptom. We face it day after day in our work in all its different guises- from sore knees, broken bones, period pains through chronic back pain to pain from bony metastases" (p. 2). Whereas, Vaajoki (2013) defined pain as a subjective, private, and unique experience that can be affected by the patient's age, gender, culture, and previous experience of pain. It may also be affected by a patient's beliefs and emotions. It is apparent that these definitions were based on the authors' personal experiences of pain. Therefore, such definitions might not be as widely used or valid as the one introduced in 1979 by the International Association for the Study of Pain (IASP), because the IASP definition of pain has been used as a valid definition for a long time by some authors in a number of books, studies, and websites (the Registered Nurses'

Association of Ontario, 2013; Kearney and Richardson, 2006; IASP, 2018; Treede, 2018).

The IASP defined pain as *“an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or something that is described in terms of such damage”* (IASP, 2018).

Pain can be divided into two main categories, acute pain and chronic pain (Roos, 2004; Feizerfan and Sheh, 2014). Acute pain is defined as pain that is of quick onset and usually lasts for a short time (Buglass, 2007). It is often a result of an unexpected illness or injury. Some common reasons may cause acute pain, such as surgical procedures, trauma, burns, injuries, hospital procedures, inflammation, infection, angina, labour pain, and postoperative pain (Buglass, 2007). Acute pain, if not appropriately treated, may lead to chronic pain (Voscopoulos and Lema, 2010). Chronic pain can be defined as pain that continues for a long-term duration, which can be more than 12 weeks, or persisting after the time that healing would have been thought to have occurred after trauma or surgery processes (McGann, 2007; Parsons and Preece, 2010).

Chronic pain is often one of the most significant challenges for cancer patients, as it is a distressing symptom of cancer, which presents in 20% to 50% of patients (Fischer et al., 2010). It has been estimated that moderate to severe chronic pain is present in up to 80% of patients with cancer in their terminal stages (WHO, 2020a). Chronic pain can affect cancer patients and their family caregivers' quality of life (QOL) (Yamagishi et al., 2012a).

In terms of pathophysiological principles, chronic pain can be classified as nociceptive pain, neuropathic pain, or both (Caraceni and Shkodra, 2019; Faull et al., 2012; Bennett, 2006). Nociceptive pain can be caused by damage to body tissue and it is most often described as aching, a sharp, cramping, or throbbing pain (Stevens, 2007). Such pain responds to traditional analgesics like simple analgesics, NSAIDs, and strong opioids (Mann and Carr, 2006). A study showed that placebo analgesia also can work as a positively antinociceptive effect

(Tracey, 2010). A placebo intervention can simulate factors, such as patient-physician interaction and treatment environment (Miller and Kaptchuk, 2008), and therefore, such influence, they have on the body and brain can be the same as that produced by the active treatment, which works the same as therapeutic context (Tracey, 2010). There are two types of nociceptive pain, which are somatic pain that can be resulting from a tissue injury, either musculoskeletal, such as inflammatory, degenerative, or trauma, and visceral pain that can be caused due to prolonged activation of the visceral nociceptors in different pathological mechanisms, such as ischaemic, pancreatitis, colic, and cancer (Mann and Carr, 2006).

Neuropathic pain is defined as pain instigated by or due to a primary injury or dysfunction in the nervous system (Treede et al., 2008). It is associated with symptoms such as shooting pain, burning pain, electric shocks, numbness, pins or needles, allodynia, and hyperalgesia (Brook et al., 2011). Neuropathic pain is prevalent in about 19% of cancer patients, and this figure can be increased to reach approximately 39% of patients with mixed pain (Bennett et al., 2012b). A systematic review estimated that neuropathic pain could be present in about 7% to 10% of the general population (van Hecke et al., 2014). Neuropathic pain can be caused by primary cancer or metastasis due to injuring or damaging the central or peripheral nervous system (Scholz et al., 2019; Watson and Sandroni, 2016; NICE, 2013; Schembri, 2019). In patients with advanced cancer, neuropathic pain can be because of tumour infiltration of nerve roots or nerves and might be due to exposure to radiation therapy or chemotherapeutic agents (Nersesyan and Slavin, 2007). The focus of this study will be on the most important and most feared cancer symptom, which is cancer pain.

1.8.2 Cancer pain

It has been stated that cancer pain is a complex problem, and it can be challenging to understand (Jones et al., 2011; Greig et al., 2005; McPherson et al., 2008). Bennett and his colleagues indicated that *“The term ‘cancer pain’ is often poorly defined and is not synonymous with pain in a cancer patient or pain in a cancer survivor”* (Bennett et al., 2019, p. 38). There are some causes of

cancer pain, which can be due to either the disease itself, or metastases inflaming; which is associated with the tumour, or affected nerves. Alternatively, viscera pain is associated with tissue or nerve damage caused by the treatments of cancer, such as chemotherapy, radiation, and surgery (Bennett et al., 2019; Keefe et al., 2005; Raphael et al., 2010). Cancer pain can be associated with adverse effects on people's QoL, followed by cancer treatment, including physical, social, psychological, and financial well-being (Ferrell, 1995; Jones et al., 2011; Cope and Zhao, 2011). Pain-related cancer can also lead to distress among patients' families and caregivers (Wittenberg-Lyles et al., 2011). Evidence has illustrated that psychological distress, fatigue, and pain can be the most common indications in patients with cancer (Portenoy et al., 1994; Ventafridda et al., 1990; Curtis et al., 1990).

1.8.3 Prevalence of cancer pain

The prevalence of cancer pain can be associated with both stages of the disease and the location of the cancer (Goudas et al., 2005; Ger et al., 1998; Ding et al., 1991; Huang et al., 2003). Pain prevalence and pain intensity in advanced cancer might be closely related to the progression of the disease (Haanpää et al., 2011). According to a systematic review, more than 50% of cancer survivors received cancer treatment, and roughly 66% of advanced cancer patients reported pain (Van den Beuken-van Everdingen et al., 2016b). Evidence suggests that between 45% and 56% of patients with advanced cancer experience moderate to severe cancer pain (Breivik et al., 2009; van den Beuken-van Everdingen et al., 2007a; Seretny et al., 2014).

The prevalence of cancer pain in some Arab countries was reported as follows: about 73% among a convenience sample of 162 Jordanian cancer patients (Al Qadire et al., 2013), and roughly 9% of Saudi cancer patients who were daily seen in a pain clinic (Kaki, 2006), and approximately 40% among a sample of 400 Lebanese cancer patients (Hamieh et al., 2018). No data were found regarding the prevalence of cancer pain in Libya. This statement was supported by Bodalal et al. (2014, p. 6296), who stated that:

“This is further compounded in the Libyan scenario by the lack of a proper documentation system, absent digitalization of patient records, and no central authority to follow cancer patients on a long-term basis (i.e., surveillance).”

1.8.4 Cancer pain assessment

According to the European Association for Palliative Care (EAPC) recommendations regarding pain assessment in palliative care practice and research, the selection of the instruments should be personalised to certain patient populations and the study's design (Caraceni et al., 2002). A challenge for pain assessment is the overabundance of different assessment tools to be chosen from them (Jaatun, 2016). Although some available assessment tools cover all the acknowledged pain domains, many tools cover only some of them (Knudsen et al., 2009; Jaatun, 2016). Thus, different pain domains need to be addressed when assessing pain in patients with cancer, including pain intensity, location, temporal pattern, treatment, and exacerbating or relieving factors, alongside interference with health-related quality of life (Hølen et al., 2006).

In order to measure pain intensity, universal scales have been recommended, including Visual Analogue Scales (VAS), Numerical Rating Scales (NRS), Verbal Rating Scales (VRS), and Faces Pain Rating Scales (Cousins and Gallagher, 2017; Nguyen and Fabrigar, 2018; Caraceni et al., 2002; BPS, 2019b). It has been stated that there is no statistical evidence for preference of one rating scale over the other, as long as HCPs are sure that cancer patients can understand and use a specific scale (Hjermstad et al., 2009). However, the 11-point NRS is the most commonly used scale to measure cancer-related pain intensity (Hjermstad et al., 2011; Brunelli et al., 2010; Kim and Jung, 2020). NRS is a valid and reliable tool (Caraceni and Shkodra, 2019; Hjermstad et al., 2009), as it has been verbally validated in many studies, which assessed cancer pain (Brunelli et al., 2010; de Conno et al., 1994; Paice and Cohen, 1997; Kim and Jung, 2020). However, a study by Willems et al. (2021) aimed to compare between NRS and (non) acceptable pain evaluation scale and found that the (non) acceptable pain evaluation was more recommended for assessing cancer pain in the oncology clinic, as the interpretation of the NRS appears to be complicated.

To control pain related to cancer, a comprehensive assessment of pain is an essential step (Hjermstad et al., 2009; Portnow et al., 2003; Stewart, 2014), including a pain history, physical and psychological examinations (Fink and Gallagher, 2019; BPS, 2010). The 'total pain' should also be evaluated throughout the assessment, as social, psychological, cultural, spiritual, and religious factors can influence cancer pain (Scarborough and Smith, 2018; Colak et al., 2014b). Multidimensional tools, including the Brief Pain Inventory (BPI) and the McGill Pain Questionnaire (MPQ), can be used to assess cancer pain. These tools have been recommended to be clinically valuable for assessing cancer pain, as such scales assess not only the location and severity of pain but evaluate impairment due to such pain (Haefeli and Elfering, 2006; Scher et al., 2020; Caraceni et al., 2002; Kumar, 2011; Bennett, 2009; Ngamkham et al., 2012). Evidence of the validity has been reported for these two tools (Scher et al., 2020).

Despite all the recommendations and the availability of tools for assessing cancer pain mentioned above, the assessment of cancer pain is still far from satisfactory in many oncology and palliative care settings (Caraceni et al., 2005; Meuser et al., 2001; Patrick et al., 2004), especially in developing countries (Lamas and Rosenbaum, 2012; Saini and Bhatnagar, 2016). It is suggested that inadequate pain assessment is one of the most significant barriers to optimal CPM (Breuer et al., 2011a; Herr et al., 2004; McCracken, 2015). Evidence shows that cancer pain assessment is often insufficient, with many HCPs, due to ignoring or not assessing the pain properly (Lim et al., 2015; Thinh et al., 2018; Murillo et al., 2017). A study conducted in the USA to evaluate the extent of Evidence-Based Practices (EBPs) in assessing and managing cancer pain reported that although about 70% of cancer patients were assessed for their pain, reassessment of moderate or severe pain after treatment was conducted only in approximately 5% of cases (Herr et al., 2010). Another barrier to assessing cancer pain could be related to cancer patients or their caregivers' compliance (Caraceni et al., 2004).

1.8.5 Cancer Pain Management (CPM)

As mentioned earlier, cancer pain can result from the disease itself or painful diagnostic procedures or anti-cancer treatments (Bennett et al., 2019; Keefe et al., 2005; Raphael et al., 2010). Accordingly, an appropriate CPM needs to be

multidimensional, including physical, social, psychological, and spiritual dimensions (WHO, 2003). The main focus in CPM for cancer patients at the end of their life should be improving their ability of function and QoL (Ferrell and Coyle, 2010). Several attempts have been made worldwide to establish effective CPM. One of the most common and significant attempts is the ‘analgesic ladder,’ set by the WHO (See Figure 1.3), to manage mild, moderate, or severe pain in adult cancer patients (WHO, 2020d). Strong opioid analgesics, including morphine, remain the most effective and recommended treatment for CPM (Wiffen et al., 2016; Zeppetella and Davies, 2013; WHO, 2019).



Figure 1-3 Analgesic ladder designed by the WHO

Source: Adapted from WHO (2018c)

Although the availability of many guidelines and pharmacological options to manage cancer pain (NICE, 2012; WHO, 2019), inadequate assessment and lack of treatment of cancer pain remain inadequate worldwide (Thin et al., 2018; Greco et al., 2014; Li et al., 2018; Mori et al., 2012). A systematic review of 20 articles reported that about one-third of patients with cancer pain did not receive adequate CPM (Greco et al., 2014). Furthermore, It has been estimated that about 28% of patients experiencing advanced cancer die from cancer with unalleviated pain (Sela et al., 2002). This can be more obvious in developing countries, including Libya, because strong opioid analgesics, such as morphine,

are either limited or legally restricted for CPM (Alsirafy et al., 2011b; Cleary et al., 2013a; Shamieh and Jazieh, 2010b; Harrington et al., 2010; Goucke and Chaudakshetrin, 2018). Hence, there is evidence that cancer patients in developing countries still do not receive appropriate CPM (Saini and Bhatnagar, 2016). A survey conducted in Lebanon that included 400 cancer patients reported that more than 37% of cancer patients suffer from cancer pain, and inadequate CPM was found to be about 46% among all cancer patients (Hamieh et al., 2018). In developing countries, including Libya, this may be because access to strong opioids is challenging, and the use of opioids, including morphine, may be rejected by some HCPs, patients, and family caregivers for CPM (Alsirafy et al., 2011b; Cleary et al., 2013a; Al Qadire, 2012b; Colak et al., 2014b; Darawad et al., 2019a). However, in Libya, cancer pain is more likely to be under-measured and under-treated than in other developing countries, as pain management and palliative care services do not exist in the Libyan healthcare system. (El Ansary et al., 2014b; Silbermann et al., 2014; Fadhil et al., 2017; Elzahaf et al., 2016a; Petropoulos et al., 2016).

1.9 Barriers to effective CPM

1.9.1 HCPs related barriers

1.9.1.1 HCPs' knowledge and attitudes towards CPM

Several studies have shown that a lack of appropriate knowledge and poor attitudes towards CPM among HCPs were reported as one of the main barriers to effective CPM (Al Khalaileh and Al Qadire, 2012b; Shahnazi et al., 2012; Kassa and Kassa, 2014; Darawad et al., 2017b). Although nurses play a critical role in CPM because they have direct responsibilities related to regular pain assessment and tailoring opioids (Machira et al., 2013), many studies have shown that the nurses had more negative attitudes and a lower level of knowledge about CPM than the physicians (Darawad et al., 2017b; Jeon et al., 2007; Jho et al., 2014). The evidence revealed that HCPs who had low knowledge about CPM and negative attitudes towards opioids could not prescribe adequate opioids for CPM (Wells et al., 2002; Clarke et al., 1996; Lui et al., 2008; Yildirim et al., 2008). A survey conducted in Taiwan, including 1,797 nurses, aimed to explore the nurses'

knowledge about CPM and found that the nurses lacked adequate knowledge about cancer pain and opioids to manage cancer pain adequately (Lai et al., 2003). Although their survey used many statistics to prove their point, there was insufficient information about data analysis. For example, information about which statistical analysis was used, how it was conducted, and which software was used for data coding and analysis. Furthermore, they compared their results (Lai et al., 2003) with other studies (O'Brien et al., 1996; Clarke et al., 1996; Glajchen and Bookbinder, 2001), which used different instruments. All these limitations in their study could negatively influence the reliability of their results. However, similar to previous studies (Clarke et al., 1996; Liu et al., 2021; Zhang et al., 2015; Alqahtani, 2014b), their results showed that the nurses with high-level qualifications (i.e., Master's degree), and who attended training and education in CPM and more experience in CPM had higher levels of knowledge about CPM than those who did not. It seems that lack of HSPs' knowledge and poor attitudes towards CPM is a barrier to effective CPM.

Many studies (Prandi et al., 2015; Bernardi et al., 2007b; Darawad et al., 2019a) have shown that the most common attitudinal barriers to effective CPM shared across nurses and physicians were the fear of poor tolerance, the side effects of opioids, and drug addiction. The evidence revealed that HCPs who believe that strong opioids for CPM can lead to poor tolerance, side effects, and addiction are more likely to undertreat cancer patients (Elliott and Elliott, 1992b; Ger et al., 2000a; Kwon, 2014a). A study found that about 70% of physicians hesitated to increase opioid dosage and frequency for CPM due to fear of drug tolerance and addiction (Ger et al., 2000a). As mentioned above, Libyan HCPs might have poor attitudes and a lack of knowledge about CPM, similar to other HCPs, leading to barriers to effective CPM in Libya.

In contrast to earlier findings, some studies revealed that oncology nurses and physicians achieved higher positive scores on the Knowledge and Attitudes Surveys (KAS) regarding CPM compared to general nurses and physicians (Shahriary et al., 2015; Gallagher et al., 2004; Jeon et al., 2007; Larue et al., 1995; Utne et al., 2018; McCaffery and Ferrell, 1995). There is evidence that

oncology HCPs, demonstrated better knowledge and a more positive attitude towards CPM than other HCPs; this could be due to their extensive work experience in cancer pain settings; as reported by Etafa et al. (2020).

Etafa et al. (2020) concluded that HCPs, who had work experience in palliative care and pain management settings, reported higher significant mean knowledge scores about CPM. McCaffery and Ferrell (1995); stated that nursing staff from countries such as Canada and the US, which have the longest experience of palliative care units, showed a better level of attitudes and knowledge about CPM than nurses from countries such as Japan and Spain, which had palliative care and pain management services more recently. Although in most developing countries including Libya, many HCPs do not have experience in pain management and palliative care settings, as these services do not exist in their countries (El Ansary et al., 2014a; Elzahaf et al., 2016a), HCPs still have cancer patients in their clinics, who might suffer from cancer pain and need such services (i.e., pain management and palliative care) for CPM.

However, it has been argued that experience in cancer care and palliative care settings without education and training in CPM is not enough to improve HCPs' knowledge about CPM (Bernardi et al., 2007b; Oldenmenger et al., 2009a; WHO, 2019). Several studies showed that the lack of education and training in CPM among HCPs is the most important CPM barrier (Ger et al., 2000a; Hooten and Bruce, 2011a; Bouya et al., 2018; Yanjun et al., 2010a; Yang et al., 2014). A survey conducted in China involving 201 physicians found that physicians who had training in CPM reported significantly higher mean scores about CPM knowledge than those who did not (Yanjun et al., 2010a). Their results indicated that lack of training in CPM was the highest physician barrier to morphine usage in clinical practices. Libyan HCPs might have similar barriers to CPM as other HCPs in previous studies due to a lack of training and education in CPM (Ger et al., 2000a; Hooten and Bruce, 2011a; Bouya et al., 2018; Yanjun et al., 2010a). Therefore, it is possible that education and training in CPM are critical issues for improving the HCPs' knowledge about CPM. Several studies have shown that HCPs with a high level of qualifications (i.e., Master's degree), who had

experience in pain care and palliative care units and received professional training and education in CPM, obtained higher scores on adequate attitudes and knowledge about CPM (Jho et al., 2014; Omran et al., 2014; Yanjun et al., 2010a; Utne et al., 2018).

1.9.1.2 HCPs' perceptions and beliefs about CPM

The evidence highlighted that HCPs' views, perceptions, and beliefs about cancer pain and opioids could be barriers to effective CPM (Elliott and Elliott, 1992b; Al Khalaileh and Al Qadire, 2012b; Rajeh Saifan et al., 2019). Some HCPs may hesitate to prescribe or reject strong opioids, such as morphine for CPM, due to their perceptions or beliefs about opioids (Cleary et al., 2013a). A survey conducted by Bernardi et al. (2007b) reported that more than 50% of oncology nurses disregard or underestimate cancer pain when patients report it to avoid prescribing strong opioids for CPM. A mixed-methods study conducted in Cyprus by Charalambous et al. (2019) involved 73 HCPs in exploring HCPs' perceptions of using opioid medications for CPM. Their study found that about 70% of HCPs hold negative perceptions about opioids (opiophobia). Hence, roughly 49% of physicians were reluctant to prescribe strong opioids for CPM, resulting in a barrier to appropriate CPM. In developing countries, many studies showed that HCPs hesitated or rejected to prescribe or give strong opioids for CPM as they had negative perceptions or beliefs about cancer pain and opioids (Rajeh Saifan et al., 2019; Al Khalaileh and Al Qadire, 2012b; Nasser et al., 2016). Although these previous studies were surveys with relatively small sample sizes, which might limit the generalisability of their findings, their studies found that HCPs' perceptions and beliefs towards opioids were a barrier to effective CPM. Libyan HCPs might have negative perceptions or beliefs similar to those described in earlier studies. Therefore, there may be evidence that cancer patients in developing countries still do not receive appropriate CPM (Saini and Bhatnagar, 2016), including Libya.

1.9.2 Patients and caregivers related barriers

1.9.2.1 Patients' and caregivers' knowledge and attitudes to CPM

Many studies stated that due to varied barriers, including a lack of knowledge and attitudes towards CPM, cancer patients at different stages of their disease still do not receive appropriate CPM (Greco et al., 2014; Dees et al., 2011; Al Qadire et al., 2013; Chwistek, 2017; Thinh et al., 2018). Several earlier literatures showed that cancer patients and caregivers had low mean scores on the Knowledge and Attitudes Surveys (KAS), indicating poor attitudes and lack of knowledge about CPM (Riddell and Fitch, 1997; Cohen et al., 2005; Lin, 2000). Therefore, many cancer patients and caregivers may be reluctant to report pain to HCPs and reject strong opioids for CPM (Oldenmenger et al., 2009b; Colak et al., 2014b; Vallerand et al., 2007b; Lou and Shang, 2017). Attitudinal barriers to effective CPM, including fear of poor tolerance, side effects of opioids, and drug addiction, were prominent among cancer patients and caregivers (Sun et al., 2008; Lin, 2000). Lou and Shang (2017); highlighted that the relationship between caregivers' attitudes and their patients' pain knowledge towards CPM is important because their attitudes towards cancer pain and opioids could influence patients' attitudes and pain knowledge. Hence, caregivers should have general awareness and adequate knowledge about CPM. It has been argued that it is crucial to increase caregivers' ability to participate in CPM and assess pain and help their patients take adequate doses of opioid medications (Yates et al., 2004a). Vallerand et al. (2007b); found that family caregivers with pain management knowledge had significantly fewer barriers to effective CPM than those who did not.

1.9.2.2 Patients' and caregivers' perceptions and beliefs about CPM

Additional barriers to adequate CPM could be related to patients' and caregivers' perceptions and beliefs. The evidence found that cancer patients and caregivers' views of cancer pain and opioids were influenced by their religious and cultural beliefs, as they rejected opioid analgesics for CPM because of their negative attitudes towards them, and in particular, they fear addiction, citing religious and cultural reasons for rejecting such opioids for CPM (Al Qadire, 2012b; Colak et al., 2014b). For example, some Muslim patients usually find that reading the

Qur'an is a beneficial and comfortable way to help them cope with their disease and pain (Mahfudh, 2010). This could be beneficial as some patients and their caregivers believe that the Qur'an could cure diseases, such as cancer, and relieve physical suffering like pain (Hatamipour et al., 2015; Erol et al., 2018). Although evidence found that cancer patients, who relied on their religious beliefs to cope with their disease and pain, showed a sense of hope, peace, strength, and confidence (Rahnama et al., 2012), such beliefs may negatively influence CPM because they can lead to reluctance to use the medical treatment, such as opioids for CPM (Bosch and Banos, 2002; Jacobsen et al., 2009b; Tzeng et al., 2008; Chen et al., 2012).

Evidence showed that people who hold negative perceptions about strong opioids rejected to use of such opioids for CPM (Silbermann, 2011; Yates et al., 2002; Ho et al., 2020). Silbermann (2011); stated that many patients and their caregivers viewed opioids as a path to death; hence opioid medications became their last choice. A survey conducted in Australia that included 114 cancer patients reported that approximately 40% of patients tended to wait until their pain became severe before seeking opioid medications for CPM (Yates et al., 2002). A recent qualitative study involved 31 participants (18 adult cancer patients and 13 caregivers) found that many cancer patients and their caregivers preferred to use morphine for CPM as a last option because they hold concerns and negative perceptions about strong opioids, including drug side effects and addiction, as well as morphine is only used at the terminal stages (Ho et al., 2020).

It has been stated that cultural and religious beliefs can affect patients' interpretation of their pain and consideration of treatment (Silbermann and Hassan, 2011; Colak et al., 2014b). For instance, many patients and their caregivers believed that the Qur'an and the prayers could cure diseases, such as cancer, and relieve physical suffering like pain (Hatamipour et al., 2015; Hosseini et al., 2016; Erol et al., 2018; Makhoul et al., 2020). Thus, some patients and their caregivers usually prefer to use the Qur'an and prayers instead of medical medications to help the patients cope with their disease, anxiety, and pain (Pathmawathi et al., 2015; Ibrahim et al., 2020). Some cancer patients and their

caregivers may develop misconceptions about CPM depending on their cultural background. A study found that American Indian patients, caregivers, and HCPs believed that expressing pain was seen as a sign of weakness, and complaining about cancer pain will only extend their vulnerability (Haozous and Knobf, 2013). Another study showed that Taiwanese cancer patients do not report cancer pain and refuse to use opioids because, in their culture, they consider pain a necessary aspect of life (Chou et al., 2011). In Arab countries, including Libya, some cancer patients, and their caregivers prefer to use cautery (Kaiy – ironing the place of cancer or pain with fire) as alternative therapy instead of medical treatments to manage their cancer and pain (Farid and El-Mansoury, 2015; Elzahaf et al., 2016a; Aboushanab and Alsanad, 2018). Many HCPs believed that cultural beliefs had an adverse effect on CPM (Farid and El-Mansoury, 2015; Abou-Elhamd, 2009a). For example, Farid and El-Mansoury (2015) stated that due to the application of cautery by some Libyan patients to cure their cancer, cancer management is usually delayed, increasing the aggressiveness of the disease associated with chronic cancer pain. Unfortunately, due to religious and cultural beliefs, some people believe that they should endure their pain courageously (Ho et al., 2013; Colak et al., 2014b). Studies showed that Turkish and Jordanian patients showed negative attitudes towards morphine as they continued rejecting morphine for their cancer pain after sessions about opioids were given. That was due to fear of addiction, religious reasons, and cultural prohibitions (Al Qadire, 2012b; Colak et al., 2014b). Therefore, it is possible that religious and cultural beliefs can be barriers to effective CPM.

Libyan cancer patients and their family caregivers' views, perceptions, and beliefs about cancer pain and opioids may also be similar to those described in the studies mentioned earlier, resulting in barriers to effective CPM in Libya. The evidence suggests that HCPs should recognise and understand that patients often turn to their religious, spiritual, and cultural beliefs when considering medical treatment (Silbermann and Hassan, 2011; Dedeli and Kaptan, 2013; Swihart and Martin, 2020). Understanding patients' perceptions of religious and cultural beliefs can enable HCPs to improve CPM, as such beliefs should guide HCPs in how and when patients' pain should be treated (Silbermann and Hassan, 2011; Givler and Maani-Fogelman, 2020).

1.9.3 Healthcare system-related barriers

1.9.3.1 policies and guidelines for CPM

The lack of clear policies and guidelines for CPM has been highlighted as a barrier to adequate CPM in many studies worldwide (Elcigil et al., 2011; Jacobsen et al., 2014; Kwon, 2014a), especially in developing countries (WHO, 2003; Saini and Bhatnagar, 2016). According to the WHO; WHO (2003), the absence of national policies and guidelines for palliative care and CPM services in developing countries is common, resulting in additional barriers to effective CPM. Although several guidelines have been established worldwide for effective CPM, such as the WHO (WHO, 2019) and NICE (NICE, 2012), most HCPs in developing countries seem not to follow these guidelines because such guidelines do not exist in their clinics (Saini and Bhatnagar, 2016; Abu-Odah et al., 2020; El Ansary et al., 2014a). Jacobsen et al. (2014) found that cancer pain was poorly managed because of restricted hospital policies regarding drug administration, leading to inadequate opioids being prescribed to patients with cancer pain. Another study also revealed that due to the absence of hospital policy about supplying patients with opioid medications at home, many cancer patients did not receive sufficient opioid medication for their pain, especially those living in rural areas (Alnems, 2012a).

Despite policies and regulations for palliative care and CPM existing in some developing countries, such policies and guidelines are not implemented in clinical practices because of strict rules for using strong opioids (Saini and Bhatnagar, 2016; Abu-Odah et al., 2020; Toba et al., 2019; Li et al., 2013). For instance, a cross-sectional survey conducted in Palestine that included 220 HCPs, reported that 69.5% of HCPs perceived that strict hospital regulation regarding the use of opioid medications for CPM was among the most common barriers to effective CPM (Toba et al., 2019). Accordingly, there is evidence that many cancer patients in developing countries still do not receive adequate CPM (Saini and Bhatnagar, 2016; Saifan et al., 2019).

The lack of policies and guidelines for palliative care and CPM in most developing countries, including Libya, could be due to certain healthcare services, such as palliative care (El Ansary et al., 2014b; Silbermann et al., 2014; Fadhil et al., 2017) and pain management services (Elzahaf et al., 2016a; Petropoulos et al., 2016) that do not exist in the healthcare system. It can thus be suggested that the unavailability of palliative care and CPM policies and guidelines is another issue that negatively influences CPM in developing countries, including Libya.

1.9.3.2 Limits on access to opioids for CPM

Although morphine remains the most effective and recommended medication for CPM in most developed countries (WHO, 2019), access to such opioid analgesics for CPM is either limited or legally restricted in many developing countries, including Libya (Shamieh and Jazieh, 2010b; Saini and Bhatnagar, 2016). Most cancer patients in developing countries receive inadequate opioid analgesics, particularly morphine, compared to developed countries (WHO, 2003; INCB, 2019). For example, in 2018, the consumption of morphine for palliative care and CPM in developed countries, such as Europe, the US, Canada, and Australia, was 87%, whereas only 13% of the total amount of morphine consumed in developing countries (INCB, 2019). In Libya, there was no data available regarding the consumption of morphine for palliative care and CPM (INCB, 2019).

A survey conducted in Jordan which involved 162 cancer patients, reported that approximately 73% of cancer patients suffered from cancer-related pain, and about 30% of patients with cancer pain had not been treated for their pain (Al Qadire et al., 2013). Another survey conducted in Lebanon that included 400 cancer patients reported that about 40% of cancer patients suffered from cancer-related pain, and inadequate CPM was found to be approximately 47% among all cancer patients due to limits on access to opioids (Hamieh et al., 2018). Many studies from the same regions also suggested that cancer pain is unrelieved in various cases due to limited access or legal restrictions to opioid analgesics (El Ansary et al., 2014a; Cleary et al., 2013b; Alsirafy et al., 2011a). It can thus be suggested that many cancer patients in developing countries, including Libya,

might suffer from severe cancer pain and do not receive adequate opioid medications due to limits on access to opioids for CPM (Saini and Bhatnagar, 2016; Shamieh and Jazieh, 2010b).

However, it has been argued that accessing opioids alone is unlikely to relieve cancer pain (Wells, 2000; Anderson et al., 2002; Gunnarsdottir et al., 2005). Evidence found that many cancer patients were experiencing unrelieved cancer pain, even though they had increasingly been prescribed opioids for their pain (Wells, 2000; Anderson et al., 2002). It can thus be suggested that HCPs,' patients,' and caregivers' poor views, perceptions, beliefs, attitudes, and lack of knowledge about cancer pain and opioid analgesics for CPM could be the main barriers to effective CPM as discussed earlier in this chapter.

1.10 Hypothesis, aims, and Objectives

1.10.1 Statement of the problem

Although CPM can be achieved in approximately 90% of cancer patients worldwide (WHO, 2003), cancer pain is a frequent problem experienced by patients with advanced cancer because it is often undertreated in various cases (Green et al., 2011; Mori et al., 2012; Greco et al., 2014), especially in developing countries (Saifan et al., 2019; Saini and Bhatnagar, 2016; Li et al., 2018; Hamieh et al., 2018). A survey conducted in Lebanon by Hamieh et al. (2018) that included 400 cancer patients found that roughly 38% of cancer patients suffer from cancer pain, and about 46% reported inadequate CPM among all cancer patients.

Many common barriers to effective CPM related to HCPs,' patients' and caregivers' poor views, beliefs, attitudes, and knowledge, and the healthcare system have been identified as significant clinical problems in various studies worldwide (Lou and Shang, 2017; Kwon, 2014a; Al Khalaileh and Al Qadire, 2012b; Lin et al., 2000; Kim et al., 2011; Yanjun et al., 2010a; Saifan et al., 2019). There have been some effective attempts to overcome these barriers (Sun et al.,

2007; Kwon, 2014a). For instance, several authors have suggested that professional education and continuing training in CPM can improve HCPs' attitudes and knowledge about CPM (Omran et al., 2014; Lai et al., 2003; Patiraki et al., 2006b; Allard et al., 2001; Alvarez and Agra, 2006; Bennett et al., 2011; Bouya et al., 2018). A systematic review indicated that educational programmes on CPM, including CPM topics in nursing curricula and training programmes on CPM, are the most important factors for enhancing nurses' knowledge and attitudes towards CPM (Bouya et al., 2018). Furthermore, evidence highlighted that providing educational sessions on CPM can improve caregivers' knowledge and reduce their attitudinal barriers to effective CPM (Meeker et al., 2011). However, these interventions have not significantly overcome CPM, especially in developing countries, as there is evidence that cancer patients in such countries still do not receive appropriate CPM (Saini and Bhatnagar, 2016; Saifan et al., 2019). These barriers are likely to be related to HCPs,' cancer patients,' and caregivers' poor views, beliefs, attitudes, and knowledge about cancer pain and opioid medications (Al Khalaileh and Al Qadire, 2012b; Saifan et al., 2019; Colak et al., 2014b; Lin et al., 2000).

In developing countries, especially in Libya, cancer patients who do not receive appropriate CPM may be due to many potential reasons: Firstly, underfunding and the collapse of the Libyan healthcare system since the revolution in 2011 (El Oakley et al., 2013b). Secondly, an absence of palliative care (El Ansary et al., 2014b; Silbermann et al., 2014; Fadhil et al., 2017) and pain management services (Elzahaf et al., 2016a; Petropoulos et al., 2016). Thirdly, access to opioid medications for CPM is either limited or legally restricted (Shamieh and Jazieh, 2010b). Finally, as mentioned in this chapter, similar to earlier studies (Al Khalaileh and Al Qadire, 2012b; Colak et al., 2014b; Saifan et al., 2015), Libyan HCPs,' patients,' and caregivers' views, perceptions, beliefs, and attitudes towards cancer pain and opioids can prevent effective CPM in Libya.

Although many studies from different countries exist the literature that barriers to effective CPM due to HCPs,' patients' and caregivers' views, perceptions, beliefs, and attitudes towards CPM (Saini and Bhatnagar, 2016; Breivik et al., 2009; Van

den Beuken-van Everdingen et al., 2016b; Li et al., 2018; Reis-Pina et al., 2015; 2018; Thinh et al., 2018; Kwon, 2014a), there is no published research on this subject in Libya. Likewise, the CPM situation among Libyan HCPs has not been previously assessed, despite the poor QoL, which has been found among cancer patients in Libya (Nouh et al., 2018; Agila, 2020; Hashemi et al., 2019). Addressing this problem will have practical benefits for cancer patients, particularly in Libya and generally in developing countries, and help establish the reasons for potential barriers to effective CPM in order to understand and overcome this widespread phenomenon. Accordingly, this mixed-methods study examines the challenges and barriers confronting HCPs, cancer patients, and family caregivers to improve CPM in Libya.

1.10.2 Research Question

What are the views of Libyan healthcare professionals, patients, and family caregivers about cancer pain and its management?

1.10.3 The overall research aims and individual research objectives

The research aims to explore Libyan HCPs,' patients,' and family caregivers' views about cancer pain and its management. This aim was achieved by accomplishing the following three objectives:

- I. Carry out a systematic review of research relating to both the nature and impact of attitudes and knowledge towards CPM.
- II. Explore and understand Libyan HCPs,' patients,' and family caregivers' views about cancer pain and its management.
- III. Complete an evaluation of HCPs' knowledge, attitudes, and potential barriers regarding cancer pain and its management in Libya.

1.10.4 Research Hypothesis

Libyan HCPs, cancer patients, and caregivers' perceptions, attitudes, and knowledge about cancer pain and opioids for CPM might be barriers to effective CPM in Libya.

1.11 Significance of the Study

To the best of the researcher's knowledge, this is the first comprehensive study that explored Libyan HCPs, patients, and family caregivers' views about cancer pain and its management. This study's findings will help identify the potential barriers to effective CPM in Libya. Identifying these potential barriers may help promote better care for cancer patients with pain in Libya. Regarding research contributions, the current study will bridge the gap in the literature on barriers to effective CPM by exploring HCPs,' patients,' and caregivers' views about cancer pain and opioids, which might improve CPM in Libya. With respect to the practical contributions, the findings of this study will enable HCPs, hospital managers, and policymakers to better understand barriers to effective CPM and guide them when planning guidelines and policies for palliative care and CPM in Libya.

This study will establish baseline information about HCPs,' patients,' and caregivers' current knowledge, attitudes, views, and beliefs about CPM in Libya. Thus, examining Libyan HCPs,' patients,' and caregivers' views about cancer pain and its management will identify the potential barriers to effective CPM and significantly improve CPM practice in Libya. This will also reflect positively on cancer patients' QoL, resulting in decreasing hospital admission rates and medical costs (Green et al., 2011; Tangka et al., 2010). Exploring potential barriers to adequate CPM as perceived by Libyan HCPs, patients, and caregivers might also be contributed to the design of future relevant educational programmes (at schools of medicine and nursing and in-service education in practices) to focus more on CPM topics in their curricula.

1.12 Outline of the thesis

This thesis consists of six chapters to achieve both the research questions and its aims and objectives as outlined in sub-sections 1.10.2 and 1.10.3, respectively. The following is a brief description of each chapter:

Chapter Two:

This chapter presents the detailed research methodology and methods used in this mixed-methods study. It also provides a mixed-methods design for this study,

including pragmatism, the rationale for adopting a mixed-methods design in this study, classification of a mixed-methods design, and study design specifics. This is followed by an overview of research methods for each study with the justifications for using them in this thesis. The chapter also describes data sampling, collection, and analysis for each study in this thesis.

Chapter Three:

This chapter is devoted to achieving the first objective of this study, which is to review the evidence regarding HCPs,' patients,' caregivers,' the general public's attitudes and knowledge about cancer pain and its management, and to determine the nature and impact of attitudes and knowledge towards CPM. The chapter presents the results of study one (a systematic review) in this thesis.

Chapter Four:

This chapter is dedicated to accomplishing the second objective of this mixed-methods study, which is to explore Libyan HCPs', patients', and caregivers' views about cancer pain and its management. This chapter presents the results of study two (a qualitative study). The chapter concludes by summarising the main results of the study.

Chapter Five:

This chapter is devoted to attaining the third objective of the present study, which is to evaluate further nurses' and physicians' knowledge, attitudes, and perceived barriers regarding cancer pain and its management in Libya. This chapter presents the results of study three (a quantitative study) in this thesis. The chapter ends with a summary of the key findings.

Chapter Six:

This chapter starts with integrating and summarising the main findings of the three studies in this mixed-methods study, which are presented in chapters three, four, and five, respectively. The chapter discusses the overall results from three studies in this thesis. Next, this chapter provides research strengths and limitations for each study. The research contributions to research and practice are also outlined in this chapter. The chapter ends with a conclusion and recommendations for policy and practice.

Chapter 2

Research Methodology and Methods

2.1 Introduction

This chapter aims to present the research methodology and methods utilised in this mixed-methods study. For context, an overview of the 3 studies that comprise this thesis is outlined first in section 2.2. Secondly, the chapter presents the study and discusses the mixed-methods design in section 2.3, which include pragmatism, justification for using pragmatism in this study, the rationale for adopting mixed-methods design, classification of a mixed-methods design, and justification of using an exploratory mixed-methods design in sub-sections 2.3.1, 2.3.2, 2.3.3, 2.3.4, and 2.3.4.1.1 respectively. Thirdly, section 2.4 presents and discussed in detail the study design specifics for each study included in this thesis. Finally, the chapter briefly outlines ethical considerations for this study in section 2.5.

2.2 Study Overview

This thesis consists of three studies: a systematic review (study one) to identify existing knowledge of HCPs', cancer patients,' family caregivers' and the general public's attitudes and knowledge towards CPM; a qualitative study (study two) to identify Libyan HCPs,' patients,' and caregivers' views surrounding cancer pain and its management, who were either had training courses or sought oncology treatment in Egypt; and quantitative study (study three), to evaluate HCPs' knowledge, attitudes, and potential barriers regarding CPM in Libya. The methods for three studies that are included in this thesis are outlined in sections 2.4.1, 2.4.2, and 2.4.3 below. The results for each study included in this thesis are presented in chapters 3, 4, and 5, respectively.

The research methods for each included study in this thesis were carefully chosen by consideration of the phenomenon under examination and its relevance to each research question. In this thesis, three research designs were conducted, including a systematic review (study one), a qualitative method (study two), and

a quantitative method (study three). Each method design was used based on the nature of the research question for each study (Teherani et al., 2015; Creswell and Poth, 2018). A summary of research methods for each study included in this thesis is shown in Figure 2.1.

The current researcher used the second and third studies of method designs to collect data from Libyan HCPs, cancer patients, and family caregivers regarding; views, perceptions, attitudes, and knowledge about cancer pain and opioids for CPM.

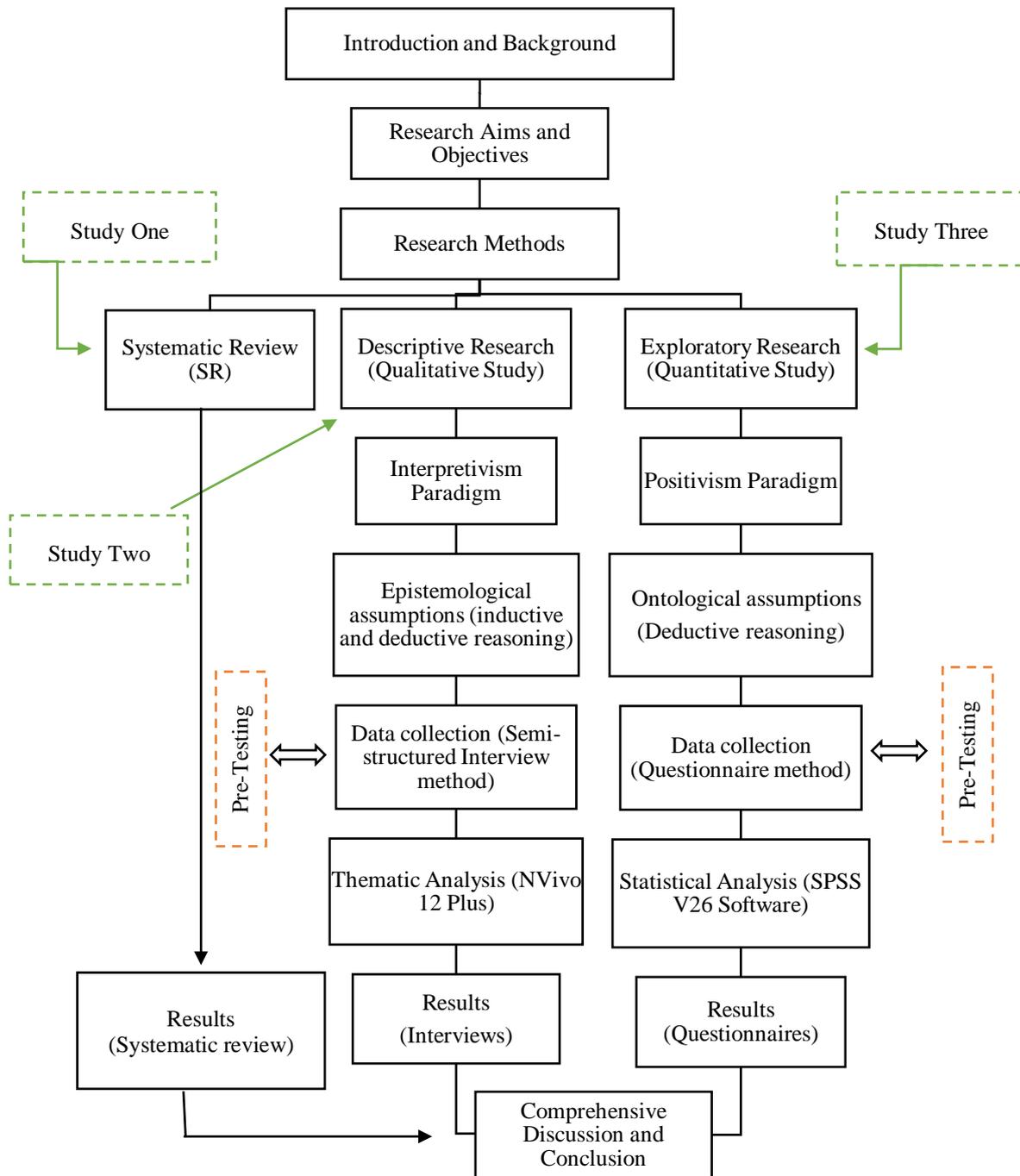


Figure 2-1 Summary of research methods used in this thesis

2.3 Mixed-methods design for this study

2.3.1 Pragmatism

In mixed-methods design, pragmatism is a research philosophy that is based on epistemology, which means no single way to learn but several different ways of understanding the world as there are multiple realities (Saunders et al., 2012). In other words, it allows the researcher to not be constrained by a specific ontology;

however, be flexible and find the best way by mixing qualitative and quantitative methods to address research objectives (Feilzer, 2010a). Mixed-methods research can be done through many different designs based on a specific study's purpose (Creswell and Clark, 2011). This design seeks to build on the strengths (Rauscher and Greenfield, 2009) and reduce the weaknesses (Palinkas et al., 2011) of qualitative and quantitative approaches to draw the inferences that can lead to more understanding of the topic being studied.

2.3.2 Justification for using pragmatism in this study

A pragmatic approach was used to support a mixture of methods (qualitative and quantitative studies) conducted by the researcher (Feilzer, 2010b). Another reason for adopting this approach was that it is the best approach to present the researcher's view of multiple realities open to practical inquiry. Thus, this pragmatic approach was used to solve practical issues in the real world (Dewey, 1925; Rorty, 1999; Creswell and Clark, 2017).

A pragmatic paradigm, which centres on methodological assumptions, was more appropriate for exploring the multiple perspectives of included participants (Feilzer, 2010a; Creswell et al.; Biesta, 2010; Creswell and Clark, 2011). Therefore, the pragmatist paradigm suitably reflects the philosophy behind the current study. Particularly, the pragmatist paradigms were more suited to the current research for many reasons. Firstly, the practical results were considered important in study two (qualitative study) and study three (quantitative study) of the current research. Secondly, pragmatists aim to consider what work should address a specific research question (Onwuegbuzie and Johnson, 2006). This was similar to the aim of study two, which was intended to explore and understand Libyan HCPs, patients, and family caregivers' views considering cancer pain and its management, and the aim of study three in the present study, which was to evaluate nurses' and physicians' knowledge, attitudes, and potential barriers regarding CPM in Libya.

Moreover, for generalisation purposes, pragmatic paradigms, in conjunction with methodological assumptions, often collect flexible qualitative data from small sample sizes and analyse them using a combination of inductive and deductive reasoning and utilising coding data analysis (Easterby-Smith et al., 2012; Saunders et al., 2016). Therefore, this method is deduced as a good fit to answer the research question of study two in the present study. Additionally, as pragmatism usually involve mixed-method designs, this can give a more comprehensive view of a specific research problem when these designs are drawn together than if just one epidemiological or ontological assumption was used (Mason, 2006).

2.3.3 The rationale for adopting a mixed-methods design in this study

A mixed-methods design was the most suited design for addressing the research questions and the aims (See sub-sections 1.5.2 and 1.5.3 in Chapter 1) of this study for many reasons. Firstly, this design is usually used to triangulate the findings by combining qualitative method and quantitative research so that both integrated approaches may be mutually corroborated and the weaknesses of each approach might be avoided, as the strength of both approaches can be combined in one research, creating an effective research strategy (Creswell and Clark, 2011; Mason, 2006; Johnson and Onwuegbuzie, 2004). Secondly, it is a belief in doing what can work best for achieving a wanted result (Bryman, 2006). Furthermore, pragmatism can support researchers in choosing between different methods required to address a specific research question, and it helps determine which methods are the best for the target study (Morgan, 2007).

Additionally, collecting data through open-ended questions (i.e., “*questions that do not provide participants with a predetermined set of answer choices, instead allowing the participants to provide responses in their own words*”) (Allen, 2017), for qualitative data and close-ended questions (i.e., questions that provide the person responding to them with a fixed number of responses are constricted in the range of options participant has to choose from as answers) (Lavrakas, 2008), for quantitative data in the same study has proved to be an effective approach in

research (Creswell, 2013b). Additionally, in this design, qualitative data were used to generate hypotheses, and the quantitative approach was used to test the generated hypotheses within a single study (Bryman, 2006). The researchers' design was more aligned with the present mixed-methods study, as it involved collecting and analysing qualitative data in study two, followed by the quantitative data in study three, based on the initial qualitative results (Creswell and Clark, 2011). Another rationale behind adopting this design was that the present researcher brings together a more comprehensive account of the research area that he is interested in by employing both qualitative and quantitative approaches to allow him to develop a comprehensive understanding of the experience of cancer pain and its management from HCPs, cancer patients, and family caregivers' perspectives (Creswell and Plano Clark, 2017; Bryman, 2006). Likewise, employing qualitative and quantitative methods in a single study can enhance the integrity of the findings (Bryman, 2006). Finally, this mixed-methods design has been commonly developed and employed in health and social sciences (Bergman, 2008).

2.3.4 Classification of a mixed-methods design

The mixed-methods design has been classified into three major types: convergent parallel design, explanatory sequential design, and exploratory sequential design (Creswell and Plano Clark, 2017). According to Creswell and Plano Clark (2017), the method of selecting the mixed-methods design is based on three decisions, which are: the order in which data will be firstly conducted (i.e., the timing of the use of data collection), how the two datasets will be connected or related (i.e., the approach to mixing both datasets), and the weight of both qualitative and quantitative methods (i.e., the emphasis given to each method). Thus, in this mixed-methods study, the exploratory sequential design was used because the qualitative data were collected first.

2.3.4.1 The exploratory sequential design

According to Creswell and Clark (2017), exploratory sequential mixed-methods design is an approach that consists of collecting and analysing qualitative data

and collecting and analysing quantitative data in a sequence of phases. In this design, the priority is usually given to the qualitative study; the researcher collects qualitative data, then the data can be analysed, and the results of this will direct the next study (quantitative study). In the first study of this design, the qualitative analysis provides “critical fodder” for developing research questions for the second study (quantitative study). Both qualitative and quantitative methods are usually integrated at the interpretation phase in a single study (Creswell and Clark, 2017; Teddlie and Tashakkori, 2011; Onwuegbuzie et al., 2010). An exploratory sequential design is used when a phenomenon needs to be explored, especially if the aim is to generate items that can be included in a particular questionnaire, which will be tested and applied in study three (quantitative study) in this thesis (Hanson et al., 2005; Doyle et al., 2016a).

In this study, an exploratory sequential mixed-methods design (See Figure 2.2) was adopted. As mentioned in section 2.4, this thesis consists of three studies, including a systematic review, qualitative research, and quantitative study. Mason (2006); stated that combining two methods could give a more comprehensive view of the research problem than one specific paradigm. Each technique used in studies two and three in this thesis was based on each study’s aim and objectives. This method is recommended because it helps the researcher generate hypotheses that can be tested quantitatively. Based on the results from a qualitative study, a research instrument (questionnaire) was developed, which was used in quantitative research (study three) for more investigations (Bryman, 2016).

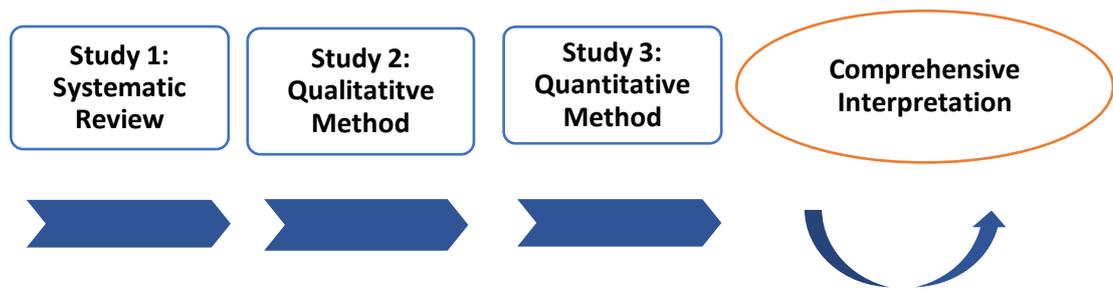


Figure 2-2 An exploratory sequential mixed-methods design

2.3.4.1.1 Justification of using an exploratory mixed-methods design

Although several mixed-methods designs are available to collect required information (Creswell and Clark, 2017), an exploratory sequential mixed-methods design was chosen to be used in this study for many reasons: Firstly, it has been stated that each design in the mixed-methods research can be selected depending upon the objective of a specific study, the adoption of research strategy, and the availability of time length for data collection and analysis (Creswell and Clark, 2011). This study aimed to explore Libyan HCPs', patients,' and caregivers' views about cancer pain and its management. Secondly, according to Creswell and Clark (2011), an exploratory mixed-methods design is useful when either the researcher or the research problem is concerned with qualitative data, as this can give the study strengths and advantages of the qualitative approach. Thirdly, as a research method, this design is the most appropriate design for this study because the present researcher was aiming to develop and adopt an appropriate questionnaire for the quantitative study and to generalise the findings from the qualitative study to a larger sample gathered during the quantitative research (Creswell et al., 2003; Biesta, 2010), as well as identifying important variables to quantitative study as such variables were unknown. The current research has identified new emergent research questions based on the qualitative study's results, which were not answered within qualitative data (Creswell and Clark, 2011; Morgan, 2007). In addition, the exploratory sequential design is suitable because it facilitates the collection of one type of data at a time, which is in keeping with the plan of the current study

and enables the researcher to carry out his data collection (Creswell and Clark, 2011).

2.4 Study Design Specifics

2.4.1 Systematic Review (study one)

2.4.1.1 Review Question

What are healthcare professionals, 'patients,' family caregivers,' and the public's attitudes and knowledge about cancer pain and opioids for CPM?

2.4.1.2 Review Aim

To systematically review research on the nature and impact of attitudes and knowledge towards CPM.

2.4.1.3 Review Hypothesis

HCPs, patients, family caregivers, and the public's negative attitudes and knowledge about cancer pain and opioids for CPM might be barriers to effective CPM worldwide.

2.4.1.4 Review Methods

2.4.1.4.1 Protocol and registration

The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement was used as a guideline for reporting the findings in this Systematic Review (SR) (Moher et al., 2009; Liberati et al., 2009; Moher et al., 2015). The protocol for this review was registered with PROSPERO on 12th December 2018 (no. CRD42018117625).

2.4.1.4.2 Adapting PICO into PCO for the current SR

Study one in this thesis was SR; the first stage involved in this SR was developing a research protocol. This explains methods to perform SR and comprehensive inclusion and exclusion criteria. Notably, it addresses the types of studies, participants, and interventions, as well as the types of outcome measures (PICO), which have been developed for quantitative review questions (Bettany-Saltikov, 2012; Ostaszkiwicz and O'Connell, 2007; Riesenbergs and Justice, 2014; Stern et al., 2014). However, PICO has been slightly changed to PCO (Population, Context, and Outcome) to work appropriately for this current method (Riesenbergs and Justice, 2014; Stern et al., 2014). Moreover, the PCO framework worked effectively with the present SR question as no interventions or comparisons needed to be looked for. Therefore, the modified PCO framework was used in study one (systematic review) in this thesis. (See Table 2.1).

Table 2-1 Example of SR: PICO modified to PCO (Population, Context, and Outcome)

Population	Adult patients with cancer, family caregivers, and HCPs aged (> 18) years old
Context	Cancer pain and opioids
Outcome	Attitudes and knowledge

Source: Adapted from Butler et al. (2016).

According to the Centre for Reviews & Dissemination's (CRD's) guidance, six elements of review should be identified by the reviewers; these are eligibility criteria for considering studies, search strategy for identification of studies, study selection methods, data extraction methods, study quality assessment methods, and data synthesis methods (CRD, 2009; Gough et al., 2017). These elements are mentioned in detail in the following six sub-sections:

2.4.1.4.3 Eligibility criteria for considering studies for this SR (PCO)

Five main aspects of studies have been identified by some scholars that should be fully specified to develop well-defined study eligibility criteria; including types of studies (study designs), types of participants/population, types of intervention (context), comparison, and types of outcome measures (Moher et al., 2009; Littell

et al., 2008). In the current SR, as previously mentioned, PICO has been modified to PCO (Population, Context, and Outcome) as it works appropriately for this method. More details about those eligibility criteria are presented in the following four sub-sections. The inclusion and exclusion criteria are listed in Table 2.2 below.

Table 2-2 Summary of inclusion and exclusion criteria

Inclusion criteria	Exclusion criteria
<ul style="list-style-type: none"> • Adult (> 18 years of age). • Studies wrote in English. • Cancer pain. • Studies include attitudes and knowledge towards cancer pain and opioids. • Published literature only. • Cross-sectional design. 	<ul style="list-style-type: none"> • Children and adolescents (< 18 years of age). • Studies not in English. • Pain-related to non-malignant disease. • Barriers are not related to attitudes and knowledge. • Unpublished research.

2.4.1.4.3.1 Types of studies (study designs)

The inclusion criteria include evidence from studies including cancer patients, family caregivers, and HCPs' attitudes and knowledge towards cancer pain and opioids. Studies that include adults (> 18 years), including barriers to pain management relating to attitude and knowledge, studies based on a cross-sectional design, and studies published in English were included. In contrast, studies with non-malignant pain, barriers not related to attitudes and knowledge, studies including children and adolescents (< 18 years), and studies not published in English were excluded.

Originally the plan was to conduct a qualitative SR, and the initial search found just one paper with a qualitative design (De Silva and Rolls, 2011). In contrast, 37 quantitative studies were found based on cross-sectional design (Riddell and Fitch, 1997; Cohen et al., 2005; Colak et al., 2014b; McCaffery and Ferrell, 1995; O'Brien et al., 1996; Hollen et al., 2000; Howell et al., 2000b; Wells et al., 2001; Bernardi et al., 2007b; Yildirim et al., 2008; Kassa and Kassa, 2014; Shahnazi et al., 2012; Shahriary et al., 2015; Utne et al., 2018; Zhang et al., 2015; Breuer et al., 2011a; Kim et al., 2011; Yanjun et al., 2010a; Eftekhari et al., 2007b; Elliott

and Elliott, 1992b; Ger et al., 2000b; Gallagher et al., 2004; Jeon et al., 2007; Larue et al., 1995; Elliott et al., 1995; Von Roenn et al., 1993; Furstenberg et al., 1998; Srisawang et al., 2013; Jho et al., 2014; Darawad et al., 2017b; Kaki, 2011; Vallerand et al., 2007b; Fazeny et al., 2000; Lou and Shang, 2017; Elliott et al., 1996; Levin et al., 1985; Larue et al., 1999). Therefore, the emphasis has been changed to conducting quantitative SR with a cross-sectional design.

2.4.1.4.3.2 Types of participants/population

The review was restricted to considering attitudes and knowledge towards cancer pain and opioids of adult patients with cancer, family caregivers of patients with cancer, and HCPs aged 18 years old and above. Those studies, including children and adolescents less than 18 years of age, were excluded from this review.

2.4.1.4.3.3 Types of Contexts

The contexts included in this review were restricted to cancer pain and opioids. Precise definitions of these contexts have been described in section 1.7, Chapter 1.

2.4.1.4.3.4 Types of outcome measures

The outcome measures were the attitudes and knowledge towards cancer pain and opioids. The included studies in this systematic review used different questionnaires (e.g., the Barriers Questionnaire) ranging between 0 and 5 (0 = no barriers and 5 = the highest barrier scores) to assess participants' knowledge and attitudes towards CPM.

2.4.1.4.4 Search strategy for identification of studies

Two steps were conducted by the researcher, as these steps are highly recommended during study selection that has been retrieved from electronic databases (CRD, 2009; Glasziou et al., 2001). Step one: Initially, only the title and abstract of each study were carefully read to include or exclude the study.

The particular study was included to be rechecked in the second step if it was difficult to decide whether to include or exclude it due to insufficient information provided in the title or abstract. Step two: Studies identified in step one were read in full, and the information was synthesised into the SR. The researcher and his supervisors performed the selection process. EndNote X7 was used to manage all retrieved studies and to identify and eliminate/ remove duplicated studies. The articles included in this review were assessed based on the inclusion criteria presented in Table 2.2. The decision to exclude studies from this review was independently obtained based on the exclusion criteria (See Table 2.2). Excluded articles and reasons for exclusion are documented in Appendix (5).

It has been stated by Brunton et al. (2017) that many different sources can be searched to collect relevant studies for a specific review. These include searching bibliographic databases, hand-searching, and checking reference lists of relevant studies (Gough et al., 2017; Brunton et al., 2017). Therefore, an additional hand-searching strategy was applied, including Google, Google Scholar, and checking reference lists of all selected studies to ensure any relevant references were assessed for inclusion. The following keyword search terms used in Google and Google Scholar were 'Knowledge of and attitude towards cancer pain.'

The search terms were based on population, contexts (context pain, context opioids, and context cancer), and outcome (Butler et al., 2016). To identify publications for inclusion in the present review, the keywords employed are shown in Table 2.3. For more information regarding search strategy, see Appendix (1). In order to develop a well-defined search strategy, two crucial elements should be determined: search sources and search terms (Brunton et al., 2017). Search sources and search terms were critically identified and justified in two sub-sections, as mentioned below.

2.4.1.4.4.1 Search sources

Many search sources can be used to find studies relevant to a specific review, mainly bibliographic databases, hand searching, reference list checking, and web searching (Brunton et al., 2017; Littell et al., 2008). As the search process should retrieve as many relevant studies as possible (CRD, 2009), in this review, all six

electronic databases (the Cochrane Library, MEDLINE, PsycINFO, CINAHL, Web of Science, and EMBASE) were searched in July 2018. Additionally, hand-searching of Google, Google Scholar, and reference lists of relevant studies were conducted to cover all available related studies.

2.4.1.4.4.2 Search Terms

It has been stated that search terms should be identified based on the components of the research question (Khan et al., 2011). The initial search strategy has been used to make a preliminary search of relevant databases for titles employing the search terms and words in the text. In any SR, search terms must be determined based on population, intervention, comparison, and outcome (CRD, 2009). However, with reference to the current review, the search term was determined based on population, contexts (context-pain, context-opioids, and context-cancer), and outcome (Butler et al., 2016). To identify publications for inclusion in the present SR, the keywords employed in the search of 6 electronic databases were shown in table 2.3. A librarian was involved in assisting in developing such search terms. For more search information strategy, see appendix (1).

Table 2-3 Example of PCO Search Terms

population	Context-Pain	Context-Opioids	Context-Cancer	Outcome
adults*	exp PAIN/ exp Pain management/ pain* Management* management*,	exp Analgesics/ exp morphine/ exp narcotics/ morphine* Buprenorphine* opium* diamorphine* opioid* Dihydrocodeine* opiate* alfentanil* fentanyl* oxycodone* hydromorphone*	Cancer* tumor* carcinoma* leuk? emia* metasta* lymphoma* melanoma* oncolog* exp neoplasms/	Attitude* Knowledge* View* opinion* concern* feeling* idea* perception* perspective* experience* perceive* standpoint* expectation* preference* need* satisfaction* interaction*

Source: Adapted from Butler et al. (2016).

1.3.1.3.4 Data Extraction

It has been recommended by the Centre for Reviews and Dissemination (CRD) that the extraction of data should be reliable and unbiased (CRD, 2009). Nevertheless, it is predisposed to human error, and subjective decisions are usually required. As accepted, there should be at least one researcher to extract the data with a second reviewer checking the data extraction form independently for accuracy and inclusiveness (Littell et al., 2008; CRD, 2009). Therefore, two reviewers developed and piloted the data extraction form independently (S.M.& S.P.). A third reviewer (M.B.) was involved in reconciling any disagreements. The process of data extraction forms can potentially reduce bias and improve validity and reliability (CRD, 2009). In this review, the data extraction form was adapted from the Centre for Reviews and Dissemination (CRD), University of York (CRD, 2009) – see appendix (2).

The data were extracted for each of the 36 included studies. The form of data extraction should be designed to fit the question and aim of a specific review. Hence, it is essential to design a form that extracts the data relating to five elements: study design, participants, interventions, comparisons, and outcomes (CRD, 2009; Littell et al., 2008). In addition to these elements, it is advised that the form extracts identifiable data from each included study, including the first author of the study, its publication date, and place of study (Littell et al., 2008; CRD, 2009). Therefore, the extraction of data from the included studies was based on the names of authors, year, country of publication, design of the study, the aim of the study, sample size, the setting of study, mean age, sex ratio, type of measurements, type of sample, type of cancer, main findings, and the quality of study as outlined in Table 3.2 in chapter 3. It has been recommended by CRD (2009) that researchers should pilot the data extraction form before the process of extraction is begun in order to ensure the form's capability to extract all the necessary data. Consequently, this review's "data extraction form" has been piloted in the first five studies meeting the inclusion criteria before beginning the extraction process.

1.3.1.3.5 Quality Assessment of the Included Studies

The reason for using the critical appraisal process for the included studies was that studies could be published with variable levels of methodological rigour among the many research articles, and some research may be open to bias; hence their results could be unreliable (Burls, 2009). Another reason is to enable an in-depth understanding of each included study and ease a questioning, critical method to the study's findings (Hannes et al., 2012). Hill and Spittlehouse (2001); stated that SRs and randomised controlled trials (RCTs) should be critically appraised as they are not automatically of good quality. It has been strongly recommended that the assessment of quality should be done separately by at least two reviewers (Pearson et al., 2011; JBI, 2016; Lockwood et al., 2015; Moola et al., 2017). Hence, all 36 included studies have been critically appraised by two researchers (S.M. & S.P.) independently using the Joanna Briggs Institute Analytical Cross-Sectional Studies Assessment (JBI-ACSSA). See appendix (3). To reconcile any differences, a third reviewer (M.B.) was involved. The JBI-ACSSA tool was chosen as it is more coherent and appropriate for the study design of included quantitative studies (Moola et al., 2017; JBI, 2016). The assigning score for the data quality was performed as 1 point for each applicable item, with a score of 7 as the maximum score (Poudel et al., 2018). An overall score was calculated for each included study, and the rating of quality was judged as good (6/7 and 7/7), fair (3/7 to 5/7), or poor (< 3/7) (Goldsmith et al., 2007) – see appendix (4). No score was below 3/7, so no study was excluded based on the quality assessment only.

1.3.1.3.6 Analysis of included studies

The primary analysis was a comparison of important similarities and differences between participants/population (HCPs, cancer patients, caregivers, and the general public) and the outcome measures (Attitudes and knowledge about cancer pain and opioids). All comparisons made were narratively described and summarised in tables (Popay et al., 2006; CRD, 2009). Due to the identified studies being too heterogeneous clinically (clinical processes differed): Population (e.g., sex, age); geography (e.g., UK, USA, China), no meta-analysis was undertaken. As a consequence, no sensitivity analyses were required.

1.3.1.4 Justification for conducting this systematic review

Study one (systematic review) was required as it enabled the researcher to understand better the knowledge and attitudes of HCPs, patients, family caregivers, and the general public, which often resulted in barriers to effective CPM. Furthermore, this review was necessary to search for gaps in the existing knowledge (Smith et al., 2009). Moreover, it was needed to place research in a particular context (barriers to effective CPM) and to ensure that new research was implemented and designed in the most appropriate method (Clarke, 2007). Thus, based on the results from this review (study one), study two (qualitative study) was conducted. The themes from this review's outcomes guided the researcher while conducting study two in this thesis and developed the interview questions and data analysis. The current review was appropriate to answer the research question for study one, and it enabled the researcher to decide on a more reliable basis than an individual study (Liberati et al., 2009; Aromataris and Pearson, 2014).

2.4.2 Qualitative Study (study two)

2.4.2.1 Research Question

What are the views of Libyan healthcare professionals, patients, and caregivers about cancer pain and its management?

2.4.2.2 Study Aim

To explore and understand Libyan HCPs', patients,' and family caregivers' views about cancer pain and its management.

2.4.2.3 Study Hypothesis

Libyan HCPs', patients,' and family caregivers' views, beliefs, attitudes, and knowledge about cancer pain and opioids might affect CPM in Libya.

2.4.2.4 Qualitative Method

2.4.2.5 Justification of using the qualitative method

The qualitative method was utilised in study two because it examines the individual meanings of the personals' experiences and their action (Polgar and Thomas, 2000). Furthermore, the qualitative study aims to understand individuals' opinions without creating any value judgments during the data collection (Carter and Henderson, 2005). A qualitative method was used with a descriptive qualitative design in study two of this thesis (Sandelowski, 2010; Neergaard et al., 2009). As described in an earlier chapter, knowledge about potential barriers to effective CPM due to HCPs,' patients' and caregivers' views, perceptions, beliefs, and attitudes were documented in many studies from different countries (Makhlouf et al., 2020; Al-Ghabeesh et al., 2020; Kwon, 2014a). In Libya, there is no published research was found on this subject. Bowling (2014) has recommended that a qualitative method should be conducted when there is a lack of information regarding a specific phenomenon of interest, once the phenomenon is complex or sensitive, and when the phenomenon needs to be explored inductively. Thus, the qualitative method was useful for understanding the specific phenomenon through the experiences and perspectives of individuals (Collis and Hussey, 2014). Study two sought to fill the lack of published data and information surrounding Libyan perceptions of CPM.

The research question in study two is in keeping with qualitative studies, as it examines people's personal experiences and their actions in everyday lives (Kinmond, 2012; Polgar and Thomas, 2013). Therefore, this method was the most appropriate design in order to achieve the richness and depth of the data to answer the research question of study two (Creswell, 2013b). The current researcher needed a detailed understanding of the views of Libyan HCPs, patients, and caregivers about cancer pain and its management by attending to individual accounts of those participants who have direct experiences associated with this phenomenon (Toles and Barroso, 2014), which could only be established by talking to people directly (Creswell, 2013b).

2.4.2.5.1 Justification for choosing a qualitative description

Selecting one of the methodological research designs is based on what the methodology itself is attempting to achieve (Teherani et al., 2015; Creswell and Poth, 2018). Thus, the process in the current study began with matching the research question of study two to the aims of the five most commonly used qualitative designs, which are ethnography, phenomenology, grounded theory, narrative, and case study (Neuman, 2011; Chase, 2011; Moran, 2002; Creswell, 2007). The current researcher faced a challenge while selecting a qualitative design, as at the beginning, he thought phenomenology would be an appropriate design for study two (qualitative study) in this thesis. However, after the extensive reading of the literature and consulting with supervisors and qualitative researchers, the present researcher found that none of those mentioned above research designs were suitable to answer the research question of study two.

Furthermore, there was evidence that some researchers were criticised for wrongly choosing “phenomenology” as a research design in their studies in the past (Crotty, 1996; Paley, 1997). Therefore, the researcher looked for an appropriate qualitative design to fit his study’s aim and question. The research question of study two, to explore the views of Libyan HCPs, patients, and caregivers about cancer pain and its management, guided the researcher in choosing the appropriate design. A qualitative description was chosen for the research design of this study because it aims not to describe the lived experiences of people, as would be expected in “phenomenology,” or to explain or to seek to understand a specific phenomenon as in the case in “ethnography. In addition the study does not intend to discover phenomenon as this is usually a case in “grounded theory,” or to explore a particular process as in “case studies” (Doody and Bailey, 2016). However, it seeks to discover and understand a specific phenomenon, a process, or the perspectives and worldviews of the individuals involved (Caelli et al., 2003; Merriam, 1998). Although the qualitative descriptive design is considered less interpretative than other forms of qualitative designs (e.g., phenomenology), it is not free of interpretation and produces findings close to the data (Sandelowski, 2010). Sandelowski (2000); described it as *“All inquiry entails description, and all description entails interpretation”* (p. 335). It has been stated that the use of a qualitative descriptive design is

appropriate where information is required directly from people who are experiencing a specific phenomenon under target investigation, especially where resources and time are limited and perhaps as part of a mixed-methods study (Neergaard et al., 2009; Bradshaw et al., 2017). This design is frequently used within mixed-methods studies, which can help with questionnaire development in exploratory studies and corroborate and validate findings in convergent studies (Doyle et al., 2016b).

The fundamental aspect of qualitative descriptive design is valuable in its own right (Bradshaw et al., 2017). The most frequently proposed rationale for using a descriptive design is to provide a straight descriptive summary of experiences and perceptions (Sandelowski, 2010), mainly in areas where little is known about the phenomenon of investigation. This is in line with the aim of study two (qualitative study) in this thesis.

2.4.2.5.2 Description of the inclusion and exclusion criteria

The inclusion criteria were adults over 18 from the following groups; Libyan oncology doctors and nurses, advanced cancer patients, and caregivers. Patients eligible to participate had been diagnosed with advanced cancer at stages (II & III and IV), associated with pain based on their hospital records, and patients who were waiting for chemotherapy or radiotherapy or waiting to see their doctors. Patients' records were screened by staff at this site (oncologist practice manager and oncology nurse) to identify patients who were meeting the eligibility criteria for this study. Caregivers were adults who had been caregivers for a minimum of 3 months and travelled with their patients to Egypt for treatment; HCPs had worked in an oncology setting for more than six months. Only participants who could give written consent to participate and without communication difficulties were included.

In contrast, patients under 18 years of age with cancer pain were excluded. Other exclusion criteria were considered, including patients with learning difficulties and

patients with psychological distress. Adult participants who have to lack the capacity to give informed consent also were excluded from this study.

2.4.2.5.3 Research sampling, participants, and settings

Purposive sampling was used in this study to recruit individuals with CPM experience. Purposive sampling aims to sample a group of individuals with enough experience and knowledge of a specific phenomenon of interest, the same purpose of the current study (Saunders et al., 2016; Bowling, 2014). Bryman (2016) stated that purposive sampling could be selected when specific characteristics or features are needed, enabling the researcher to explore the phenomenon of interest in detail and understand the central themes in a particular study. To achieve purposive sampling, participants were selected as those target participants who can best inform a research question and enhance understanding of the phenomenon of interest (Creswell, 2009; Kuper et al., 2008). Thus, Libyan cancer patients, who were seeking oncology treatment at an oncology centre in Egypt, their family caregivers, and Libyan HCPs (oncologists and oncology nurses), who were having training courses, were recruited.

2.4.2.5.4 Recruiting procedure

All participants (Libyan patients, caregivers, and HCPs) were recruited through either a receptionist or an oncology nurse in Alexandria, Egypt. This setting was chosen for the following reasons: firstly, as Libya was on the Foreign and Commonwealth Office's list of places, they advised "against all travel" due to Libya's critical situation (war). Hence this setting was chosen as an alternative. Secondly, Libyan patients have been seeking oncology treatment abroad since 2011, as the healthcare system was heavily damaged during and after the Libyan revolution that took place between February and December 2011 (El Oakley et al., 2013a; Daw et al., 2016). Furthermore, as new oncology centres have been established recently in Libya, oncology HCPs were sent to Egypt and Jordan for training.

The researcher started recruiting potential participants by contacting the Specialized Universal Network (SUN) of oncology in Egypt, and then the Libyan Consulate of Alexandria. The permission letters for data collection were sent to the Libyan consulate in Egypt and the SUN oncology centre in advance to get ethical approval - see appendices 6 and 7 (for recruiting Libyan patients and caregivers) and appendix 8 (for recruiting Libyan HCPs). Similarly, permission letters were sent to the Libyan Consulate of Alexandria, Egypt, for authorisation (See appendices 6 and 9). Then, the researcher had a meeting with the research coordinator (nurse/receptionist) and the medical director in the SUN oncology centre in Egypt; also, a meeting between the researcher and the Libyan Consulate members had a place in the Libyan Consulate in Alexandria, Egypt to explain the aim of research and its design and to recruit for this study.

The University approved the ethical approvals of Leeds Research Ethics Committee – see appendix (17), the SUN of oncology in Egypt, for patients and caregivers – see appendix (19), and HCPs – see appendices (20 and 21). Furthermore, an authorisation letter was given by the Libyan Consulate of Alexandria, Egypt – see appendix (18). Following ethical approvals, an invitation letter was given to all participants via an oncology nurse or receptionist to participate in this study (See Appendix 10).

2.4.2.5.5 Qualitative sample size

In qualitative studies, the sample size is typically small, focusing on the volume and richness of information collected (Patton, 2002). Morse (1991a) emphasised that the sample size in qualitative studies involving ethnography and grounded theory approaches could be averaged between 20 and 50 participants. While Creswell (2013b) stated that the ideal sample size figure should range from 5 to 30 based on the type of approach that a study follows (e.g., phenomenology or grounded theory). According to Patton (2002), there is no rule for sample size in qualitative studies. Thus, the sample size can be based on *“what you want to know, the purpose of the study, what is at stake, what will be useful, what will have credibility, and what can be done within the available time and resources”* (p. 244). As there was no specific set figure for sample size in qualitative studies,

most qualitative studies were not focused on sample size, but the focus was on the general conception that qualitative research aims to generate rich and in-depth data (Creswell, 2013b).

It has been argued that in judging sample size as either too large or too small, an appropriate sample size for a qualitative study depends on the aim of the research (Sandelowski, 1995). Adequate sample size can be determined in qualitative research when the sample allows the study's objective to be achieved (Sandelowski, 1995; Morse, 1991b) and sufficiently answers the research question (Marshall, 1996). According to Sim et al. (2018), decisions on the number of participants included in a qualitative study can be a priori or a posteriori made through an adaptive approach, by reference to saturation. However, the sample size should be proper and sufficient to explain the studied occurrence, regardless of the method of sampling used.

The sample size can be determined by information saturation, which means that the sampling will be terminated when no more new information is forthcoming, and therefore redundancy will be the primary criterion (Lofland and Lofland, 1995; Bryman, 2004). The concept of "saturation," which is borrowed from grounded theory, has been used by many qualitative researchers to assess whether or not the sample size is proper in a qualitative study (Malterud et al., 2016; Sandelowski, 1995). Hence, the sample size of this qualitative study was 36 participants, which was more than sufficient as the interviews were in-depth, face-to-face, and semi-structured. A sample size of more than 36 participants was not accepted as time-consuming for data analysis as the analysis usually takes more time, and more participants would not contribute to the effectiveness of the study. This study's analysis of these 36 transcripts revealed that data saturation had been reached and recruiting further participants was unnecessary; more new qualitative data would produce redundant information (Fusch and Ness, 2015).

2.4.2.5.6 Qualitative data collection procedure

The data collection process started on 16th June 2019 and ended on 26th September 2019. A total of 41 participants were approached; 5 patients were excluded as they were in the early stages of cancer. No participants declined, resulting in a total of 36 participants that met the inclusion criteria being recruited based on data saturation limitations (Corbin and Strauss, 2008). To avoid bias and ensure consistency and reliability of collected information, the researcher conducted semi-structured face-to-face interviews with Libyan patients, caregivers, and HCPs, and the findings were reviewed by two supervisors (Morse et al., 2002).

One-to-one semi-structured interviews were conducted with a total of 36 participants: 18 Libyan cancer patients, six caregivers, and 12 Libyan HCPs (oncologists and oncology nurses) who were either seeking oncology medication or doing training courses at the SUN oncology centre in Egypt were conducted by the researcher in this study. The interviews last approximately 30 to 45 minutes in duration. Questions for participants are presented in appendices 14, 15, and 16. At the same time, a background information sheet for participants (See appendix 12) was distributed during the interviews, which took about 5 minutes to complete.

All interviews were conducted in Arabic, and they were audio-recorded. A semi-structured interview topic guide and participants' questions were developed based on the current literature, our (study one) recent systematic review (Makhlouf et al., 2020), and the study aims to guide the researcher and ensure consistency (Hadi et al., 2017).

In qualitative health research, interviews have probably become a common method of collecting data over the last two decades (Hollway and Wheeler, 2010; Saunders et al., 2016; Green and Thorogood, 2018). Qualitative interviews are defined as a method of conversations directed, more or less, towards the researchers' specific needs for gathering their data (Green and Thorogood, 2018). A research interview can be a way of asking "purposeful questions" and

listening carefully to the interviewee, as this can help the researcher explore the answers further (Saunders et al., 2016). Therefore, interviews can help the interviewer collect reliable and valid data relevant to a specific research question or objective (Saunders et al., 2016).

The aim of the interview is the finding informants' thoughts, feelings, and perceptions. In qualitative research, semi-structured or focused interviews are often applied for data collection. Unlike quantitative research, the questions usually focus on the topic areas or concerns that need to be covered and follow the inquiry lines (Hollway and Wheeler, 2010). As a consequence of cancer and pain related to cancer can be sensitive issues for both patients and their families (Kagawa-Singer, 2011; Silbermann and Hassan, 2011); also, as patients' cultural and belief views and as patients privacy, one-to-one semi-structured interviews with Libyan cancer patients, their caregivers, and Libyan HCPs were conducted by the researcher in this study. The reasons for adopting semi-structured interviews for data collection in this study are presented in the following sub-section.

2.4.2.5.7 Semi-structured interviews

In semi-structured interviews, the researcher should prepare a list of themes and possibly some key questions to be covered (Saunders et al., 2016). The order of questions can be varied dependent on the flow of conversation during the interview. A semi-structured interview has the advantage of great flexibility, so an additional question can be added, as this may be needed to explore a specific research question in a particular area (Saunders et al., 2016). This can enable the researcher to access new areas and make their data richer by discovering issues and concerns that were not covered before (Pope and Mays, 2006). Saunders et al. (2016) stated that *"the nature of the questions and the ensuing discussion mean that data will be captured by audio-recording the conversation or perhaps note-taking"* (p.391). However, the concern issue in this interview is that time consuming, as a long time can be taken to conduct and analyse the data (Bryman, 2016).

It has been argued that the collection of data in a qualitative study is best achieved using audio and/ or video recording (Barker et al., 1994; Polgar and Thomas, 1991), as this can allow all the information that needs to be collected to be free from error and omission (Bottomley, 1998). An audio recorder was used during qualitative data collection to prepare transcripts allowing the interview to be accessible for an independent analysis. Before starting recording, all participants were asked if they were happy using an audio recorder, and their consent was taken. The interviews were conducted in the participants' language (Arabic) to express their feelings as much as possible without hesitation (Rice and Ezzy, 1999).

The interviews also have disadvantages, such as being time-consuming and expensive (Bryman, 2016; Denscombe, 2014). However, within this study, the number of participants was reasonably small (36 participants), and there were sufficient resources and time. Another disadvantage can be related to practical considerations affecting data collection. For example, when the interview takes place in a hospital, the interview could be disrupted by medical staff as the hospitals are always busy, so a quiet location for the interview cannot always be found (Hollway and Wheeler, 2010). Manderson et al. (2006) stated that the social context interviews could affect the relationship between research and researcher. Therefore, all interviews were conducted in a private, quiet room. Another consideration considered when transcribing and analysing the data from interviews was that it is time-consuming. It was stated that the transcription of one hour of tape recording usually takes between 5 and 6 hours to be completed (Bryman, 2016).

2.4.2.5.7.1 Justification of using the semi-structured interview

There are many circumstances in gathering data using a semi-structured interview (Dawson, 2009). One of these is the purpose of the research (Saunders et al., 2016). Semi-structured interviews can be included in the research design when a researcher is undertaking a study that provides an exploratory element (Saunders et al., 2016; Dawson, 2009). The semi-structured interview was a good fit with the current research for many reasons: Firstly, semi-structured interviews

combine the strengths and eliminate the weaknesses of either exclusively structured or exclusively unstructured interviews. Secondly, such an interview is the most commonly used approach in health research for qualitative data gathering (Gill et al., 2008).

Furthermore, semi-structured interviews enhance the validity of responses because of their flexibility and opportunity, which can help probe further during the interview sessions (Langdrige, 2007). Moreover, it enables an in-depth meaning and insight, and understanding of the participant's perception or experience of one target research subject (Gill et al., 2008; Britten, 1999; Sheppard, 2004; Berg, 2007; Denscombe, 2014). This is consistent with the aim of study two in this thesis, which was to explore and understand Libyan HCPs', patients', and caregivers' views considering cancer pain and its management. Dawson (2009) justified using semi-structured interviews as they offer the opportunity to explore new areas that were not previously considered by working through pre-set questions and the questions produced from a participant's responses. This was another reason for adopting a semi-structured interview for this study by the present researcher.

2.4.2.5.8 Pilot study for qualitative interviews

A pilot study can be defined as “*a small-scale version of the planned study, trial runs of planned methods, or miniature versions of the anticipated research in order to answer a methodological question(s) and to guide the development of the research plan*” (Prescott and Soeken, 1989, p. 60). To avoid or minimise issues that might arise during data collection, it is essential to conduct a pilot study as it helps refine the elements of instruments required for data collection (Bryman, 2016). This test also helps to ensure the questions included in the research instruments are reorganised and straightforward for both the researcher and target participants (Saunders et al., 2016).

Kuforiji (2017) stated the importance of conducting a pilot study because it served as an opportunity for the researchers to gain skills by practicing the interview and

to note the strengths and weaknesses of the employed methods to allow appropriate arrangements or modifications to be made. Such a pilot study can increase the researcher's competency, and it provides an opportunity for enhancing interview techniques. The current researcher conducted a pilot study, and he attended an online course titled "Interviewing Skills" before starting study two in this thesis.

2.4.2.5.9 Qualitative data analysis

There are many different ways to analyse qualitative data (Lacey and Luff, 2001; Green and Thorogood, 2004; Easterby-Smith et al., 2012). The selection of an appropriate method is guided by the study's objectives (Smith and Firth, 2011). It has been specified that choosing a particular method for analysing qualitative data depends mainly on "*what the researcher wants to find out*" (Easterby-Smith et al., 2012, p.163). In this qualitative study, the researcher aimed to explore Libyan HCPs,' patients,' and caregivers' views about cancer pain and its management. Qualitative data analysis can be broadly divided into three categories: Sociolinguistic methods (discourse and conversation analysis), grounded theory, and thematic analysis (Smith and Firth, 2011). Thematic analysis has been defined as "*a method for identifying themes and patterns of meaning across a dataset in relation to a research question*" (Braun and Clarke, 2013, p.175). The researcher chose thematic analysis to analyse the collected data in this study, using the approach of Braun and Clarke (2006). The justification for using thematic analysis in this study is discussed in detail in the next subsection.

2.4.2.5.9.1 Justification for using thematic analysis

The reasons for selecting thematic analysis rather than Interpretative phenomenological analysis or other techniques were that thematic analysis is a method rather than a methodology. Furthermore, as it is "*rigorous thematic approach can produce an insightful analysis that answers particular research questions*" (Braun and Clarke, 2006, p.97). Moreover, thematic analysis is a very flexible approach; thus, it can be applied in all studies regardless of theoretical and epistemological perspectives (Braun and Clarke, 2006; Wilson and

MacLean, 2011; Howitt and Cramer, 2017). Additionally, thematic analysis is an easy and accessible method to apply because it does not need technical knowledge and thorough theoretical approaches and methods as grounded theory (Braun and Clarke, 2006; Wilson and MacLean, 2011). Besides, this analysis method offers a rich and in-depth narrative of data as it depends on the manifest and latent meaning of data for creating themes (Joffe and Yardley, 2004; Braun and Clarke, 2006).

In contrast, Interpretative phenomenological analysis aims to describe the meaning of the lived experience of a specific phenomenon (Smith and Shinebourne, 2012). Alternatively, content analysis is concerned with frequencies of occasions of specific categories, which has a tendency towards the quantitative end of the continuum of qualitative data (Dawson, 2002; Krippendorff, 2018; Vaismoradi et al., 2013). Conversely, discourse analysis aims to understand how individuals use a language to create and enact activities and identities (Weiss and Wodak, 2007). However, grounded theory analysis builds a theory about a specific social phenomenon (Green and Thorogood, 2018). Thus, based on all the reasons mentioned above and comparisons among approaches, it can thus be suggested that thematic analysis is the most appropriate method to analyse the collected data in study two in this thesis.

2.4.2.5.9.2 Process of data analysis

Although thematic analysis is widely used, there is no consensus on how to undertake such an approach rigorously (Braun and Clarke, 2006). Thus, there are various ways to conduct thematic analysis (Alhojailan, 2012; Javadi and Zarea, 2016), which means that there is also some misperception about the nature of the thematic analysis. For example, it is distinct from a content analysis (Vaismoradi et al., 2013). It is recognised that in order to know the practical aspects of how to do qualitative analysis, clear guidance is needed (Clarke and Braun, 2013). The thematic analysis offers a clear and practical framework for guiding the researcher to thematic analysis (Maguire and Delahunt, 2017). To guide, identify, and interpret patterns of meaning within the qualitative data analysis, a six-step process proposed by Braun and Clarke was used by the

researcher in this study (Braun and Clarke, 2006). These phases are Familiarisation, coding, searching, reviewing themes, defining themes, and interpretation. For more details about the process of thematic analysis (See Table 2.4). Braun and Clarke's guidelines have been considered the most systematic guide for conducting thematic analysis (Gray, 2014; Maguire and Delahunt, 2017; Howitt and Cramer, 2017; Green and Thorogood, 2018).

Once the recording ended, the audio-recorded interviews were transcribed into Arabic by a professional transcriber. After finishing all data analysis, only the sections of the datasets included (information that was needed) in the data analysis was translated from Arabic into English by the researcher, and all data (information needed) was translated back (from English to Arabic) by a legal expert translator, to ensure reliability and validity. To manage thematic data analysis and help analyse, shape, organisation, and code the data generated, NVivo plus V12 software was used (Creswell, 2013b). To enhance validity, another two supervisors cooperated in the coding process and discussed the iterative development of the themes (Boyatzis, 1998).

Table 2-4 The process of data analysis (thematic analysis)

Phases	Description of the process
1- Familiarising:	Familiarisation with the data is the first and the most important step in conducting thematic analysis. The present researcher familiarised himself with the data in several ways: Firstly, the interviews were conducted by the researcher, which made him more familiar with the data; Secondly, each transcript was checked against the main interview recording to check the accuracy of the transcription, providing more in-depth information about the data; and finally, the researcher read and re-read the interview transcripts before formally beginning the coding of data
2- Coding:	Generating initial code is <i>“the most basic segment, or element of the raw data or information that can be assessed in a meaningful way regarding the phenomenon”</i> (Boyatzis, 1998, p.63). Data were coded using NVivo plus V12 software. Line-by-line coding was applied to code individual transcripts, and the coding outline was checked independently by the researcher and his supervisors for validity, one of whom was an experienced qualitative researcher (S.A.). The process of coding continued until all the transcripts were coded.
3- Searching:	The process began with searching for themes. Once all the interviews were coded, the duplicate codes were eliminated, and relevant data emerged from individual interviews; then, the researcher searched for potential themes.
4- Reviewing themes:	The researcher checked if the themes work in relation to code. Thus, different codes were sorted into potential themes. The relevant data extracts were collated within these potential themes. As the new themes emerged, old ones were reviewed and sometimes renamed in light of the emergence of new themes. Mind maps were used for collating codes into themes. Once the initial set of potential themes was developed, then the process of reviewing and, if required, amending the themes began.
5- Defining themes:	Similar themes were combined; other themes were either divided or renamed if needed. To increase our results' dependability, the researcher described and discussed detailed themes with his supervisors. Then refined and discussed them (themes) again to ensure consistency in the interpretation of the data.
6- Interpretation:	As with other forms of data analysis, writing qualitative results was the final step. The findings are presented in detail in Chapter 4. Data extracts have also been provided to demonstrate the prevalence of themes and sub-themes. The Consolidated Criteria for Reporting Qualitative research (COREQ) criteria were applied to maintain research quality and guide the reporting of the findings in this study (Tong et al., 2007).

Source: Adopted from Braun and Clarke (2006).

A deductive approach was initially employed to organise and analyse the data according to themes identified a priori, followed by an inductive approach to identify emerging themes. Line-by-line coding was applied to code individual transcripts, and the coding outline was checked independently by the researcher and his supervisors for validity, one of whom was an experienced qualitative researcher.

Once duplicate codes were eliminated, and relevant data emerged from individual interviews, the researcher started searching for potential themes. Similar themes were combined; other themes were either divided or renamed if

needed. To ensure more reliability and validity, two supervisors, S.A. and M.B., frequently cooperated and guided the researcher (S.M.) during the coding and analysis processes and regular discussion about emerging themes (Boyatzis, 1998; Carnevale, 2002).

Data analysis also involved consistent cross-referencing between the participants for comparisons based on gender, age, and educational status. NVivo 12 Plus was used to analyse the Arabic transcripts; these were not translated into English to avoid any meaning loss through translation and ensure reliability and validity (Twinn, 1997; Al-Amer et al., 2015). The researcher analysed the data and wrote his interpretation of it in English. Key quotes to support this interpretation were translated into English. To increase our results' dependability, the researcher described and discussed detailed themes with his supervisors (S.A. and M.B.) (Lincoln and Guba, 1986), then refined and discussed them again to ensure consistency in the interpretation of the data. To ensure rigour and trustworthiness of study findings, debriefing and providing "thick description" methods were utilized (Green and Thorogood, 2018; Shenton, 2004). To strengthen our results regarding confirmability and credibility, the data source triangulation technique was applied by using several groups of oncology department staff who are working in different Libyan hospitals and oncology centres, with different roles (Shenton, 2004). The Consolidated Criteria for Reporting Qualitative research (COREQ) criteria were applied to maintain research quality and guide the reporting of the findings in this study (Tong et al., 2007). (See appendix 36).

2.4.2.6 Validity and reliability of the qualitative study

The validity and reliability of qualitative data and its findings are common issues mainly associated with this method. For example, when a specific data collection passes the validity and reliability tests, this means that an instrument would be considered a good measure (Dikko, 2016). Validity has been defined as a concern about whether the research findings were really about what they appeared to be about (Saunders et al., 2015b). According to Neuman (2013), assessment validity represents the 'truthfulness' of the tools applied in specific research. Different criteria have been used to assess the quality of qualitative

research (Patton, 2002). The main principles in qualitative studies, which can be used to ensure validity and reliability, are credibility (internal validity), consistency (reliability), and transferability (external validity) (Morse et al., 2002; Leung, 2015; Grossoehme, 2014; Franklin and Ballan, 2001).

2.4.2.6.1 Credibility (internal validity)

According to El-Fallah (2014), credibility refers to conducting a specific study confidently that ensures the truth value of targeted data and its interpretation. Two elements were suggested for achieving study credibility: enhancing the believability of the findings when conducting the study and relevant measures to ensure that the study's credibility is demonstrated to the readers (Lincoln and Guba, 1985). The current study provides the study design, adopted research methodology, and methods and justifies using them to achieve these recommendations. Furthermore, volunteers who were knowledgeable about the research topic and settings were recruited to ensure the credibility of the generated data. Moreover, the questions for the interviews were piloted to increase the credibility of this study. Kvale (2007) stated that the interview schedule should contain prompts, as this can help reduce the interview bias, and it also assists the researcher in avoiding asking leading questions, which can lead to bias in the answers. In the current qualitative study, the interview transcripts' quotes were used in the findings and presented transparently. To ensure confidence in the reliability of the results, a straightforward step-by-step process from data collection to data analysis was shown to the readers. For additional lending credibility to qualitative data, data gathering and analysis were thus simultaneous and iterative (Giacomini and Cook, 2000; Mays and Pope, 2000).

2.4.2.6.2 Consistency (Reliability)

Consistency refers to whether the study's data collection techniques or analysis procedures could be replicated and obtain consistent findings (Bowling, 2014; Saunders et al., 2015b). Bowling (2014) added that although reliability is not appropriate for all parts of the study, the rigour of tools and the analytical methods used in the study if repeated would lead to consistent results. In study two (qualitative study) in the thesis, semi-structured interview topic guides were

developed based on the existing literature and our systematic review (Makhlouf et al., 2020), and the study aims to guide the researcher and ensure consistency (Hadi et al., 2017). Furthermore, to avoid bias and to ensure consistency of collected information, the same investigator (SM) conducted semi-structured face-to-face interviews with Libyan patients, caregivers, and HCPs, and the findings were reviewed by the other two supervisors (SA and MB) (Morse et al., 2002). Moreover, NVivo 12 Plus was used to analyse the Arabic transcripts; these were not translated into English to avoid any meaning loss through translation and ensure reliability and validity (Twinn, 1997).

2.4.2.6.3 Transferability (external validity)

In the research, transferability refers to the extent to which the findings could be transferable to other similar settings (Tobin and Begley, 2004). Similarly, in qualitative studies, the transferability is that the current results should transfer to other participants (El-Fallah, 2014). Lincoln and Guba (1985) stated that providing adequate descriptive data is required to help others (readers) who might use it to evaluate applicable data in similar contexts. In the current qualitative study, the researcher provided a detailed and profound description of the study findings to help readers use the relevant results in their context. Study methodology and methods, including study design, sampling and recruitment, study settings, data collection, and analysis, were also detailed to enhance transferability. This was suggested by Willig (2013), who stated that providing detailed descriptions of the study would fit another situation, as such detailed descriptions would allow the readers to decide which study findings apply to the broader population.

2.4.3 Quantitative Study (study three)

2.4.3.1 Study question

What are the attitudes, level of knowledge, and perceived barriers related to the Libyan healthcare professionals (HCPs) towards cancer pain management (CPM)?

In order to answer this question, the following sub-questions need to be achieved:

Q1. Do nurses' and physicians' perceptions, beliefs, and lack of knowledge about cancer pain and opioids affect CPM in Libya?

Q2. Is there any difference between Libyan nurses and doctors regarding attitudes and knowledge towards CPM?

Q3. Do Libyan HCPs, who had training and/or education in CPM have adequate knowledge and positive attitudes about CPM?

Q4. Does work experience in Libyan cancer care settings enhance HCPs' knowledge and attitudes towards CPM?

Q5. Do HCPs in Libya have more barriers towards CPM than HCPs in other countries?

2.4.3.2 Study aims and objectives

The study aims to evaluate further nurses' and physicians' knowledge, attitudes, and perceived barriers regarding cancer pain and its management in Libya. To achieve this aim, the following objectives are required:

- i. To determine nurses' and physicians' perceptions, beliefs, and knowledge about cancer pain and opioids for CPM in Libya.
- ii. To identify the differences between Libyan nurses and doctors regarding attitudes and knowledge towards CPM.
- iii. To determine whether Libyan HCPs, who had training and/or education in CPM have adequate knowledge and positive attitudes towards CPM.
- iv. To determine whether or not work experience in cancer care settings enhances Libyan nurses' and physicians' knowledge and attitudes about CPM.
- v. To determine whether Libyan oncology HCPs have more barriers towards CPM than HCPs in other societies.

2.4.3.3 Survey Hypotheses

Table 2-5 Illustration of hypotheses for this study

H	Independent variable (s)	Dependent variable (s)	Hypothesis
H1	HCPs' perceptions and knowledge	CPM	Nurses' and physicians' perceptions and knowledge about cancer pain and the role of opioids for CPM might impact CPM in Libya
H2	HCPs' beliefs	CPM	Libyan physicians and nurses might believe cancer pain is challenging to be relieved
H3	Nurses' and doctors' attitudes and knowledge	CPM	There might be a difference between Libyan nurses and doctors regarding attitudes and knowledge towards CPM
H4	Training; Education	Attitudes; Knowledge	Libyan HCPs, who had training and/or education in CPM might have adequate knowledge and positive attitudes about CPM
H5	Work experience	Knowledge; Attitudes	Work experience in cancer care settings likely enhances Libyan HCPs' knowledge and attitudes towards CPM
H6	Libyan HCPs; other HCPs	Barriers to CPM	Doctors and nurses in Libya may have more barriers towards CPM than HCPs in other countries

2.4.3.4 A quantitative method

A quantitative method design involves numerical data, and it is usually used to investigate relationships between variables and produce a statistical analysis (Saunders et al., 2016). This method can be appropriate when information or knowledge is already available, having been collected via a questionnaire or survey (Creswell, 2009). Saunders et al. (2016) highlighted that the quantitative method is useful for generalising the results to a broader target population. The quantitative approach allows the researchers to make broad generalisations and familiarise themselves with the investigated topic (Morris, 2011). In study three within this study, a quantitative method was adopted as the nature of study three's research question in this study is in line with such a method.

2.4.3.4.1 Justification of the need for a quantitative method

The quantitative method was needed in this thesis for the following reasons: Firstly, study three (quantitative method) was needed to generalise the qualitative findings (study two) and minimise the researcher bias. Secondly, it has been

stated that selecting a research method should be based on the nature of the research questions (Teherani et al., 2015; Creswell and Poth, 2018). The nature of study three's research question in this study was "What are the attitudes, level of knowledge, and perceived barriers related to the Libyan HCPs towards CPM?". This question is in line with the quantitative studies, which aim to answer these kinds of research questions (Creswell and Poth, 2018). Thirdly, according to that statement, the research philosophy should be considered while identifying the research method throughout conducting a specific study (Almohaimmeed, 2012; Matthews and Ross, 2010; Tuli, 2010). The positivist paradigm has been adopted in study three (quantitative study) in this mixed-methods design, one of the paradigms that can be applied within quantitative methods (Bhattacharjee, 2012a; Matthews and Ross, 2010; Neuman, 2013).

Furthermore, choosing a particular research method is usually directed by the type of data that needs to be collected to answer specific questions (Almohaimmeed, 2012). Study three in this study required structured data (numerical data), which can help statistically test the hypothesis of HCPs' attitudes, level of knowledge, and potential barriers towards CPM, and this can be done using a quantitative method (Bowling, 2014; Gray, 2018). Moreover, the data collected via the questionnaire in study three need to be tested using statistical analysis, which cannot be achieved without a quantitative method (Creswell, 2013c; Robson and McCartan, 2016).

2.4.3.4.2 Exploratory quantitative design

It has been argued that the researchers can use exploratory design when investigating a new phenomenon, event, or behaviour, which has not been explored yet, and the researcher knows little or nothing about such phenomenon (Neuman, 2013; Saunders et al., 2015a; Malhotra et al., 2017). That is consistent with the aim of study three in this thesis, which was to evaluate HCPs' knowledge, attitudes, and potential barriers regarding CPM in Libya. This thesis is considered a mixed-methods design involving descriptive and exploratory designs with a pragmatic paradigm (Johnson and Onwuegbuzie, 2004; Morgan, 2007; Yvonne Feilzer, 2010).

2.4.3.4.2.1 The rationale for adopting exploratory quantitative design

The aim of exploratory studies seeks to investigate a new specific phenomenon, behaviour, or event, which has not been explored yet, and the researcher knows nothing or little about it (Neuman, 2013; Saunders et al., 2015b). The current quantitative study (study three) was considered exploratory research as there was not enough known about the existing phenomenon and the problem has not been investigated yet (Saunders et al., 2009). Study three aims to line with the purpose of exploratory design: to evaluate nurses' and physicians' knowledge, attitudes, and potential barriers to cancer pain and its management in Libya.

According to Saunders et al. (2015b), exploratory research is needed to gain insights and familiarity for a later investigation or it can be undertaken when a research problem is in a preliminary stage of its investigation. An exploratory design has an open character that highlights flexibility and pragmatism, which are needed to answer “what” questions when investigating a new research question (Maanen et al., 2001). It has been stated that exploratory research questions can be designed to help the researchers understand more regarding a specific topic of interest (Neuman, 2013; Saunders et al., 2015b). Consequently, the exploratory design appears to be the best option for study three in this thesis as it is consistent with the central question and sub-questions of study three in this thesis. Thus, the current researcher argues that exploratory quantitative design is the proper research design for study three.

2.4.3.4.3 The process of recruiting

All potential oncology physicians and/or nurses were recruited via clinic-known persons or survey coordinators (normal staff oncology physicians, i.e., not senior or manager staff) at each national cancer institute or centre in Libya. After receiving ethical approval from the School of Medicine Research Ethics Committee, the University of Leeds (See appendix 30), and the Libyan oncology settings (See appendices 22, 23, 24, 25, and 26), the researcher sent an invitation letter (See appendix 29), the approved letters, and the survey (See appendix 35) via Dropbox to the survey coordinators at each national cancer institute and centre. Each survey coordinator gave the study an information sheet

to a responsible person. (See appendix 28). The participants put the completed questionnaires in private boxes for data collection.

2.4.3.4.4 Quantitative data collection

Data collection takes up to 5 months between the 15th of November 2020 and the 1st of April 2021. The two most common research designs can collect quantitative studies, including surveys and experiments (Bowling, 2014; Neuman, 2013; Saunders et al., 2015b). The survey was more appropriate for collecting data in study three than the experiment, as the survey is usually used for gathering detailed data about participants in order to describe, explain, and or compare individual's knowledge, attitudes, thoughts, and perceptions towards a specific phenomenon (Bhattacharjee, 2012a; Gray, 2018). This is in line with the aim of study three (quantitative study), which was to evaluate HCPs' knowledge, attitudes, and potential barriers regarding cancer pain and its management in Libya. An experiment investigates causal relationships between two variables by separating independents, such as causes, from dependent variables like effects (Bhattacharjee, 2012a; Bryman, 2015). Thus, the survey was adopted to be used in study three. More details on the justification for using the BQ-II questionnaire in this study are outlined in sections 2.4.3.4.8 below.

2.4.3.4.5 Description of the inclusion and exclusion criteria

The inclusion criteria are Libyan oncology nurses and doctors working in oncology settings in Libya. The HCPs with at least six months of experience in cancer care settings. Another inclusion criterion is that participants can give written or verbal consent to participate in this study. Nursing students and medical students practicing in oncology settings were excluded from this study as they may not have sufficient experience and knowledge.

2.4.3.4.6 Participants and setting

A cross-sectional survey was carried out with a convenience sample of 152 eligible participants (oncology nurses and physicians) working in several

oncology settings (n= 6), which were located in three different regions of Libya (Eastern, Northwestern, and Western). These are Tobruk Medical Centre (TMC), Benghazi Medical Centre (BMC), National Cancer Centre Benghazi (NCCB), National Cancer Institute of Misratah (NCIM), National Oncology Institute of Sabratha (NOIS), and Tripoli Medical Centre (TMC). After receiving ethical approval from the School of Medicine Research Ethics Committee, University of Leeds, the U.K., and relevant settings in Libya, the targeted participants were recruited by survey coordinators (oncology physicians) between November 2020 and April 2021. The response rate was 76%. To minimise the bias, all participants were recruited through survey coordinators (normal staff oncology physicians, i.e., not senior or manager staff) at each national oncology setting in Libya. The researcher sent the questionnaires and information sheets via Dropbox to the survey coordinators at each national oncology setting in Libya. Each survey coordinator printed and distributed the questionnaires with an information sheet to all potential participants (100%), as the researcher instructed to minimise the potential bias. After the questionnaires were completed, the participants (oncology nurses and physicians) put the completed questionnaires in the secure boxes themselves. Then the survey coordinators scanned and uploaded all completed questionnaires into Dropbox and sent them straightway to the researcher via Dropbox. After all, questionnaires were sent, each coordinator was ensured to safely delete the copies and shred all original copies.

2.4.3.4.7 Quantitative sample size

It has been stated that identifying the sample size is a crucial step, which the researcher should carefully take into account (Malhotra et al., 2017), as it can be challenging to identify the sample size owing to the lack of rules when using non-probability sampling techniques (Saunders et al., 2015b). The power of the Precision programme was used to calculate the sample size in this study (Borenstein et al., 2001) to ensure the survey had sufficient ability to examine all included objectives in this study. According to Guadagnoli and Velicer (1988), a sample size between 100 and 150 is recommended, especially when the internal consistency for an instrument is expected to be at 0.60 and above. In the current study, the internal consistency for the overall BQ-II scales was higher ($\alpha = 0.90$)

than recommended, indicating an excellent internal consistency for the overall BQ-II scales (Kline, 2015). The sample size of participants for this survey was estimated to be about 200 oncology nurses and physicians working in oncology settings in Libya. For this cross-sectional survey, 185 (93%) HCPs responded. Of those 185, 160 (87%) participants returned the questionnaires (via secured boxes) to the survey coordinators. Eight of the returned questionnaires were excluded as many (40% – 70%) answers were missing. Thus, 152 (76%) valid questionnaires were eligible for use in this study for statistical analyses.

2.4.3.4.8 Justification of using the BQ-II questionnaire

The Barriers Questionnaire II (BQ-II) has been adopted and modified into study three in this thesis for data collection. The justification for using this survey was: Firstly, the questionnaire is the most common method for collecting primary data in quantitative studies (Creswell, 2009). Secondly, this particular BQ-II questionnaire has been widely used to collect data to assess concerns about cancer pain and the use of pain medication for CPM among both patients and HCPs groups (Lou and Shang, 2017; Gunnarsdottir et al., 2008; Al Qadire, 2011b). This is in line with the aim of study three (quantitative study) in this thesis, which was to evaluate HCPs' knowledge, attitudes, and potential barriers regarding CPM in Libya. Furthermore, surveys are suitable as they enable the researchers to examine the relationships between multiple variables, and such survey methods can make comparisons among specific groups (Neuman, 2013; Howitt and Cramer, 2017). This is the case of study three in this thesis, which tests the effect of three independent variables (HCPs' perceptions and beliefs, attitudes, level of knowledge, and potential barriers) on two dependent variables (CPM and total BQ-II scores and its subscales), and compare these relationships between two groups (oncology nurses and oncologists) to test the moderating effect of eight variables (Age, gender, profession, marital status, educational level, training, work experience, and using WHO for CPM). Moreover, a survey is suitable for collecting data from a large sample in a wide range with a target population (Bhattacharjee, 2012a).

Additionally, the survey has been chosen as it has a high degree of generalisability because it involves a large sample size that can be collected from a field of a particular context (Neuman, 2013). Study three of the current thesis requires collecting the data from a sample of 200 participants from multiple centres in Libya's broad region (Eastern, Western, and North-western). The current researcher aims to generalise the results of study three in this thesis to the Libyan population for improving CPM in Libya. Lastly, compared to other methods, the survey is an appropriate method in terms of cost and time, as it enables the researcher to collect essential data within a short time and at a low price (Zikmund et al., 2013).

2.4.3.4.9 Questionnaire (Survey)

It has been stated that questionnaires are the most common method that can be used for data gathering in quantitative studies (Creswell, 2009). There are many advantages of using questionnaires as a research instrument, including it is easy to arrange and can save both time and money compared to other methods like interviews (Denscombe, 2014). The Questionnaire also offers less affected by interpersonal factors and more degree of anonymity (Bowling, 2014). In contrast, questionnaires have some disadvantages, such as they might be affected by many biases, including response bias (Zikmund et al., 2013). Another drawback is that the response rate can be low compared with other methods; some participants might find the questions within the questionnaire are not clear enough for them, which can lead to misleading in establishing direct associations among the variables (Denscombe, 2014). To avoid disadvantages of the questionnaire, such as response bias, it has been recommended that the researcher should make the questions understandable, interpretable, and readable (Sharpe et al., 2015). Hence, study three in this thesis adopted a widely used, well-validated questionnaire, the Barriers Questionnaire II (BQ-II) (Gunnarsdottir et al., 2002; Al Khalailah and Al Qadire, 2012b; Gunnarsdottir et al., 2005; Saifan et al., 2019).

There are two types of surveys: a cross-sectional survey and a longitudinal survey (Saunders et al., 2016). Each of these two surveys can be conducted based on the time-based dimension. For example, the researcher, who uses a

cross-sectional survey, gathers the data from the participants only in one phase at one specific time. In a longitudinal study, the researcher collects the data from the participants more than once on different occasions (Saunders et al., 2016; Neuman, 2013).

The Barriers Questionnaire (B.Q.) was developed by Ward et al. (1993), and it was revised and renamed the Barriers Questionnaire II (BQ-II) (Gunnarsdottir et al., 2002; Gunnarsdottir et al., 2008), which was used for data collection in study three of this thesis. The BQ-II consists of 27 multiple-choice questions (self-report questionnaire) divided into four subscales: physiological effects, fatalism, communication, and harmful effects. Permission was obtained from Ward to use the BQ-II in this survey. (See appendix 39). Furthermore, an Arabic version of BQ-II has been permitted by Al Qadire to be used in study three of this thesis. (See appendix 40). The survey items are measured on a 6-point Likert scale, which shows how much the participant agrees with the target statement. For instance, '0' means "do not agree," and '5' means that the participant "agreed very much" (Lou and Shang, 2017). (See appendix 34). This self-report questionnaire assesses concerns about cancer pain and using pain medication for CPM (Lou and Shang, 2017). It also evaluates the attitudinal barriers towards CPM (Gunnarsdottir et al., 2002). Mean scores for the BQ-II overall scale and subscales are used as dependent (outcome) variables for analyses, with higher scores (rating 3 or above: > 50%) indicating greater attitudinal barriers and poorer knowledge about CPM. Items 1, 8, and 24 in subscale (fatalism) were reverse scored before starting data analysis. Minor changes were made, such as the word patient/s was used instead of the phrase "you and I" to fit this study's purpose. Answers "mostly agree" and "agree" were merged into the category "agree very much," indicating barriers to effective CPM. (See appendix 31).

The questionnaires were sent via Dropbox to survey coordinators (oncology doctors), who helped distribute the questionnaires and explained and assisted with filling in forms for any participant needing help. The participants have recruited through oncologists' survey coordinators at each cancer institute or centre in Libya. The questionnaire takes up to 10 minutes to be completed. At the

same time, the background information sheet for participants was distributed during the survey, which took about 5 minutes to complete. After the questionnaires were completed, the survey coordinators (oncology physicians) sent back all the completed questionnaires and background information sheets to the researcher via a secured Dropbox.

2.4.3.4.10 Pilot study for survey

The BQ-II is a reliable and valid instrument to measure patient, family caregiver, and HCPs-related barriers to CPM in several studies (Gunnarsdottir et al., 2005; Gunnarsdottir et al., 2002; Saifan et al., 2019). Based on the findings from Gunnarsdottir et al. (Gunnarsdottir et al., 2005), there is the initial evidence of both the reliability and validity of the BQ-II. It is a well-known questionnaire, as it has been validated and used in different studies (Gunnarsdottir et al., 2002; Saifan et al., 2019) in different languages, including Arabic (Saifan et al., 2019). According to Al Khalaileh and Al Qadire (2012b), the BQ-II was *"translated into Arabic and verified using the back-translation approach, and a linguistic expert was consulted to ensure that the translation was adequate."* (p.2). This approach is well-known as it is usually used when translating such survey instruments (Brislin, 1986). An Arabic version of the BQ-II has been validated and used in previous studies (Saifan et al., 2019; Al Khalaileh and Al Qadire, 2012b). It has been recommended to test an instrument before using it in a study that involves a new target population (Bhattacharjee, 2012a). Thus, a draft of this questionnaire has been discussed with experts (supervisors) who critically evaluate it (Neuman, 2013). After that, an Arabic version of the BQ-II was pilot tested (with eight participants who were included in the study) before distributing the questionnaire to all study participants to ensure readability. The current researcher reported the psychometric properties for the Arabic version of BQ-II, using response data from the entire final sample size; $n = 152$ participants, including test-retest reliability ($r > 0.80$) and internal consistency reliability (the Cronbach's Alpha) for the overall BQ-II scales for HCPs was excellent ($\alpha = 0.90$) and Alpha for the three factors ranging from 0.74 – 0.85. (See appendix 33). Using a well-validated questionnaire, such as the BQ-II, would improve the internal validity.

2.4.3.5 The credibility of the study

The validity and reliability are two criteria that have been operationalised to ensure the credibility of this study.

2.4.3.5.1 Validity of survey

Validity has been described as "*whether the findings are really about what they appear to be about*" (Saunders et al., 2009, p. 157). In other words, it is usually applied by the researchers to ensure the data collection methods precisely measure the research purpose, the measurements including content validity, criteria validity, and construct validity (Malhotra et al., 2012). In this study, content validity (content validity of questionnaire items) was the most significant concern of the present researcher. The content validity was strengthened by ensuring the questionnaire's items and language were tested. In the current study, the items in the questionnaire were considerably referred from prior items, which Gunnarsdottir et al. (2002) used to test attitudinal barriers towards CPM. Furthermore, It is a well-known questionnaire, as it has been validated and used in different studies (Gunnarsdottir et al., 2008; Lin and Ward, 1995; Al Qadire, 2011b; Al Khalaileh and Al Qadire, 2012b; Xhixha et al., 2013; Jafari et al., 2019), in different languages, including Arabic (Al Qadire, 2011b; Al Khalaileh and Al Qadire, 2012b; Saifan et al., 2019). In this study, an Arabic version of the BQ-II has been validated and used in previous studies (Al Qadire, 2011b; Al Khalaileh and Al Qadire, 2012b; Saifan et al., 2019). According to Al Khalaileh and Al Qadire (2012b), the BQ-II was "*translated into Arabic and verified using the back-translation approach, and a linguistic expert was consulted to ensure that the translation was adequate.*" (p.2). This approach is well-known as it is usually used when translating such survey instruments (Brislin, 1986).

2.4.3.5.2 Reliability of survey

Reliability is a necessary consideration in any study, as it ensures consistency of specific results to be generated and represented again when conducting similar data collection methods by other researchers or at a different place (Saunders et al., 2009). In the current study, the researcher tries to be as transparent as

possible by explaining how the data were collected, processed, and analysed and the research approach exerted on this study to ensure reliability. According to Malhotra et al. (2012), the reliability of a study refers to specific research that should be free from random errors. Robson and McCartan (2016) stated that to compromise the reliability of the study, random errors could result from either “subject error or participant error” or “subject bias or participant bias.”

In order to alleviate the random errors, Cronbach’s alpha was applied to assess the level of internal consistency among the total scale (27-items) BQ-II and its subscales and the observed variables, which need measurement (Bhattacharjee, 2012a). (See Table 2.6). The ideal cut-off point to indicate a good convergent validity and reliability for a specific item has been highlighted as 0.70 or higher (Hair et al., 2010). Cronbach’s alpha values for each item in the BQ-II and its four subscales were considerably higher than the cut-off point of 0.70. In study three of the current study, Cronbach’s alpha values ranged from 0.74 for the BQ-II subscale for (fatalism) to 0.85 for the BQ-II subscale (communication) in BQ-II subscales. In study three of this thesis, Cronbach’s alpha for the total BQ-II scales (27 items) was excellent ($\alpha= 0.90$). This indicated an excellent internal consistency in this study for all BQ-II scales, good for three subscales (physiological effects, communication, and harmful effects) and acceptable for one subscale (fatalism) (Kline, 2015). Cronbach’s alpha for each existing variable in the current study was examined using SPSS, version 26. Interpreting Alpha for the Likert scale question and interval scale are presented in appendices 33 and 34, respectively.

Table 2-6 Internal consistency for BQ-II and its subscales

Dimension	Cronbach’s Alpha	No. of items
All BQ-II items	0.90	27
Physiological effects	0.80	12
Fatalism	0.74	3
Communication	0.85	6
Harmful effects	0.84	6

2.4.3.6 The response rate for the survey

The data collection process for this survey started on 15th November 2020 and ended on 1st April 2021. The data were recruited from six oncology departments

and centres across Libya. As shown in Figure 2.3 below, 200 eligible HCPs (Oncology nurses and physicians) were invited to participate in this survey. Among those 200 participants, 185 (93%) HCPs accepted participating in the study. Of those 185, 160 (87%) participants returned the questionnaires to the survey coordinators. Eight of the returned questionnaires were excluded, as many answers were missed. Thus, 152 valid questionnaires were eligible to be used in study three of the current study for statistical analyses. The percentage of respondents, which is calculated after returning all valid questionnaires from targeted eligible people invited to participate in specific research, is called the response rate (Zikmund et al., 2013). The current study's response rate was 76% (152/200). According to Neuman (2013), response rates that range between 68% and 75% are appropriate for academic organisations; thus, the response rate in the current study is considered good.

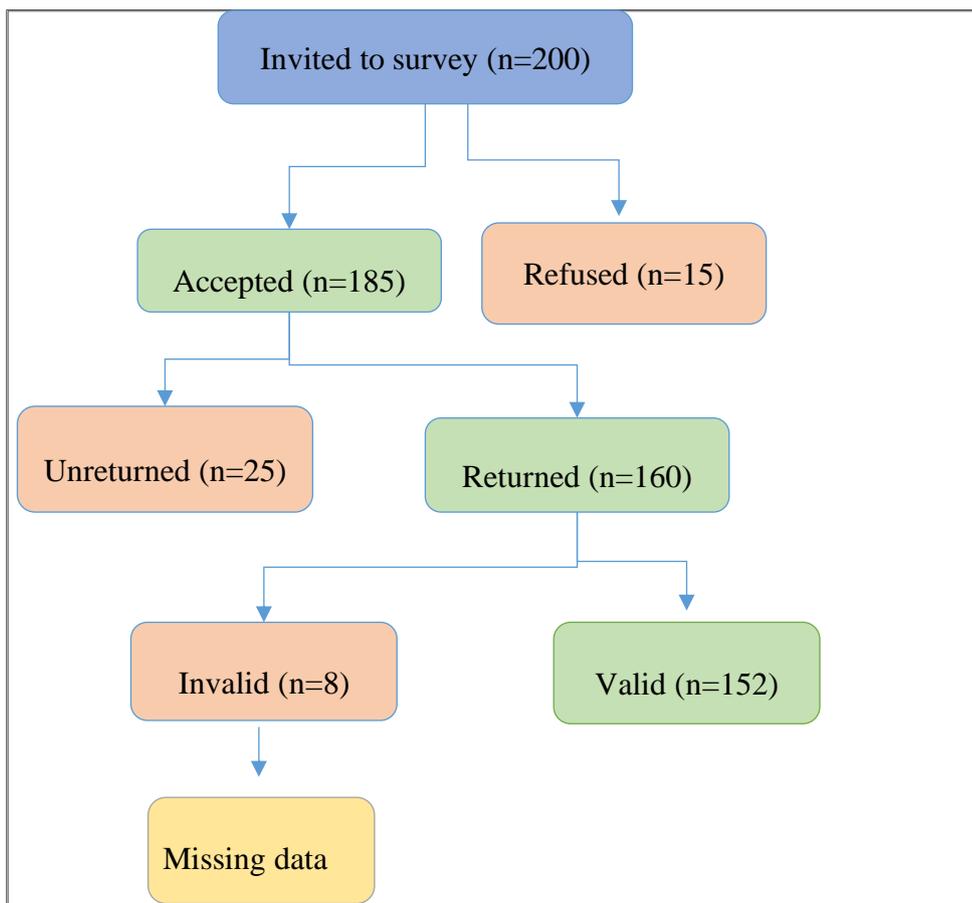


Figure 2-3 Response Rate

2.4.3.7 Quantitative data analysis

Two different ways can be used to analyse quantitative data. These are descriptive analyses, which can summarise and describe participants' and variables' characteristics statistically. Another way is that inferential analysis is utilised to test hypotheses statistically and validate theories (Bhattacharjee, 2012a). Descriptive and inferential statistical tests were used to analyse the quantitative data in this study.

Descriptive statistics were used to analyse demographic information, including age, gender, profession, marital status, educational levels, training, work experience, and WHO for CPM. Categorical data are summarised as numbers (proportion), and continuous data are summarised using means (standard deviation) and range. Inferential analyses included an independent t-test and multiple linear regression analysis to analyse the relationship between dependent (outcome) and independent (cause) variables (Bhattacharjee, 2012a). The statistical significance level was set at a 2-sided $p < 0.05$. Data coding and analysis were carried out using Statistical Package for Social Sciences (SPSS), version 26 software. Since this is an exploratory study, the researcher does not intend for readers to treat the results as definitive, and as such, the current researcher does not make corrections/adjustments for multiple testing.

2.5 Ethical considerations

The principle of ethical consideration is to protect the interests of research participants (Eide and Kahn, 2008). Health researchers follow ethics that aim to protect participants from any risk or harm and apply professional rules in codes of conduct and guidelines for research (Hollway and Wheeler, 2010). The current study received ethical approval from the School of Medicine Research Ethics Committee, University of Leeds, UK, for study two (MREC 18-064) and study three (MREC 20-005). The approval letters for both studies are presented in appendices (17) and (30).

2.5.1 Ethical procedure

2.5.1.1 Researching sensitive subjects

Cancer and pain can be sensitive issues for both patients and their families to discuss. Furthermore, asking participants questions about their views, knowledge, attitudes, or life experiences may generate emotional responses that the researcher should acknowledge. Therefore, the researcher ensured that the participants were okay by asking if they were fine, interviewees who appeared to be distressed were asked if they would prefer to end the interview, and the researcher offered tissues and water if needed.

2.5.1.2 Informed consent

In order to obtain informed consent for study two in this thesis, three recommended conditions were achieved. First, adequate information about the study was given to the participants, second, consent was obtained voluntarily, and third, the target participants were individuals with mental capacity (Gray, 2018; Matthews and Ross, 2010; Bhattacharjee, 2012a). The current researcher ensured that participants' autonomy was respected by requiring informed consent - see appendix (13). Furthermore, all participants were given information sheets - see appendix (11) for study two and appendix (27) for study three, including everything about the study. For study three, as the questionnaires were short and did not collect sensitive information, consent was implied through the completion and return of the questionnaire. Hence, completion of the questionnaire indicates informed consent.

2.5.1.3 Anonymity

In order to make sure anonymity was applied in this study, all participants' identities were not connected with their responses. Consequently, no one, including the researcher, can identify participants personally in the study (Bhattacharjee, 2012a). Although it has been stated that the best way to protect participants' anonymity is by not collecting personal data (e.g., name, telephone number, or address) (Gray, 2018), it was difficult to not collect personal data in

this study as participants' names were needed to match the collected data. However, all personal data were anonymised before the data analysis. Any quotation that was used was also anonymised, and an effort was made to exclude any associated information that could be used to identify the participant, such as context elements.

2.5.1.4 Confidentiality

In this study, the data confidentiality was protected in several ways: Firstly, all the interviews were taken in a private room for participants' privacy and confidentiality at the SUN oncology centre, Egypt. Secondly, the interviews were recorded using an encrypted audio recorder just for the study purpose, and consent for using an audio recorder was required. Finally, as all participants were volunteers, they had the right to withdraw consent from the study at any time during the interview. However, participants could only withdraw their data from the study up to one week after the interview, after which withdrawal was no longer possible because their data were anonymised and embedded in our data analysis.

In study three, the questionnaires were kept in a locked-in office at each hospital; the coordinators scanned and uploaded the questionnaires into Dropbox. And then, the questionnaires were sent to the researcher via Dropbox. Both Dropbox and OneDrive are secure, but Dropbox has been chosen for two reasons: Firstly, the supervisor has recommended it. Secondly, it is familiar and easy for some survey coordinators, and it is easy to upload. After the questionnaires were sent back to the researcher, each coordinator safely deleted the uploaded copies and shredded all original copies.

2.5.1.5 Data Storage

The interview questions, participants' demographic forms, and signed consent forms were stored separately, either in a locked cabinet on University premises or scanned and saved to the University M drive (shredded paper copies). The interviews were recorded using an audio recorder, and consent for that was taken. The researcher has complied with the University of Leeds policy for

"Safeguarded Data-Storage, Backup, and Encryption." Contact details forms were shredded after completing the interviews. Audio data were removed from the audio device and moved into a personal laptop, encrypted, password-protected, and stored securely. Transcription was carried out in a private space. All personal identification information was removed during transcription. All transcriptions were stored in an encrypted laptop, and the complete transcripts will only be accessible to the researchers. The questionnaires and participants' demographic forms for study three were stored securely and saved to the University OneDrive on an encrypted, password-protected personal computer. The researcher complies with the University of Leeds policy for "Safeguarded Data-Storage, Backup, and Encryption." Contact detail forms were shredded after completing the study. Nobody has access to data except the researcher and supervisors via the secure OneDrive system.

Chapter 3

Managing Pain in People with Cancer– a Systematic Review of the Attitudes and Knowledge of Professionals, Patients, Caregivers, and Public

3.1 Introduction

This chapter reviews evidence regarding attitudes and knowledge about cancer pain and its management obtained from HCPs, patients, caregivers, and the general public. It will aim to determine the nature and impact of attitudes and knowledge towards CPM.

Firstly, the chapter introduces the results of a systematic review (SR) in section 3.2, including information sources and study selection and characteristics of included studies in sub-sections 3.2.1 and 3.2.2, respectively. Secondly, in sub-section 3.2.3, the overall results of included studies are presented.

3.2 Systematic Review Findings

3.2.1 Information sources and study selection

The total number of studies identified by six electronic databases (the Cochrane Library, MEDLINE, PsycINFO, CINAHL, Web of Science, and EMBASE) was 6830 articles (See appendix 1). More details about initial search terms that led to the identification of 6830 articles are presented in Table 2.3 in Chapter 2. In addition, 17 studies were identified by hand-searching (including Google, Google Scholar, and checking reference lists of relevant studies). (See Chapter 2 research methods and methodology). After removing duplicate studies, a total of 5650 articles remained.

Five thousand five hundred twenty-three studies were excluded after each study's title and carefully reviewed abstracts. (See Table 2.2 summary of inclusion and exclusion criteria in Chapter 2). The total number of full-text articles which were

then assessed for eligibility was 133. At this stage, 97 studies were excluded for different reasons; 42 articles were excluded because they were not related to attitudes and knowledge towards CPM, 35 studies were excluded as they were not associated with cancer pain or opioid analgesics, and 6 studies were not published in English, 5 studies as they involved adolescents and children with cancer pain, 5 articles as not based on a cross-sectional design, 2 studies as the same data were used in another included study, 1 paper was a Letter to the editor (not enough information was stated), and 1 study as the full text could not be sourced. (See Table 3.1). All full references to the excluded articles and reasons for exclusion are listed in appendix (5). Consequently, a total number of 36 studies were included in this review, as illustrated in Figure 3.1. An updated search was needed to see if any more relevant studies were published between 2018 and 2022. A new search for relevant studies between 2018 and 2022 resulted in 2142 articles. After screening based on inclusion and exclusion criteria (See Table 2.2 in Chapter 2), no study has been included since 2018.

Table 3-1 Number of articles excluded and the reason for exclusion

Number of articles excluded: n = 97	Reason for exclusion
42	They were not related to attitudes and knowledge towards CPM
35	They were not associated with cancer pain or opioid analgesics
6	Not published in English
5	They involved adolescents and children with cancer pain
5	Not based on a cross-sectional design,
2	The same data were used in another included study
1	A Letter to the editor (not enough information was stated)
1	The full text could not be sourced

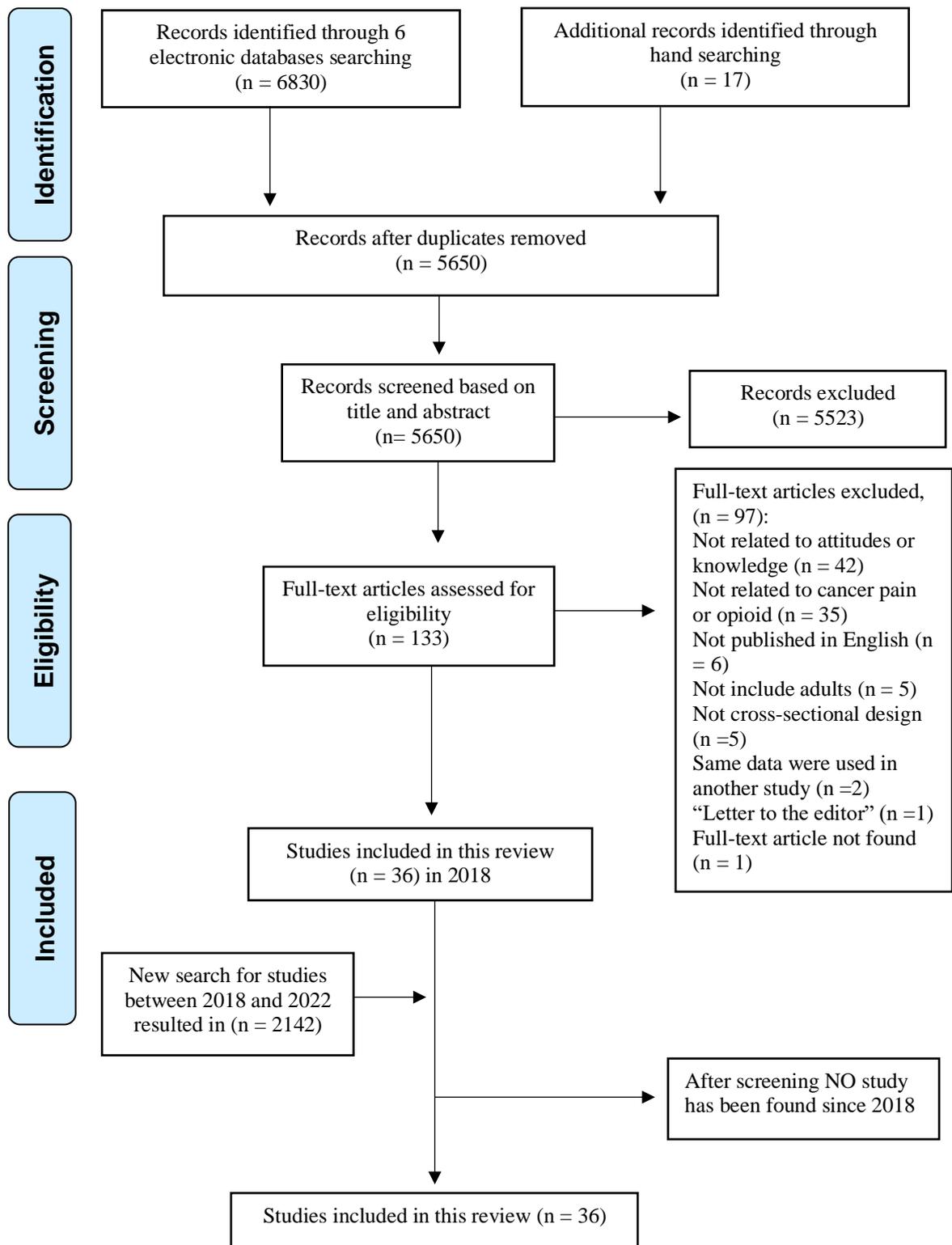


Figure 3-1 PRISMA diagram for the strategy of the study selection

Source: Adapted from Moher et al. (2009).

3.2.2 Included studies

All 36 studies identified in this review used a cross-sectional design, employing various questionnaires to assess knowledge of and attitudes towards CPM. The studies were based in 18 countries: United States (n = 10), Iran (n = 3), China (n = 3), Turkey (n = 2), Taiwan (n = 2), Israel (n = 1), Korea (n = 2), Saudi Arabia (n = 1), South Korea (n = 1), Canada (n = 1), France (n = 2), Thailand (n = 1), United Kingdom (n = 1), Italy (n = 1), Jordan (n = 1), Columbia (n = 1), Ethiopia (n = 1), Norway (n = 1), and one study was international (n = 1; included Australia, Japan, Spain, Canada, and the US). Thirteen studies (36.11%) used established/validated questionnaires as detailed below (Bernardi et al., 2007b; Yildirim et al., 2008; Kassa and Kassa, 2014; Shahriary et al., 2015; Darawad et al., 2017b; Utne et al., 2018; Elliott and Elliott, 1992b; Von Roenn et al., 1993; Lin et al., 2000; Vallerand et al., 2007b; Lou and Shang, 2017; Riddell and Fitch, 1997; Cohen et al., 2005). Six studies (16.7%) used the same questionnaire: the Knowledge and Attitudes Scale (NKAS) (Bernardi et al., 2007b; Yildirim et al., 2008; Kassa and Kassa, 2014; Shahriary et al., 2015; Darawad et al., 2017b; Utne et al., 2018). Physician Cancer Pain Questionnaire was used in 2 studies (5.5%) (Elliott and Elliott, 1992b; Von Roenn et al., 1993), and three articles (8.3%) used Barriers Questionnaire (BQ) (Lin et al., 2000; Vallerand et al., 2007b; Lou and Shang, 2017). The Patient Pain Questionnaire (PPQ) was used in 2 studies (5.5%) (Riddell and Fitch, 1997; Cohen et al., 2005). Whereas 4 studies (11%) used questionnaires designed specifically for the questions of their studies: Two studies (5.5) used the North Carolina Cancer Pain Initiative (NCCPI) survey (O'Brien et al., 1996; Hollen et al., 2000). A cross-sectional telephone survey was used in one study (2.7%) (Elliott et al., 1995). A self-administered questionnaire designed based on the Health Belief Model (HBM) was also used in 1 study (2.7%) (Shahnazi et al., 2012). (See Table 3.2). Nineteen studies (52.7%) did not state which questionnaire was used.

Twenty-seven studies (75%) focused on HCPs' knowledge and attitudes towards cancer pain and opioids for CPM (McCaffery and Ferrell, 1995; O'Brien et al., 1996; Hollen et al., 2000; Wells et al., 2001; Bernardi et al., 2007b; Yildirim et al., 2008; Kassa and Kassa, 2014; Furstenberg et al., 1998; Von Roenn et al., 1993; Elliott et al., 1995; Larue et al., 1995; Elliott and Elliott, 1992b; Ger et al., 2000a;

Breuer et al., 2011a; Gallagher et al., 2004; Jeon et al., 2007; Eftekhar et al., 2007a; Yanjun et al., 2010a; Kim et al., 2011; Shahnazi et al., 2012; Kaki, 2011; Srisawang et al., 2013; Jho et al., 2014; Shahriary et al., 2015; Darawad et al., 2017b; Zhang et al., 2015; Utne et al., 2018). Three studies (8.33%) focused only on cancer patients, and 4 studies (11.11%) focused on both patients and their family caregivers (Riddell and Fitch, 1997; Cohen et al., 2005; Colak et al., 2014b; Elliott et al., 1996; Lin et al., 2000; Lou and Shang, 2017; Vallerand et al., 2007b), and only two studies (5.56%) focused on the general public (Levin et al., 1985; Larue et al., 1999). A more recent qualitative study was found by hand-searching (De Silva and Rolls, 2011). However, this was excluded as it did not include a cross-sectional design. Summarised included studies addressing HCPs', patients,' caregivers,' and the general public's attitudes and knowledge towards CPM are presented in Table 3.2 below.

Table 3-2 Summarised studies addressing HCPs', patients', caregivers', and the general public's attitudes and knowledge towards CPM

Author (s), year, and country	Study design	Study aim	Study participants	Study setting	Mean age	Sex ratio	Measurements	Type of Cancer	Main finding	Quality Scoring
Breuer et al., (2011), New York, the US	Cross-sectional method	To evaluate the attitudes, knowledge, and practices of US medical oncologists related to CPM	482 Oncologists	The American Medical Association's Physician Master File	56 years	Male 80%, female 20%	Not stated	N/A	The most important barriers to CPM were poor pain assessment and patient reluctance to take opioids or report pain. Other barriers included physician reluctance to prescribe opioids and perceived excessive regulation. In response to two vignettes describing challenging clinical scenarios, 60% and 87% endorsed treatment decisions that pain specialists would consider unacceptable. Frequent referrals to pain or palliative care specialists were reported by only 14% and 16%, respectively.	6/7
Ger et al., (2000), Taiwan	Cross-sectional method	To examine the attitudes of MDs regarding the optimal use of analgesics for CPM, to evaluate their knowledge and attitudes towards opioid prescribing	204 Oncologists	Two medical centres, Kaohsiung Veterans General Hospital (KSVGH) and Tri-Service General Hospital (TSGH) in Taiwan.	36.4 years	Males 95% and females 5%	Not stated	N/A	The most important barriers to optimal CPM identified by physicians themselves were physician-related problems, such as inadequate guidance from a pain specialist, inadequate knowledge of CPM, and inadequate pain assessment. The results of his study suggest that active analgesic education programs are urgently needed in Taiwan.	6/7
Zhang et al., (2015), China	Cross-sectional method	To evaluate physicians' current practice, attitudes towards, and knowledge of cancer pain management in China.	500 physicians	11 medical facilities in China.	< 35 - ≥ 35 years	Male: 45.4%, female: 54.6%.	Not stated	N/A	About 32.6% of physicians assessed pts' pain rarely, and 85.5% never or occasionally treated patients' CP together with psychologists. More than 50% of physicians indicated that opioid dose titration in pts with poor pain control and assessment of the cause and severity of pain were urgently needed knowledge for CPM. Inadequate assessment of pain and PM (63.0%), pts' reluctance to take opioids (62.2%), and inadequate staff knowledge of PM (61.4%) were the three most frequently cited barriers to physicians' CPM.	4/7
YanJun et al., (2010), China	Survey	To determine the degree of physician knowledge on morphine use and the factors that impede morphine use in clinical practice in China.	201 physicians	4 hospitals in China	Not stated	Not stated	Not stated	N/A	Physicians who reported having received training in CPM and drug use demonstrated a significantly higher mean score of basic knowledge compared to physicians who reported not having received training (9.31 ± 2.88 : 8.23 ± 2.70 , $u = 2.74$, $p < 0.001$). The top three cited impediments to the widespread clinical use of morphine for cancer pain were: (1) lack of professional knowledge and training (57.2%); (2) fear of opioid addiction (48.7%); and (3) physicians' personal preferences to select other drugs (46.0%).	6/7
Von Roenn et al., (1993), The US	Cross-sectional method	To determine the amount of knowledge about CPM among physicians practicing in ECOG-affiliated institutions and to determine the methods of pain control being used by physicians.	897 physicians	The Eastern Cooperative Oncology Group (ECOG).	Not stated	Not stated	PCPQ	N/A	Concerning the use of analgesics for cancer pain in the United States (n = 864), 86% of the respondents thought that the majority of patients with pain are undermedicated, although 13% thought that most patients receive adequate pain treatment. Most of the sample (67%) thought that at least 50% of the cancer patients they treat had pain at some point during their illness. Physicians estimated that almost one-half of cancer patients (48%) had pain for more than 1 month.	7/7
Elliott et al., (1995), The US	Cross-sectional method	To determine knowledge and attitudes about CPM among physicians in six Minnesota communities and to determine the physician-related barriers to CPM.	145 physicians	The Minnesota Cancer Pain Project (MCPPI)	Not stated	Male 89.7%, female 10.3%	CTS, PSI	N/A	A significant lack of knowledge was identified in nine of 14 CPM principles, but inappropriate attitudes were found in only two of nine CPM concepts. Medical especially had the strongest influence on knowledge and attitudes, with primary care physicians having significantly better outcomes than surgeons or medical subspecialists	7/7

Table 3-2 Summarised studies addressing HCPs', patients', caregivers', and the general public's attitudes and knowledge towards CPM

Author (s), year, and country.	Study design	Study aim	Study participants	Study setting	Mean age	Sex ratio	Measurements	Type of Cancer	Main finding	Quality Scoring
Eftekhari et al., (2007), Iran	Cross-sectional method	To evaluate knowledge about and attitudes towards cancer pain and its management in Iranian physicians with patient care responsibilities.	55 physicians	Six university hospitals in Tehran.	37 years.	54.6% male responders.	Not stated	N/A	Physicians recognised the importance of PM priority (76%), and about one-half of the physicians acknowledged the problem of inadequate PM in their settings. Inadequate staff knowledge of PM as barriers to good PM. No correlation was found between what physicians think they know and what they know about cancer pain and its management.	4/7
Elliott and Elliott, (1992), State of Minnesota, the US.	Cross-sectional method	To explore the prevalence among practicing physicians of 12 proposed myths or misconceptions about the use of morphine in CPM.	150 physicians	Direct patient care in Duluth, Minnesota. 47 different medical schools located in 31 states, Canada, and England.	Not stated	It is not stated.	PCPA	N/A	Many physicians misunderstood concepts of morphine tolerance, both analgesia (51%) and side effects (39%). Various were unaware of the use of adjuvant analgesics (29%), the efficacy of oral morphine (27%), and the non-existent risk of addiction in CPM (20%).	7/7
Kim et al., (2011), South Korea	Cross-sectional method	To evaluate young Korean physicians' attitude towards the usage of analgesics for CPM and their optimal knowledge of opioid prescription. Also wanted to find out the real factors that affect the attitude and knowledge of doctors.	1204 physicians	National Cancer Centre, Goyang-Si, Gyeonggi-do, South Korea	29.9+/- 2.2 years	Male 100%	Not stated	gastric, lung, liver, and colorectal malignancies for males and gastric, breast, colon, rectum, uterine cervix, lung, and thyroid gland malignancies for females	A large sample of physicians showed a negative attitude and inadequate knowledge status about CPM. The degree of attitude and knowledge status was different from their specialties and personal experiences. The factors that affected doctors' attitudes and knowledge were: 1) medical specialty, 2) history of using a practical pain assessment tool, 3) self-perception of knowledge status about PM, 4) experience of prescribing opioids, and 5) experience of education for CPM. Although many physicians had a passive attitude in prescribing analgesics, they are willingly open to using opioids for CPM in the future. The most important perceived barriers to optimal CPM were the fear of the risk of tolerance, drug addiction, side effects of opioids, and knowledge deficit about opioid	7/7
Gallagher et al., (2004), British Columbia	survey	To acquire current data on physician knowledge and attitudes towards CPM as an educational needs assessment for the UBC Division of Palliative Care. Also, to solicit physicians' opinions about the TPP's possible effect on CP prescribing.	4,618 physicians	Palliative Care at the University of British Columbia, the BC Cancer Agency, and the College of Physicians /Surgeons of BC.	Not stated	Male 67.9% Female 27.9%	Not stated	N/A	The results show that 12% of MDs agreed with the knowledge question that any Pt who is given opioids for CPM is at a 25% or more risk for addiction. The highest percent of 80.6% disagreed that morphine for CPM shortens life but makes people more comfortable. The questions most frequently answered incorrectly (or by "don't know") were those about equianalgesic dosing (68%) and adequate breakthrough dosing (45%), revealing that lack of knowledge about CPM would significantly impair a physician's ability to manage CP.	6/7
Larue et al., (1995), France	Cross-sectional method	To assess physicians' estimates of the prevalence of pain among patients with cancer, their practice in prescribing analgesics, their training in CPM, and the quality of care received by cancer patients in their practice and France.	900 physicians	Telephone by professional interviewers	< 35 for ONCs and PCPs.>45 for ONCs and PCPs.	Female oncologists 36.3% and Female Primary care physicians 17.0%.	Not stated	N/A	Although 85% of primary care physicians and 93% of medical oncologists express satisfaction with their ability to CPM, 76% of primary care physicians and 50% of medical oncologists report being reluctant to prescribe morphine for CPM. Both groups cited fear of side effects, poor tolerance, perceptions that other effective drugs are available, perceptions that morphine has a poor image in public opinion, and the constraints of prescription forms contribute significantly to physicians' infrequent prescription of morphine, as are being female) and being an older oncologist.	4/7

Table 3-2 Summarised studies addressing HCPs', patients', caregivers', and the general public's attitudes and knowledge towards CPM

Author (s), year, and country.	Study design	Study aim	Study participants	Study setting	Mean age	Sex ratio	Measurements	Type of Cancer	Main finding	Quality Scoring
Wells et al., (2001), Scotland, the UK	Cross-sectional method	To assess the knowledge and attitudes of nursing and medical staff working in a surgical unit before and after working with a newly established Hospital PC team.	101 physicians and nurses	a surgical unit, Hospital Palliative Care Team	34 years	Male: 22%, and female: 78 %	Not stated	N/A	At baseline, 24% of staff showed a lack of knowledge and a poor attitude towards the risk of addiction to morphine. Regarding poor tolerance, at the follow-up time point, only 14% demonstrated a lack of knowledge. At follow-up, 34% (compared with 50% at baseline) still believed that increased doses of opioids were needed because opioids became ineffective over time. Although 25% of all staff still lacked knowledge about the risk of respiratory depression at follow-up, this was a significant improvement from the 56% who demonstrated a lack of knowledge at baseline. At baseline, a fairly high proportion of staff appeared to believe the pain was a part of advanced cancer (38%).	4/7
Jho et al., (2014), Korea	Cross-sectional method	To evaluate knowledge, practices, and perceived barriers regarding CPM among physicians and nurses in Korea.	333 physicians and nurses	11 hospitals (6 public and 5 private hospitals) across Korea.	33.2 years for physicians and 29.0 years for nurses.	Physician, 61.5 % male, 38.5 % female. Nurses, 0% for male and 100% female.	Not stated	N/A	Nurses performed pain assessment and documentation more regularly than physicians did. Although physicians had better knowledge of PM than did nurses, both groups lacked knowledge regarding the side effects and pharmacology of opioids. Physicians working in the palliative care ward and nurses who had received PM education obtained higher scores on knowledge.	6/7
Jeon et al., (2007), Korea	Cross-sectional method	To assess clinicians' practices and attitudes about CPM and to identify perceived concerns about and barriers to pain control in urban cancer-treatment settings in Korea.	250 physicians and nurses	seven hospitals in Korea	Not stated	Male 42.8%, Female 57.2%	Not stated	N/A	The result shows that Both groups identified 90.6% concerned that difficulty in controlling strong side effects is the biggest potential barrier to good pain control. Also, they identified inadequate assessment of pain and pain management with 78.5% as the second biggest potential barriers to good pain control. 64.5% of both groups stated inadequate staff knowledge of PM.	6/7
Darawad et al., (2017), Jordan	Descriptive Cross-sectional method	To compare physicians' and nurses' knowledge and attitudes towards cancer pain management (CPM) and describe their perceived barriers to CPM at cancer units.	207 physicians and nurses	Oncology units from the military, educational, oncology centre, and public sectors in Jordan.	Physicians: 30.5 and Nurses: 28.1,	Nurses (M: 54.8%; F: 45.2%); physicians (M: 61.1%; F: 38.9%).	KAS	N/A	Findings revealed that Physicians had significantly higher adequate knowledge and better attitudes towards CPM than nurses (62.3% vs. 51.5%, respectively). Physicians were knowledgeable about medication for CPM and opioid addiction but had negative attitudes towards CPM. Nurses' knowledge was better in regard to CPM guidelines, while they had poor knowledge about CPM and opioid addiction.	5/7

Table 3-2 Summarised studies addressing HCPs', patients', caregivers', and the general public's attitudes and knowledge towards CPM

Author (s), year, and country.	Study design	Study aim	Study participants	Study setting	Mean age	Sex ratio	Measurements	Type of Cancer	Main finding	Quality Scoring
Furstenberg et al., (1998), State of New Hampshire, the US	Cross-sectional method	Evaluate the knowledge and attitudes of all three types of providers directly involved in caring for cancer Pts.	554 physicians, pharmacists, and nurses.	Research and Development Committee of the New Hampshire State CP Initiative	43.4 years	Male 44%, Female 56%	Not stated	N/A	The results are generally consistent with results from other studies of physicians, nurses, and pharmacists in terms of knowledge of and attitudes towards CPM, perceived barriers to effective CPM, and lack of training in CPM. In contrast to some earlier studies. However, providers in this sample were not concerned about addiction among CPs. Lack of knowledge about CPM was found across providers.	6/7
Srisawang et al., (2013), Thailand	Cross-sectional method	To assess the knowledge and attitudes physicians and policymakers have regarding the use of opioids for CPM.	266 Physicians and policymakers	300 hospitals in Thailand	40 years	Physicians: male 57.5%, female 42.5%; Policy makers: male 40.4%, female 59.5%.	Not stated	N/A	Of the physicians, 62.1% had inadequate knowledge, and 33.8% had negative attitudes. Physicians who did not know the WHO three-step ladder were more likely to have less knowledge than those having used the WHO three-step ladder (OR = 13.0, $p < 0.001$). Policymakers also had inadequate knowledge (74.5%) and negative attitudes (66.0%). Policymakers who never had CPM training were likely to have more negative attitudes than those having had training within less than one year (OR = 35.0, $p = 0.005$). Lack of training opportunities and periodic shortages of opioids were the greatest barriers to opioid availability for physicians and policymakers, respectively.	6/7
Yildirim et al., (2008), Turkey	Cross-sectional method	To examine information about the knowledge and attitudes of Turkish oncology nurses regarding CPM.	68 nurses	Oncology & haematology units in two university hospitals located in Izmir, Turkey	25 years	Not stated	NKA SRP	N/A	The findings showed that Turkish oncology nurses have inadequate knowledge and poor attitudes about CPM. Out of the 39 pain questions examined, the mean score for correctly answered items was 13.81 (35.41% correct answer rate). Compared with earlier research using the same tool. Only 8.8% of oncology nurses correctly identify that less than 1% of patients who receive opioids for pain relief will develop an addiction, and 91.2% erroneously believe that addiction will occur in patients. Most nurses (97.1%) incorrectly believed more patients over-report their pain.	7/7
Utne et al., (2018), Norway	Cross-sectional method	To survey knowledge and attitudes to pain and PM among nurses and to explore various demographic variables and knowledge level	312 nurses	Forum for Cancer Nursing	45 years	Female: 98.4%, male: 1.6%	NKA SP	N/A	Norwegian nurses had a mean NKAS total score was 31 points (75%), indicating a relatively high level of knowledge and good attitudes towards pain in cancer care. Significant associations were found between NKAS total score and PM course ($p = 0.01$) and workplace ($p = 0.04$). Nurses in cancer care in Norway have relatively good pain knowledge. The potential for improvement is the greatest with regard to pharmacology and nurses' attitudes to how patients express pain.	7/7

Table 3-2 Summarised studies addressing HCPs', patients', caregivers', and the general public's attitudes and knowledge towards CPM

Author (s), year, and country.	Study design	Study aim	Study participants	Study setting	Mean age	Sex ratio	Measurements	Type of Cancer	Main finding	Quality Scoring
Shahnazi et al., (2012), Iran	Cross-sectional method	To obtain information about the knowledge and attitudes of nurses concerning CPM	98 nurses	Alzahra educational hospital in Isfahan, Iran.	38.7 +/- 7.04 years	Male 18.4%, female 81.6%.	HBM	N/A	From the 10 CP knowledge and attitude questions assessed, the mean number of correctly answered questions was 61.2 (SD =16.5) and 63 (SD =11), with a range of 30–100 and 35-95, respectively. There was a direct correlation between knowledge and attitude of nurses with Health Belief Model (HBM) constructs except for perceived barriers and perceived threats. Among the HBM constructs, the highest score was related to self-efficacy, with a mean score of 87.2 (SD =16.4). The average correct response rate for nurses was 66.6%, ranging from 12.1% to 94.8%. The nurses' mean score on the knowledge and attitudes survey regarding PM was 28.5%. Results revealed that the mean percentage score overall was 65.7%. Only 8.6% of nurses obtained a passing score of 75% or greater. Widespread knowledge deficits and poor attitudes towards CPM were noted in this study	6/7
Shahriari et al., (2015), Iran	Cross-sectional method	To determine the baseline level of knowledge and attitudes of oncology nurses regarding CPM	58 nurses	Shahid Sadoughi hospital, oncology units, Yazd, Iran	33.5 years	100% female	NKASP	N/A	Knowledge scores for the three subscales revealed that nurses who had worked with CPs were more knowledgeable than those who did not work with CPs. The total knowledge score for nurses caring for CPs was 18.47 and 15.88 for nurses not caring for CPs ($t = -6.19, p < 0.001$). Attitude towards PM was for nurses caring for CPs. The average was 3.52. A liberal attitude was reported more often by nurses caring for one or more CPs ($X^2 = 3.9, df = 1, p < 0.05$).	5/7
O'Brien et al., (1996), North Carolina, the US	Cross-sectional method	To describe the knowledge and attitudes of North Carolina nurses towards CPM. The analysis focused on knowledge, attitude, and perception of barriers to PM.	340 nurses	The North Carolina, hospital settings	52 years	Male 3%, Female 97%.	NCCPI	N/A	Prevalence of pain: higher % from nurses in Spain 94.8% and lower % was only 49% of nurses in Japan. Over-reporting of pain: Nurses from Japan reported an extremely high degree of misconception, with 28.9% responding that 80% - 100% of CPs over-report their pain. Incidence of addiction: Roughly 20%-30% of nurses from each country reported the likelihood of addiction as 5%. The % was even higher at 50.9% for Japanese and Spanish nurses at 54.7%. Initiation of opioids: Canadian nurses reported the highest correct response with 93.2%, while was only 51.2% in Japanese nurses. Appropriate use of analgesics: widespread misconceptions in this area, with only 51.2% of nurses from Spain and 61.6% of Japan compared to 71.5% of Canadian and 66.3% of American nurses who selected morphine for CPM.	7/7
McCaffery and Ferrell, (1995), Australia, Canada, Japan, Spain, and the US.	Cross-sectional method	To address nurses' knowledge and attitudes about pts' reports of pain, the prevalence of CP, the preferred route of administration for analgesics, the preferred choice of opioids, initiation of treatment, dosing schedule, and knowledge about addiction	1,428 international nurses from 5 countries	Pain programs in Western, Eastern, Midwestern, & southern, sts in the USA, Pain programs in Australia, pain programs in Canada, palliative care in Japan, and nurses had lectures In Spain	Not stated	Not stated	Not stated	N/A		3/7

Table 3-2 Summarised studies addressing HCPs', patients', caregivers', and the general public's attitudes and knowledge towards CPM

Author (s), year, and country.	Study design	Study aim	Study participants	Study setting	Mean age	Sex ratio	Measurements	Type of Cancer	Main finding	Quality Scoring
Kassa and Kassa, (2014), Ethiopia	Cross-sectional method	To assess the attitude, the practice of nurses' and barriers to CPM	82 nurses	1 public and 4 private health institutions provide cancer treatment in Addis Ababa, the capital city of Ethiopia.	42 years	Male 22%, female 64 78%.	NKARSP	N/A	More than half, 53.7%, of the nurses' have a negative attitude towards CPM. Similarly, 65.9% of nurses had poor CPM practice. The identified barriers to adequate pain management were lack of courses related to pain in the undergraduate classes, lack of continuing training, patient and work overload, role confusion, lack of motivation, and salary.	6/7
Hollen et al., (2000), South Central State. The US	Cross-sectional method	To identify knowledge strengths and weaknesses and misperceptions about CPM among nurses	64 nurses	7 adult hospital oncology units and 11 hospices in a South-Central State.	45 for hospice nurses and 40 for hospital nurses.	It is not stated.	NCCPI	N/A	Hospice nurses ($X = 24.71$, $SD = 2.27$) scored significantly higher on the total knowledge test than the hospital oncology nurses $X = 20.76$, $SD = 3.77$; $t(60) = 5.09$, $p < 0.05$. Hospice nurses also scored significantly higher than hospital nurses on opioid subscale $t(61) = 5.52$, $p < 0.05$ and scheduling subscale $t(62) = 3.77$, $p < 0.05$. Regarding attitudes, hospice nurses also had significantly higher liberalness score ($X = 18.31$, $SD = 1.79$) than hospital nurses ($X = 16.94$, $SD = 2.32$; $t(61) = 2.58$, $p < 0.05$).	5/7
Bernardi et al., (2007), Italy	Cross-sectional method	To obtain information about the knowledge and attitudes of Italian nurses concerning CPM and to determine the nurses' PM knowledge.	287 nurses	Oncology wards in the north, centre and South of Italy	35 years	Male 19.2%, female 78.7%	NKARSP	N/A	The results showed that more than 50% of oncology nurses underestimated the pain of pts, and they, did not treat it in a correct way and had an incorrect self-evaluation about their CPM knowledge. 90.2% of respondents did not know the correct percentage of patients who over-report their pain. Among the 39 questions examined, 23 received less than 60% of the correct answer rate. The mean score for correctly answered items was 21.4 (55% correct answers).	6/7
Kaki, (2011), Saudi Arabia	Cross-sectional method	To assess the final year medical students' knowledge, beliefs, and attitude towards CPM and the need for a formal pain curriculum in medical schools.	325 medical students	King Abdul-Aziz University Hospital, Jeddah, Kingdom of Saudi Arabia	23 years	Males 48.62%, females 51.38%	Not stated	N/A	54 % of the respondents believed that < 40% of CPts suffered from pain. 46 % of them considered CP as untreatable, while 41.6% considered pain as a minor problem, and 58.6% considered drug addiction. There are 23.1% of students believed that pts are poor judges of their pain, 68% of them limited opioids prescribed to pts with poor prognosis, and 77.1% believed that drug tolerance or psychological dependence, rather than advanced stages cancer is the cause of increasing opioid doses. The student's knowledge of the causes of CP, pain clinic rule, and pain inclusion in the medical curriculum was poor.	4/7

Table 3-2 Summarised studies addressing HCPs', patients', caregivers', and the general public's attitudes and knowledge towards CPM

Author (s), year, and country.	Study design	Study aim	Study participants	Study setting	Mean age	Sex ratio	Measurements	Type of Cancer	Main finding	Quality Scoring
Riddell and Fitch, (1997), Canada	Descriptive correlational study	To examine pts' knowledge of and attitudes towards CPM and to identify pts' perspectives and factors related to effective and ineffective pain relief.	42 patients	Oncology facility at a teaching hospital	58.5 years	Female 67%, male 33%.	PPQ	Head/neck, breast, hematologic, female reproductive system, lung, gastrointestinal, male reproductive	The results showed that many pts lacked knowledge of the principles involved in effective CPM and had unrealistic concerns about taking pain medications. Significant negative relationships were found between pain intensity rating and factors such as pts' knowledge of PM, their level of satisfaction with pain relief, and their perception of the goal of PM. Pts identified a number of impediments to effective pain relief, including concerns about drug addiction and side effects.	5/7
Cohen et al., (2005), Israel	Descriptive cross-sectional method	To explore cancer pain experience, including knowledge and attitudes towards pain and pain control.	39 patients	Radiation department and outputs centre of a large academic medical institution in Israel.	73.2 years	Male: 48.7%, Female: 51.3%	PPQK	Lung, Breast: Colon, Other	Over half (56.7%) reported severe worst pain and had negative pain management indexes (56.4%). Knowledge and attitudes towards pain and pain control were poor (54.55%).	7/7
Colak et al., (2014), Turkey	Cross-sectional method	To survey the attitudes of cancer pts towards morphine for CPM and identify the factors that influence pts decisions to accept or refuse morphine for CPM	488 patients	ETH is located in 3 cities of Anatolia: Ankara, Konya, and Kayseri; namely Diskapi Yildirim Beyazit ETH, Kayseri ETH, and Konya	54 years	Female:61.68% Male: 38.32%	Not stated	Breast Colorectal gastric and lung patients.	About 50% of cancer patients refused to use morphine, and 36.8% of them preferred another drug due to fear of addiction. Reservation of morphine for later in their disease was the case for 22.4% of the patients who refused morphine use. Whereas 13.7% of cancer patients refused morphine and 9.7% of them preferred another medication as a result of religious reasons.	6/7
Elliott et al, (1996), The US	Cross-sectional method	To investigate the relationship between specific knowledge and attitudes (cognitive factors) and pts' and caregivers' reports of cancer pain	244 patients and caregivers.	MCCP communities, medical service areas	64 years for cancer patients and 60 years for family members	Cancer patients are 53% female; family members are 62% female.	Not stated	N/A	Patients' and caregivers' reports of patient pain and performance status were highly correlated, although family members consistently reported more pain and disability. Using regression analysis, cognitive factors were strongly related to family reports of patients' pain (R2 = 0.27) but contributed little to explaining pain reported by patients themselves (R2 = 0.06). Assessment of pain for Family members is significantly related to appropriate knowledge and attitudes.	6/7
Lou and Shang, (2017), China	Descriptive Cross-sectional method	To investigate pts' attitudes towards CPM and analyse the factors influencing these attitudes.	726 patients and caregivers	The oncology department of 7 hospitals in Beijing, China	Patients: 54.39+/- 12.72 years. Caregivers : 46.07 +/- 13.26 years.	Patients: 52.34%, female 47.66%, Caregivers : male 45.73%, female 54.27.	BQ-T, PKQ	Lung, oral, nasopharyngeal, oesophageal, gastrointestinal, breast, liver, pancreatic, lymphoma, and (kidney, ureter, bladder, ovarian, uterine.	The average score of attitudes towards CPM for CPs and caregivers through the BQT subscale score ranged from 0-5 were 2.96 ± 0.49 and 3.03 ± 0.49, respectively. The dimension scores for CPs and CGs indicated poor attitudes in six areas (scores ≥2.5), "Tolerance", "Use of analgesics as needed (p.r.n.)", "Addiction", "Disease progression", "Distraction of physicians", and "Side effects". Two factors were entered into the regression equation: the caregivers' attitudes towards CPM and the pts' pain knowledge. These two factors explained 23.2% of the total variance in the pts' average scores for their attitudes towards CPM.	7/7

Table 3-2 Summarised studies addressing HCPs', patients', caregivers', and the general public's attitudes and knowledge towards CPM

Author (s), year, and country.	Study design	Study aim	Study participants	Study setting	Mean age	Sex ratio	Measurements	Type of Cancer	Main finding	Quality Scoring
Lin et al., (2000), Taiwan	Cross-sectional method	To examine caregivers' and pts' attitudes to CPM; to determine the relationship of attitudinal barriers to caregiver hesitancy to report pain and administer opioids, and determine the relationship of barriers to opioids.	160 patients and caregivers	Inpatient palliative care units of two medical centres in the Taipei area of Taiwan	Patients (59.63 +/- 13.76); family caregivers (43.21 +/- 12.88)	Patients: male 47%, female 53%, Family caregivers: Male 27%; Female 73%.	BQ-T, BPI-C	Lung, colorectal, breast, liver, gastric, oral, cervical, and various other types	The five mean scores of the BQ-T subscale score among caregivers, with the highest scores being disease progression, side-effects, p.r.n., tolerance, and addiction. Two attitudinal barriers, 'Constipation from pain medicine is upsetting,' and 'opioids will cause harm to kidneys,' were endorsed by 100% of caregivers. About 12 caregivers (15%) reported their hesitation to report pain in the past month. Those caregivers who had expressed hesitancy to report pain recorded significantly higher scores on the fear of addiction barrier than those who had no hesitancy. Those caregivers who expressed hesitancy in administering opioids recorded significantly higher scores on the barriers, including fear of addiction, side effects, and tolerance, than those who had no reluctance in administering analgesics in the past month.	7/7
Vallerand et al., (2007), Detroit, Michigan, the US	descriptive Cross-sectional method	To determine caregivers' pain knowledge and examine concerns about reporting pain and using opioids for CP	46 caregivers	homecare patients with cancer	55 years	Female 67.4%	BQ, FPQ	N/A	The mean for each subscale of the BQ of caregivers expressing some agreement of concerns was between 1.05 and 2.41. The concerns were barriers to reporting pain and using analgesics, and up to 15% reported having a strong agreement. The greatest concern were opioid-related side effects, fears of addiction, the belief that pain meant disease progression, and tolerance.	7/7
Larue et al., (1999), France	The cross-sectional method, mixed-method	To assess the evolution of the knowledge and attitudes of the French population with respect to pain management and morphine use.	2,007 general population: 1001 general population in 1990 and 1006 general population in 1996	Telephone surveys by professional interviewers, and structured questionnaires	35-44 years	Male 47% in 1990, and 47% in 1996.	Not stated	Not stated.	The respondents' awareness of the occurrence of pain in the course of cancer improved: 65% thought that pain is rare at the early stages of cancer in 1996, compared with 49% in 1990; 84% thought that pain is frequent at advanced stages of cancer, compared with 72% in 1990. The % of people who were not afraid of becoming addicted to morphine if prescribed for pain relief increased from 26% in 1990 to 69% in 1996. However, the % of respondents who agreed that morphine could be prescribed to CPs increased only slightly, from 79% to 83% for CPs.	6/7
Levin et al., (1985), Wisconsin, the US.	The cross-sectional method, mixed-method	To provide objective information about the public's attitudes towards PM and the effects of beliefs on some factors, including delay in seeking treatment and avoidance of opioids	496 general public	The Wisconsin Survey Research Laboratory	Not stated	Female 57%, male 43%	Not stated	Not stated	The result from the 472 respondents who had not been diagnosed with cancer: 15% of them agreed or strongly agreed that if they had cancer, their fear of the disease would make them seek medical care. About 18% indicated they would avoid seeking care as of concerns about the pain associated with cancer treatment. 62% associated the onset of pain with disease progression, and 57% thought CPs usually die a painful death. 50% of respondents had significant concerns about a variety of consequences of taking opioids, including confusion or disoriented, tolerance, and addiction.	4/7

NKARSP = The Nurses' Knowledge and Attitudes Survey Regarding Pain, PPQK = Patient Pain Questionnaire Knowledge Subscale, KASP = the Knowledge and Attitudes Survey Regarding Pain, KAS = the Knowledge and Attitudes Survey, CTS = the cross-sectional telephone survey, PSI = the physician survey instrument, PCPA = Physician Cancer Pain Attitude Questionnaire, NCCPI = North Carolina Cancer Pain Initiative survey, BQ-T = Barriers Questionnaire-Taiwan Form, PKQ = Pain Knowledge Questionnaire, BPI-C = the Brief Pain Inventory Chinese version, PPQ = Patient Pain Questionnaire, HBM = the Health Belief Model questionnaire, BQ = The Barriers Questionnaire, FPQ = the Family Pain Questionnaire, PCPQ = Physician Cancer Pain Questionnaire, pts = patients, CP= Cancer pain, CPM = Cancer Pain Management, ETH = Education and Training Hospitals, Quality Scoring = quality assessment of the included studies (see Chapter 2).

3.2.3 Results

3.2.3.1 Patients' knowledge and attitudes towards CPM

The results from the majority of studies that involved cancer patients only ($n = 3$) and in studies that included cancer patients and their caregivers ($n = 3$) indicated that low mean scores on the patient's knowledge and attitudes towards CPM, suggesting poor understanding or negative attitudes towards CPM among cancer patients (Riddell and Fitch, 1997; Colak et al., 2014b; Cohen et al., 2005; Lou and Shang, 2017). For instance, a study conducted in China by Lou and Shang (2017) reported through the Barriers Questionnaire-Taiwan (BQT; ranging from 0-5, "0" means "do not agree at all," and "5" means that the participant is "agreed very much" about cancer pain and using pain medication for CPM) that cancer patients had poor attitudes towards opioids for CPM in the six areas (scores ≥ 2.5): "Use of analgesics as needed (p.r.n.)" (3.73 ± 1.01), "Tolerance" (3.83 ± 0.96), "Addiction" (3.44 ± 1.05), "Side effects" (2.99 ± 0.68), "Disease progression" (3.28 ± 1.26), and "Distraction of physicians" (3.16 ± 1.07), which can lead to attitudinal barriers to effective CPM. Another study by Colak et al. (2014b) reported that more than 50% of Turkish patients refused to receive strong opioids, such as morphine for CPM, and 36.8% of them preferred another (non-opioid) medication for managing cancer pain. The rejection of strong opioids for CPM among cancer patients was because of negative attitudes towards morphine, particularly due to a fear of addiction. In addition, religious and cultural reasons were cited as reasons for rejecting opioid treatment for CPM.

3.2.3.2 HCPs' knowledge and attitudes towards CPM

3.2.3.2.1 Comparison of knowledge and attitudes to CPM between Physicians and Nurses

Studies that aimed to assess the knowledge and attitudes towards CPM among nurses and physicians ($n = 5$) showed that physicians had better knowledge and positive attitudes towards CPM than nurses (Jho et al., 2014; Furstenberg et al., 1998; Jeon et al., 2007; Darawad et al., 2017b; Wells et al., 2001). For example, a study by Darawad et al. (2017b) reported that physicians who work in oncology

settings had a higher understanding and knowledge about cancer pain and opioids for CPM than nurses. The mean scores on the Knowledge and Attitudes Survey (KAS; range: 0-39) for physicians was 24.3 (62.3%) compared to 20.08 (51.5%) for nurses ($P < 0.001$), indicating that physicians had higher knowledge and more positive attitudes towards CPM than nurses (Darawad et al., 2017b). Another study by Gallagher et al. (2004) showed that oncologists recorded higher knowledge of CPM than surgeons ($p < 0.001$). However, the results from studies with physicians ($n = 13$), with nurses ($n = 9$), and with both physicians and nurses ($n = 5$) indicate a lack of knowledge and poor attitudes towards CPM among HCPs resulted in barriers to effective CPM.

A study by Bernardi et al. (2007b) showed that pain knowledge and attitudes towards CPM could differ among HCPs based on the geographical location within a country. For example, nurses who worked in the central region of Italy had the lowest score of pain knowledge (47.9%; mean = 18; $n = 66$) compared with those in the North (57.2%; mean = 21; $n = 149$) and in the South of Italy (56.9%; mean = 23; $n = 72$) ($p < 0.001$). The study also reported that nurses who had received education in CPM had significantly higher mean knowledge scores than those who did not (mean = 22 versus mean = 20; $p < 0.05$). These results indicate that nurses did not have the same CPM education and training across Italy; thus, Italian patients with cancer pain were treated differently in the same country. This study also highlighted that education and training in CPM among HCPs are needed to improve HCPs' knowledge and attitudes towards CPM.

3.2.3.2.2 Comparison of nurses' attitudes and knowledge towards CPM between different countries

When nursing knowledge and attitudes towards opioids for CPM were compared between countries, there was a difference between Western nurses and those from Asia and European countries. For instance, nurses from Canada (71.5%) and the USA (66.3%) were more likely to use opioid analgesics, such as morphine for CPM, than nurses from Japan (61.6%) and Spain (51.2%) (McCaffery and Ferrell, 1995). Furthermore, Canadian and American nurses

answered the relevant questions related to CPM correctly (51.3%, 43.4%), respectively, compared to only 14% of Spanish nurses and 17.2% of Japanese nurses who responded correctly (McCaffery and Ferrell, 1995). The result suggests that nurses from countries such as Canada and the USA showed more knowledge and positive attitudes towards CPM than nurses from Spain and Japan. Adequate knowledge and positive attitudes towards CPM among nurses from Canada and the USA were due to better/ more thorough pain education and work experience in palliative care and CPM.

3.2.3.3 Caregivers' knowledge and attitudes towards CPM

All studies that included participants who were caregivers (only) ($n = 1$) and that involved caregivers and cancer patients together ($n = 3$) showed a lack of knowledge and negative attitudes of caregivers towards cancer pain and opioids for CPM. For example, a study conducted in Taiwan by Lin et al. (2000) indicated that family caregivers held concerns about cancer pain and opioids for CPM. These concerns were shown through the Barriers Questionnaire-Taiwan (BQT) survey (ranged 0-5), as follows: "disease progression" (Mean = 3.82), "side effects" (Mean = 3.29), "given as needed (p.r.n)" (Mean = 3.01), "poor tolerance" (Mean = 2.96), and "drug addiction" (Mean = 2.67), respectively (Lin et al., 2000). Another study conducted by Lou and Shang (2017) also revealed that caregivers' attitudes towards CPM and patients' pain knowledge explained about 23% of the total variance in the patients' average scores for their attitudes towards CPM when entered into a regression equation. This indicated that patients' attitudes towards CPM were influenced by their caregivers' attitudes and the patient's pain knowledge (Lou and Shang, 2017). The results also revealed that some family caregivers reported their hesitation to administer opioids for CPM and reported pain to their patients during the preceding month because caregivers believed opioids would cause constipation and harm patients' kidneys (Lin et al., 2000). This result suggests that caregivers' lack of adequate knowledge and poor attitudes towards cancer pain and opioids were barriers to effective CPM.

The results also showed similar concerns about cancer pain and opioids for CPM caregivers in China. These concerns were directed as higher and lower in some dimensions regarding "poor tolerance" (Mean = 3.74), "given as needed (p.r.n)"

(Mean = 3.51), “drug addiction” (Mean = 3.43), “disease progression” (Mean = 3.27), and “side effects” (Mean = 3.22), respectively (Lou and Shang, 2017). However, concerns about cancer pain and opioids for CPM among caregivers were lower in the USA (Vallerand et al., 2007b), indicating that caregivers in the USA might have a good level of knowledge and positive attitudes towards CPM than caregivers in Taiwan and China. For instance, the areas of concern for caregivers in the USA were “opioid-related side effects” (Mean = 2.41), “fears of drug addiction” (Mean = 2.35), “disease progression” (Mean = 2.28), and “poor tolerance” (Mean = 1.37), respectively (Vallerand et al., 2007b).

3.2.3.4 Public’s knowledge and attitudes towards CPM

The studies demonstrate that the general public (n = 2) showed a lack of knowledge and poor attitudes towards cancer pain and opioids for CPM. Levin et al. (1985) conducted a study that involved 472 general public respondents in the USA with no cancer diagnosis. They reported that approximately 20% of participants would avoid seeking care because of concerns about the pain associated with cancer treatment. Roughly 15% of the cohort agreed or strongly agreed that if they had cancer, their fear of the disease would make them seek medical care (Levin et al., 1985). The most common key concern among the general public in the USA that would affect them if they had cancer was the “potential for upset to their family,” followed by concern about the “possibility of dying of cancer.” Approximately 50% reported significant concern about pain resulting from cancer and its management process (Levin et al., 1985). The same study also reported that around 60% of the general public believed that pain usually is associated with disease progression, 57% thought that cancer patients usually die from cancer with a painful death, and 50% had significant concerns about opioid side effects, including confusion or disorientation, poor tolerance and drug addiction (Levin et al., 1985).

Another study by Larue et al. (1999) in France aimed to assess the evolution of the knowledge and attitudes of the French population between the period of 1990 and 1996 concerning pain management and the use of morphine. Their results illustrated improvements in the general public’s knowledge and attitudes towards CPM over time. For example, about 65% of the general public thought that pain

was rare at the early stages of cancer in 1996 compared with roughly 50% in their previous study in 1990 ($p < 0.001$) (Larue et al., 1999). Furthermore, the percentage of people who were not afraid of becoming addicted to morphine if prescribed for CPM increased from 26% in 1990 to 69% in 1996 ($p < 0.001$). However, there was not much difference between the general public in 1990 (79%) and 1996 (83%) regarding the statement “morphine could be prescribed to patients with cancer pain.” Overall, their study reported that 58% of the 1996 general public believed that their knowledge regarding cancer pain and its management had improved over the past five years (Larue et al., 1999). Although these studies were old, as published in 1985 and 1999, they were the only studies identified that could provide insight into the general public’s perception. As they were the only 2 found, it is an area of interest for further work. The results suggest that the general public showed a lack of adequate knowledge and poor attitudes towards CPM, resulting in barriers to effective CPM.

3.3 Summary of the Key findings

This chapter presents a systematic review of the literature related to the nature and impact of attitudes and knowledge towards CPM. Overall, evidence within the literature indicates that medical professionals, cancer patients, patient caregivers, and the general population are likely to harbour negative attitudes and display a lack of knowledge about CPM. These findings are consistent with those of recent studies and systematic reviews (Bouya et al., 2018; Saifan et al., 2015; van den Beuken-van Everdingen et al., 2007b; Van den Beuken-van Everdingen et al., 2016b; Colak et al., 2014b; Breivik et al., 2009; Greco et al., 2014; Saifan et al., 2019). Even though all included studies used the same design (cross-sectional design), the questionnaires that were used to conduct surveys in this particular area were different and some studies did not state which questionnaire was used or failed to provide information regarding the validity of the tools. Therefore, it was difficult to directly compare studies and the reliability of these included studies in this review could be compromised (Poudel et al., 2018; JBI, 2016).

This review also highlights that most studies indicated similar attitudinal barriers to effective CPM shared across patients, caregivers, HCPs, and the public. The barriers most commonly cited were the fear of poor tolerance, side effects of opioids, and drug addiction.

As a result of the negative attitudes, concerns about opioid use, and lack of education about CPM, the management of cancer pain remains a significant problem worldwide, especially in countries in Europe, Africa, and Asia (Saini and Bhatnagar, 2016; Breivik et al., 2009; Van den Beuken-van Everdingen et al., 2016b; Li et al., 2018; Reis-Pina et al., 2015; 2018; Thinh et al., 2018). This is an issue that needs addressing as it can result in unalleviated pain, and poor quality of life, for patients with cancer. Furthermore, there is still no clear measure to establish peoples' beliefs, views, perceptions, and attitudes towards cancer pain and opioids for CPM. Hence, more details are needed to allow for ease of comparison and understanding of how these attitudes arise within different contexts and tailoring educational initiatives to address these are likely to impact improving CPM. In the Next Chapter a qualitative study (study two) that aims to explore and understand the Libyan HCPs', patients,' and family caregivers' views about cancer pain and its management will be presented. Based on the result from this chapter (Chapter 3), a more in-depth understanding of the conceptions and attitudes towards CPM can be provided by a qualitative study (Ung et al., 2016). Additionally, a qualitative method was needed to help to identify the factors which can influence the HCPs', cancer patients, and caregivers' attitudes and knowledge towards CPM (Ung et al., 2016).

Chapter 4

Libyan healthcare professionals', patients' and caregivers' perceptions and religious beliefs about cancer pain and its management: A qualitative study

4.1 Introduction

This chapter presents the results of a qualitative study (Study two), which aimed to explore and understand the Libyan HCPs', patients,' and family caregivers' views about cancer pain and its management. Firstly, section 4.2 presents the characteristics of the participants. Secondly, in section 4.3, key themes are presented, which include the influence of religion on CPM; the influence of culture on CPM; the influence of economic factors on CPM; patients and caregivers related barriers; HCPs related barriers; and healthcare system-related barriers in sub-sections 4.3.1., 4.3.2, 4.3.3, 4.3.4, 4.3.5, 4.3.6, respectively. Finally, this chapter will be concluded by summarising the key findings in section 4.4.

4.2 Characteristics of participants

Thirty-six participants (12 Libyan HCPs, 18 cancer patients, and 6 family caregivers) agreed to participate in study two and were interviewed. The mean age for HCPs was 37.25 years (SD = 9.5), for cancer patients was 48.5 years (SD = 14.4), and it was 37.5 years (SD = 12.8) for family caregivers, ranging between 21 and 75.

All participants of family caregivers were males 6 (100%), as the interviews were conducted in Egypt and in the Libyan culture, caregivers who usually travel with patients abroad are males. Furthermore, some female caregivers refused to participate in the study. There were more married participants 21 (58.3%) than single 11 (30.5%), 3 participants (8.3%) were divorced, and only one participant (2.8%) was widowed.

Professions were 6 (50%) nurses and 6 (50%) physicians. HCPs and caregivers were more likely to have attained university education than patients

(undergraduate degree: 8.3% and 8.3% versus 5.6%) and postgraduate (8.3% and 0% versus 2.8%). Patients were more likely to have lower educational levels than caregivers and HCPs (intermediate: 25% versus 2.8% versus 11.1%) and elementary to standard (16.7% versus 5.6% versus 5.6%). Cancer diagnosis were: Breast 5 (27.8%), lung 2 (11.1%), pancreatic 1 (5.6%), nasopharyngeal 1 (5.6%), lymphoma 2 (11.1%), bladder 2 (11.1%), stomach 2 (11.1%), and colorectal 3 (16.7%). Stages of cancer were: 12 patients (66.7%) with stages II and III and 6 patients (33.3%) with stage IV. See Table 4.1 for participants' demographic characteristics.

Table 4-1 Participants' demographic characteristics

	HCPs (N=12)	Patients (N=18)	Caregivers (N=6)
Gender; N (%):			
Male	5 (41.66)	9 (50)	6 (100)
Female	7 (58.33)	9 (50)	0 (0)
Age (years):			
Mean (SD)	37.25 (9.51)	48.5 (14.39)	37.5 (12.83)
Range	22-50	21-75	28-60
Marital status; N (%):			
Married	6 (50)	12 (66.66)	3 (50)
Single	4 (33.33)	4 (22.22)	3 (50)
Divorced	1 (8.33)	2 (11.11)	0 (0)
Widowed	1 (8.33)	0 (0)	0 (0)
Education; N (%)			
Elementary	0 (0)	5 (27.77)	0 (0)
Standard	2 (16.66)	1 (5.55)	2 (33.33)
Intermediate	4 (33.33)	9 (50)	1 (16.66)
Undergraduate	3 (25)	2 (11.11)	3 (50)
Postgraduate	3 (25)	1 (5.55)	0 (0)
Profession; N (%):			
Nurses	6 (50)		
Physicians	6 (50)		
Monthly Salary			
Range; (£/month)	< 500 - 1500	<500	< 500
No income N, (%)	0 (0)	5 (27.77)	1 (16.66)
Cancer diagnosis; N (%):			
Breast		5 (27.77)	
Lung		2 (11.11)	
Pancreatic		1 (5.55)	
Nasopharyngeal		1 (5.55)	
Lymphoma		2 (11.11)	
Bladder		2 (11.11)	
Stomach		2 (11.11)	
Colorectal		3 (16.66)	
Stage of cancer; N (%)			
II & III		12 (66.66)	
IV		6 (33.33)	
Type of pain medication; N (%):			
None		13 (72.22)	
On pain medication		5 (27.77)	
Paracetamol		2 (11.11)	
NSAID		3 (16.66)	
Codeine		0 (0)	
Tramadol		0 (0)	
Morphine		0 (0)	

HCP= Healthcare Professionals; N= number; SD= Standard Deviation; %= percentage; /= per; £= pound sterling; <= less than

4.3 Key Themes

Six themes and 12 sub-themes were identified, including the influence of religion on CPM, the influence of culture on CPM, the influence of economic factors on CPM, patients, and caregivers related barriers, HCPs-related barriers, and healthcare system-related barriers, as shown in Figure 4.1 below.

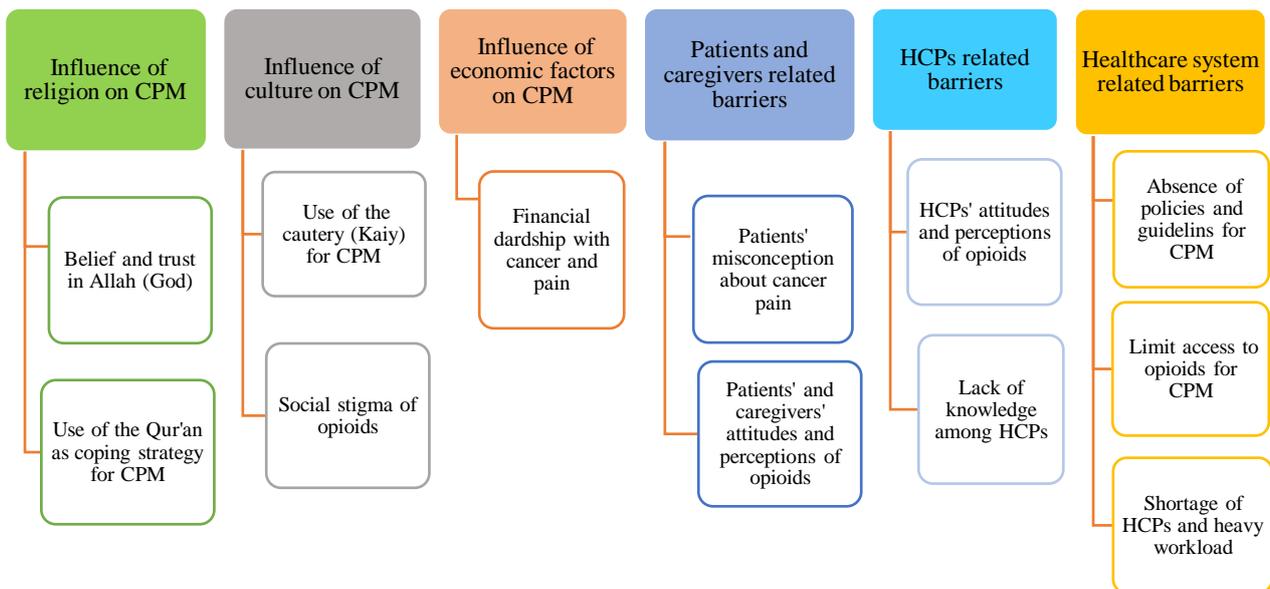


Figure 4-1 Thematic Map: themes and sub-themes

4.3.1 Influence of religion on CPM

4.3.1.1 Belief and trust in Allah (God)

Many Libyan patients and their caregivers relied upon their religious beliefs (i.e., prayer and trust in Allah) as a coping strategy to manage cancer and pain. Thus, most believed that Allah was with them, and He (Allah) would help cure the disease and relieve the pain. Most family caregivers emphasised that religious beliefs helped them and the patient cope with the disease and suffering:

“.....I pray to Allah to cure my cancer and relieve my pain as I believe, and I am fully convinced that Allah is with me and He (Allah) can cure my disease. Thus, I feel strong to endure the pain, and I do not take pain medications.” P5

“I do not prefer to give my sister either weak or strong pain medications. We believe and trust in Allah; He (Allah) can cure the disease and relieve the pain. I pray to Allah to cure her cancer and give her the ability to be patient with her disease and bear the pain.....” C6

This suggests that some patients seemed to believe they could effectively control their cancer pain by seeking help from Allah through prayer. However, such religious beliefs could be a barrier to the medical management of cancer pain as most patients (and their caregivers) are reluctant to use opioids for CPM.

While the HCPs who participated in this study followed the same religion as the cancer patients and family caregivers, many HCPs highlighted that patients should listen to their HCPs and use their prescribed medication for cancer pain. Likewise, they expressed the opinion that patients should not rely only on spiritual support and ignore medical prescriptions:

“..... medical staff should know that religious beliefs such as prayer can be used as a coping strategy besides treating all patients as that can help and support patients. However, patients should also use their medication for cancer and pain.” D2

This finding could mean that some HCPs acknowledged that religious belief was essential for their patients to cope with cancer and pain. Although the use of religious beliefs and practices as a coping strategy besides medical treatment could reduce the stress associated with an experience of pain, some patients might still experience some discomfort. Therefore, pain medication is needed. Furthermore, such beliefs were found to be a barrier to effective CPM, as opioid

analgesics for CPM were rejected by some patients and caregivers because they believed that the prayer was sufficient.

4.3.1.2 Use of the Qur'an as a coping strategy for CPM

Many cancer patients and family caregivers relied on religious beliefs such as the use of the Qur'an as a coping strategy to cope with cancer and pain. For example, some patients and caregivers recite verses from the Qur'an to support either themselves or their patients when the patient is diagnosed with and is undergoing cancer treatment. Additionally, reciting verses from the Qur'an is used as a support for managing cancer pain. Several Libyan patients and their caregivers in this study believed that Qur'an could cure diseases, such as cancer, and relieve physical suffering such as pain. Thus, some patients and family caregivers preferred to use the Qur'an instead of painkillers for CPM. This could be why some Libyan patients and their caregivers refused to use opioids for CPM in the current study.

"..... When I feel pain, I do not use pain medications. To relieve my pain, after each prayer, I put my hand on the place of the pain and recite specific Ayahs (Verses) from the Qur'an after each prayer, I put my hand on the place of the pain and recite specific Ayahs (Verses) from the Qur'an to relieve my pain. That makes me feel better and relaxed because such reciting helps me endure my pain. For instance, as Allah says in the Qur'an (And We send down of the Qur'an that which is a cure and a mercy for the believers)" Verse (17:82 Surat AL-Isra). P10

" We use verses from the Qur'an as supportive and coping strategies to cope with cancer and pain. For example, I usually use Al-Ruqyah Al-Shariah (i.e., reciting the Qur'an on the water, then the patient drinks it) and read or listen to the Qur'an to support my brother with his cancer and pain, as this usually helps him to be peaceful and relaxed. Accordingly, I do not prefer my brother to use pain medications like opioids....." C5

Although some HCPs also believed that the Qur'an could be used to relieve the patient's distress and anxiety, they did not believe that Qur'an could cure cancer and relieve cancer pain. This finding indicates that the use of the Qur'an could help to distract patients from their disease and anxiety.

"..... Verses from the Qur'an can be used to comfort and support patients during their medical treatment. For example, Allah says in the Qur'an that (O you who have believed, seek help through patience and prayer. Surely, Allah is with those who are patient), verse (2:153 Surat L-Baqarah). However, we usually advise patients to take their pain medications for cancer pain, as some patients and their caregivers usually prefer to use religious beliefs only as a coping strategy to cope with cancer pain. In this case, we as the medical team cannot do anything as this is their wishes and choice." D1

Relying exclusively on religious beliefs to cope with pain is a barrier to CPM, as some patients might reject taking pain medications due to their beliefs that the Qur'an will relieve their suffering. Although many patients and their caregivers were satisfied with the use of the Qur'an to manage cancer pain, this could influence how some patients and caregivers refused to use opioid analgesics for managing pain with cancer.

4.3.2 Influence of culture on CPM

4.3.2.1 Use of the cautery (Kaiy) for CPM

Another unanticipated finding in this study was that some Libyan patients and their caregivers commonly used traditional Arabic cautery (Kaiy – ironing the place of cancer or pain with fire) as an alternative therapy to manage cancer and pain. Some patients and caregivers believed that cautery was the faster way to treat cancer and pain and thus rejected medical interventions for CPM.

".....when I was diagnosed with cancer, I used the Kaiy, as my family took me somewhere to do it, which was to iron my body with fire in the place of cancer and pain..... After that, I felt comfortable, as the pain had gone. Therefore, I have not used painkillers anymore, and I prefer to use Kaiy for my cancer pain." P15

"Some caregivers prefer to use the Kaiy to manage their patients' cancer and pain instead of medication in hospitals. Thus, they (family caregivers) usually convince their patients to do so, often leaving the hospital as the last option. This could be because of a lack of awareness and education among people" C4

Most Libyan HCPs acknowledged that many patients and their family caregivers refused pain medications and preferred traditional Arabic therapy like cauterization:

"....., our community is affected by their cultural beliefs, especially people with a low level of knowledge or uneducated. Therefore, some of them usually use cauterization instead of medical treatment before coming to the hospital. This results in a delay in cancer and pain management. For example, some patients often come with advanced stage of cancer and severe pain, as they tried traditional medication before they came to the hospital." D2

They (HCPs) believed that a lack or low level of education contributed to cancer patients and their caregivers' preference for cauterization as an alternative therapy to CPM. These results imply that cultural beliefs (i.e., the use of cauterization) could be a barrier to effective CPM, especially for poorly educated patients and caregivers. Thus, it can be suggested that the practice of cauterization is another issue that influences CPM in Libya.

4.3.2.2 The social stigma of opioids

In this study, the social stigma of opioids was identified as another barrier to effective CPM. Most Libyan patients, caregivers, and newly qualified HCPs were reluctant to use opioids to manage cancer pain as they feared poor tolerance and drug addiction. It was found that some Libyan patients hesitated to ask for pain medication, and family caregivers refused to allow their patients to use opioids for CPM as they (patients and caregivers) had opiophobia (i.e., concern about poor tolerance, addiction, and side effects). Furthermore, some cancer patients feared being stigmatised:

"....., the patients and family caregivers rarely request opioids for managing cancer pain, as in our community opioids are a stigma. For instance, many people believe that if the patient demanded opioids, such as tramadol or morphine, that means this patient is addicted to opioids."

D2

"Due to the social stigma, some newly qualified doctors and nurses usually hesitate to give strong opioids for CPM. Some nurses have opiophobia; thus, they tell the patients that opioids can cause poor tolerance and addiction." D1

This may result in some patients being forced to live with unnecessary suffering, as they could be afraid of being recognised as addicted people, their caregivers might refuse to give them opioids for CPM, or newly qualified physicians might refuse to prescribe opioids for CPM. Consequently, patients might not have requested opioids to manage their cancer pain.

4.3.3 Influence of economic factors on CPM

4.3.3.1 Financial hardship with cancer and pain

Financial difficulties among Libyan cancer patients and their caregivers in the current study were found to cause further concerns. Libyan cancer patients, who

had experienced financial hardships, often reported being forced to sell their personal belongings and borrow money to pay for cancer procedures and treatment:

“..... I did not use pain medications for my pain, and I endured my pain as we spent all the money on cancer treatment, so I could not afford to pay for pain medications. My husband had to sell his car and borrowed money to pay for cancer treatment, food, travel, and accommodation expenses.” P3

Family caregivers with difficult financial circumstances found that cancer-related costs negatively impacted the whole of their families:

“..... The cost of cancer treatment was expensive. Thus, we did struggle to afford the money. For instance, the operation's cost was about 27.000 Libyan Dinars. The further cost was cancer treatment, travel, hotel, and food. All these costs overburdened us.” C5

This consequence could lead to some patients might experience cancer pain and they had to endure their pain untreated, as they might not have enough money to pay for such medication, or they may not want to bother their families about extra costs related to pain medication for their CPM.

4.3.4 Patients and caregivers related barriers

4.3.4.1 Patients' misconceptions about cancer pain

In this study, some Libyan patients experienced pain after the first dose of their cancer treatment (i.e., chemotherapy or radiotherapy). Accordingly, they believed that their pain resulted from cancer treatment. At the same time, others experienced cancer pain at an advanced stage of their disease. Hence, they thought their pain was an indication of disease progression. Many patients

focused only on treating the disease itself rather than concerning themselves with pain because they believed that cancer pain is not relievable:

“.....I believe that my pain was due to chemotherapy, as I did not experience pain before starting the doses of cancer treatment. My doctor also told me that chemotherapy could cause pain as cancer treatment can cause nerve damage.” P14

“..... The pain I had was due to the disease becoming worse, as the pain has dramatically decreased since I had undergone the operation. Now I do not take pain medications, and I patiently tolerated the pain because the pain with cancer will not relieve.” P17

Due to this misconception, some patients might accept or endure their cancer pain and not take their pain medications. The patients possibly believed that it was reasonable to have pain with cancer treatment or that their pain was a sign of cancer progression, in which case there was nothing they could do to manage their pain completely. It is possible, therefore, that the misconceptions about cancer pain among Libyan cancer patients could be another barrier to CPM in Libya.

4.3.4.2 Patients' and caregivers' attitudes and perceptions of opioids

Many Libyan cancer patients and their caregivers refused to use opioid analgesics, such as tramadol and morphine, for CPM, as they were concerned about opioids' poor tolerance and drug addiction. In Libya, only tramadol tablets were prescribed for CPM to all patients with cancer pain, as there was a lack of morphine tablets and a limited amount of injectable morphine in the Libyan hospitals. However, morphine tablets were offered to Libyan patients who needed them for CPM in Egypt. In all cases, opioid analgesics were rejected by patients and their caregivers:

"..... When I experienced severe pain in Egypt, an Egyptian doctor prescribed morphine tablets for my pain. However, I did not use them because I was fear of becoming tolerated and addicted to such drugs."

P2

"I do not prefer my sister to use strong pain medications, such as tramadol or morphine for her pain, because I do not want her to become tolerated and addicted to these drugs." C6

This ramification assumes that due to negative attitudes and perceptions towards opioid analgesics among Libyan patients and their caregivers, Libyan patients and caregivers could refuse to use opioid medications for CPM, resulting in barriers to effective CPM.

4.3.5 HCPs related barriers

4.3.5.1 HCPs' attitudes and perceptions of opioids

In this study, Libyan HCPs showed negative attitudes and perceptions towards opioid analgesics. For example, like the patients and careers, many HCPs believed that opioids, such as tramadol and morphine, could cause poor tolerance and drug addiction. However, this concern towards opioids was only among newly qualified HCPs. Due to negative perceptions and attitudes towards opioids among HCPs, they usually hesitate to prescribe or give such opioids for CPM:

".....I do not prefer to prescribe opioids to the patient I look after, as the patient might easily become tolerant or addicted to these drugs. Therefore, I usually prescribe weak pain medications for CPM to avoid such concern."

D3

".....When a doctor prescribes tramadol to the patient, I usually hesitate to give it straight away as this drug can lead to poor tolerance or addiction. Thus, I advise the patient to use weak pain medications like paracetamol or ibuprofen." N2

For that reason, Libyan cancer patients might not have received adequate CPM due to some HCPs holding negative attitudes and perceptions towards opioids, resulting in barriers to effective CPM in Libya.

4.3.5.2 Lack of knowledge among HCPs

The results also found that most Libyan HCPs lacked comprehensive knowledge of CPM. This was attributed to an absence of experience and training in CPM among HCPs:

"..... As oncology doctors, we do not have enough knowledge of CPM. Nobody in our team has training or professional education in CPM. Therefore, some HCPs usually focus on treating the disease itself and do not often pay attention to cancer pain. However, cancer pain must be managed; thus, some doctors occasionally use textbooks and internet resources for CPM and their daily work experience in a cancer care setting." D3

"..... In Libya, many nurses lack knowledge and experience in CPM, as we did not have training or education courses in CPM. Hence, nurses usually do not prefer to talk about CPM. Libyan nurses generally have a limited duty, and CPM is not a part of our duty. Nurses in Libya only do the doctors' requests." N5

Accordingly, managing patients with cancer pain was a challenge that HCPs could face in Libyan hospitals. Some Libyan physicians used their self-education and personal experience in cancer care settings to manage patients with cancer

pain. This outcome indicates that CPM might be inadequately managed as many HCPs showed a lack of knowledge about CPM.

4.3.6 Healthcare system-related barriers

4.3.6.1 Absence of policies and guidelines for CPM

In this study, many Libyan HCPs tended to subjectively assess and manage cancer pain without using standard pain rating scales or specific guidelines, such as NICE and WHO, as their hospitals did not have such protocols, policies, or guidelines for CPM.

Most Libyan doctors relied on the patient's facial expressions and patient self-reporting to assess cancer pain. Some Libyan physicians used textbooks, internet resources, and their individual cancer care experiences to manage cancer pain:

"We do not have guidelines for CPM in our hospital. Accordingly, I usually assess and manage cancer pain based on my experience from the daily setting and the patient's facial expression....." D6

"As my duty, I always measure each patient's vital signs, including temperature, pulse rate, respiratory rate, and blood pressure. However, I never professionally measured the patient's pain level, as we do not have pain measurement tools in our clinic....." N5

This could result in cancer patients' pain may be under-measured and mismanaged due to a lack of pain rating scales and guidelines for CPM, which could result in inadequate CPM in Libya.

4.3.6.2 Limit access to opioids for CPM

The results also showed that strong opioids, such as morphine, were not prescribed by doctors to their outpatients for CPM. This was due to no access to morphine tablets and very limited availability of morphine injections:

"..... I usually prescribe weak pain medications and sometimes morphine injections for CPM. However, recently I avoided prescribing morphine injections to the patients as I was afraid that the patients might have a symptom of opioid withdrawal due to the shortage of morphine injections. We do not prescribe morphine for outpatients, as morphine tablets are unavailable in our clinic." D2

This outcome suggests that many patients might not have received adequate CPM as limited access to opioid analgesics, which could result in a barrier to effective CPM.

4.3.6.3 Shortage of HCPs and heavy workload

In this study, a shortage of medical staff in oncology settings, a lack of specialists in CPM, and an increasing number of patients were other barriers to effective CPM in Libya. For example, many doctors and nurses complained about having a heavy workload:

"We do not have specialists in pain management in our clinic. Consequently, we have to treat patients with cancer pain alongside our work. That led to work overload, especially since we have a shortage of staff, and the number of patients has dramatically increased in our clinic....." D6

Consequently, Libyan doctors might not have time to manage cancer pain due to the shortage of medical staff and heavy workload. Furthermore, their hospital did not have doctors who were specialists in palliative care or CPM to refer them the cases with cancer pain. Thus, it can be deduced that cancer pain might be inadequately managed in Libya.

4.4 Summary of the key findings

Study two in this thesis aimed to explore Libyan HCPs', patients, and family caregivers' views about cancer pain and its management. This is the first qualitative study that explores Libyan HCPs', cancer patients, and family caregivers' views about CPM to the best of the researcher's knowledge. Study two (qualitative study) shows that Libyan cancer patients, caregivers, and HCPs hold negative views and attitudes, religious and cultural beliefs, which impacted CPM in Libya. Furthermore, lack of knowledge, training in CPM, and experience in palliative care among Libyan HCPs prevented effective CPM. Moreover, the Libyan economics, and healthcare system-related factors, present barriers to effective CPM in Libya. Hence, most cases with cancer pain may be undertreated in Libyan hospitals. Developing and evaluating interventions, such as education and training in CPM, are needed to address these concerns, and it would be necessary to improve patients' outcomes with cancer pain in Libya.

The range of views and perceptions that the current researcher found may not reflect the views and perceptions of HCPs in all parts of Libya because the inclusion of HCPs participants was only 12 Libyan HCPs, and all HCPs participants were from one part of Libya, which is the Eastern region. Thus, the student and his supervisors agreed to conduct the third study of this thesis (quantitative study) with a large sample size from several oncology hospitals and centres (n= 6) located in different regions of Libya (Eastern, Central, and Western).

Chapter 5

Attitudes, knowledge, and perceived barriers towards CPM among HCPs in Libya: A national multicentre survey

5.1 Introduction

This chapter presents the results of the quantitative study (study three) in this thesis, which aimed to evaluate HCPs' knowledge, attitudes, and potential barriers regarding cancer pain and its management in Libya. Firstly, the chapter introduces the characteristics of participants in sub-section 5.2.1. Secondly, barriers to effective CPM among HCPs are presented in sub-section 5.2.3. Thirdly, the chapter highlights common barriers to CPM among Libyan HCPs in sub-section 5.2.4. Fourthly, this chapter uses multiple regression analyses to compare the mean overall BQ-II and its subscales and independent variables in sub-sections 5.2.5, 5.2.6, 5.2.7, 5.2.8, and 5.2.9, respectively. Furthermore, in sub-section 5.2.10, the chapter shows the comparison of the mean overall BQ-II and its subscales scores between HCPs in three countries (Libya, Jordan, and Albania). Finally, the chapter ends with a summary of the key findings in section 5.3.

5.2 Quantitative Results

5.2.1 Characteristics of participants

Two hundred Libyan oncology nurses and physicians agreed to participate in this study. For this cross-sectional survey, 185 (93%) Libyan HCPs responded. Of those 185, 160 (87%) participants returned the questionnaires to the survey coordinators. Eight of the returned questionnaires were excluded, as many answers were missing. Therefore, 152 valid questionnaires were eligible for use in this study for statistical analyses. The response rate was 76%.

According to Guadagnoli and Velicer (1988), a sample size between 100 and 150 is recommended, especially when the internal consistency for an instrument is expected value to be at $\alpha = 0.60$ and above. In the current study, the internal consistency for the overall BQ-II scales was higher ($\alpha = 0.90$) than recommended, indicating an excellent internal consistency for the overall BQ-II scales (Kline, 2015).

The mean age for all respondents was 36.29 years (SD = 7.5), ranging between 20 and 64. Participants mostly were females (65.1%), and there were more physicians (62.5%) than nurses (37.5%). There were more married participants (51.3%) than single (40.1%), 6 participants (3.9%) were divorced, and only one participant (0.7%) was widowed. Physicians (medical doctors) were more likely to have attained university education than nurses (undergraduate degree: 61.1% versus 14.0%) and postgraduate (38.9% versus 1.8%). Most nurses (84.2%) only held high-school degrees (equivalent to UK A levels). A few participants (12.5%) had completed training courses on CPM. More participants (84.9%) had long-term (greater than one year) work experience in cancer settings than those who had short-term (less than one year) work experience (15.1%). Participant characteristics are presented in Table 5.1.

Table 5-1 Participants' demographic characteristics

HCPs (Oncology Nurses and Physicians) (n = 152)	Respondents
Profession; n (%):	
Nurses	57 (37.5)
Physicians	95 (62.5)
Gender; n (%):	
Male	53 (34.9)
Female	99 (65.1)
Age (years):	
Mean (SD)	36.29 (7.5)
Range	20-64
Marital status; n (%):	
Single	61 (40.1)
Married	78 (51.3)
Divorced	6 (3.9)
Widowed	1 (0.7)
Missing	6 (3.95)
Education; n (%):	
High-school degree	48 (31.6)
Undergraduate degree	66 (43.4)
Postgraduate degree	38 (25.0)
Annually Salary	
Mean (SD)	0.80 (0.67)
Range; (£/ year)	< 8000 - 14400
Missing	66 (43.42)
Training in CPM; n (%):	
Yes	19 (12.5)
No	133 (87.5)
Work experience; n (%):	
< 1 year	23 (15.1)
> 1 year	129 (84.9)
WHO & NICE for CPM; n (%):	
Yes	65 (42.8)
No	87 (57.2)
Medication for CPM; n (%):	
Non-opioids	12 (8.2)
Weak opioids	5 (3.5)
Non-opioids and Weak opioids	42 (28.6)
Non-opioids, Weak opioids, and Strong opioids	88 (59.9)
Missing	5 (3.5)

CPM = Cancer Pain Management; HCP = Healthcare Professionals; n = number; SD = Standard Deviation; % = percentage; £ = pound sterling; < = less than; > = greater than

5.2.2 The distribution of the overall BQ-II scores

For continuous variables, the data were required to be normally distributed, as this is one of the main assumptions for the inferential analysis to be carried out (Hair et al., 2010). In this study, univariate normality was examined by assessing skewness and kurtosis. The convention is that the null hypothesis (H_0) is rejected if the p -value is smaller than 0.05 (Shapiro and Wilk, 1965; Razali and Wah, 2011). The null hypothesis (H_0) for this test of normality indicated that the data of the overall BQ-II scores for both groups (males; $n = 53$) and (females; $n = 99$) were normally distributed, as the p -value for males and females was ($p > 0.05$). Thus, the null hypothesis (H_0) in this study was kept. According to Hair et al. (2010), the normal distribution should be accepted when the skewness and kurtosis values are in, the range of ± 0.3 . As presented below the data were

determined as normally distributed, since the values of skewness and kurtosis were in the range of +/- 0.3 for both gender groups (males and females) on the overall BQ-II scores.

Besides a visual inspection of their histograms (See Figure 5.1); normal a quantile-quantile (Q-Q) plots (See Appendix 37) and box plots (See Appendix 38) showed that the overall scores of the 27th items on BQ-II were normally distributed for both genders (males and females) in this study. A statistical skewness was reported as 0.012; (standard error; SE = 0.337) and a kurtosis -0.547 (SE = 0.662) for the males. Whereas for the females, a skewness was reported as 0.106 (SE = 0.271) and kurtosis -0.662 (SE = 0.535) (Doane and Seward, 2011). The data were normally distributed. Hence, parametric tests were used. A Leven test was also used in the current study for testing the equality of variances (homogeneity of variances). In the samples of the mean for the overall BQ-II scores and participants' gender (males and females), Leven's test verified that there is equality of variances in the samples ($p > 0.05$).

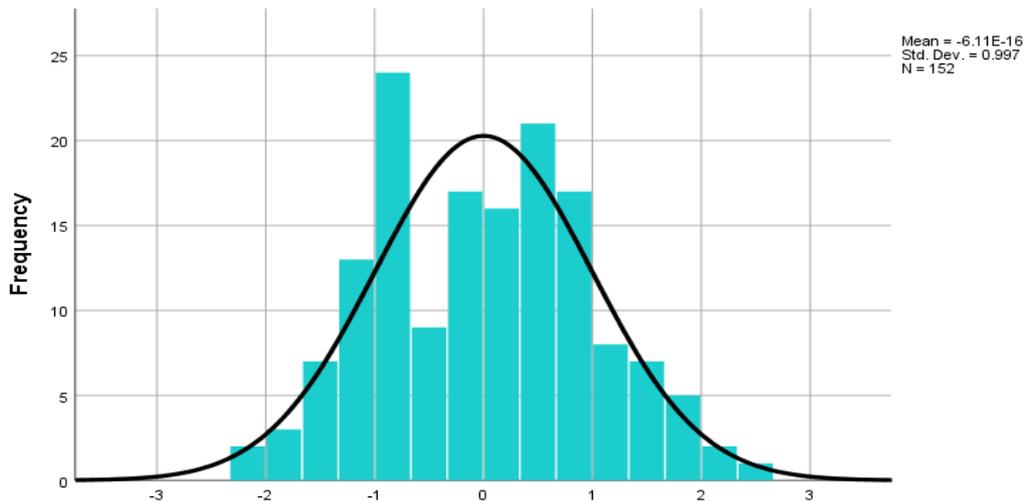


Figure 5-1 Normally Distributed of the overall BQ-II Scores for Males and Females

The overall BQ scores for HCPs (nurses and physicians) were also normally distributed, as the p -value for both nurses and physicians was ($p > 0.05$), supporting the null hypothesis (H_0). This was based on Shapiro-Wilk's test ($p > 0.05$) (Shapiro and Wilk, 1965; Razali and Wah, 2011) and a visual inspection of a histogram. (See Figure 5.2). A statistical skewness was reported as - 0.039; standard error (SE = 0.316) and a kurtosis - 0.429 (SE = 0.623) for the nurses. Whereas, a skewness was reported as - 0.423 (SE = 0.247) and kurtosis - 0.181 (SE = 0.490) for the physicians (Doane and Seward, 2011). Accordingly, parametric tests were applied.

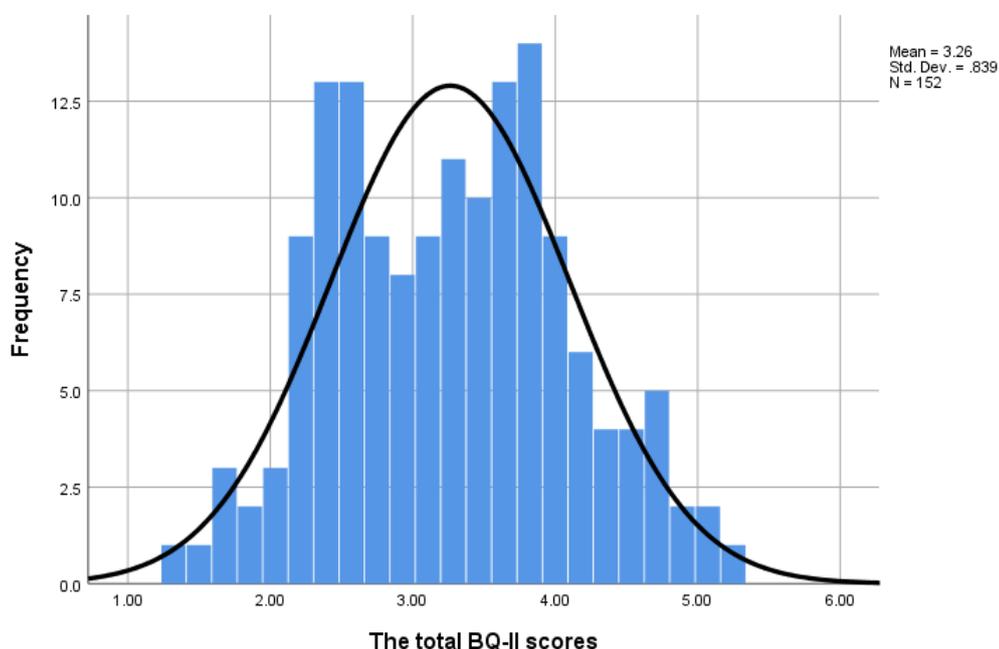


Figure 5-2 The distribution of the BQ-II scores for HCPs

5.2.3 Barriers to effective CPM among HCPs

Before the multiple linear regression test was run, bivariate analysis such as an independent t -test was conducted to compare the mean of the overall 27 items of BQ-II and its subscales between Libyan nurses ($n = 57$) and physicians ($n = 95$) regarding their attitudinal and knowledgeable barriers about CPM (unadjusted estimate). The results showed that nurses showed higher mean barrier scores (mean = 3.8, SD = 0.7) to CPM than physicians (mean = 2.9, SD = 0.8), $p < 0.001$. Perceived barriers to CPM on the overall BQ-II and its subscales

by nurses and physicians (using an independent *t*-test) are presented in table 5.2. Only five items did not show differences between nurses and physicians: No attitudinal and knowledgeable difference between the two groups (nurses and physicians) was seen for one item on the 'physiological effects' subscale "If the patient took pain medicine when he/she had mild pain, such medication might not be effective as well if his/her pain became severe," $p > 0.05$; one item on the 'harmful effects' subscale "Many patients with cancer can be addicted to pain medication," $p > 0.05$; and three items on the fatalism subscale "Cancer pain can be relieved, pain medicine can effectively control cancer pain, and medication can relieve pain related to cancer", $p > 0.05$. This indicates that Libyan nurses had poorer attitudes and less knowledge concerning CPM than physicians.

The major differences in attitudinal and knowledgeable barriers to effective CPM between nurses and physicians were concern about 'drug side effects' and 'poor tolerance'. Further most important concerns were on the statements "strong patient does not complain about pain" and "pain can distract the physician from treating cancer."

When questionnaires were analysed, comparison between nurses and physicians who reported a fear of 'drug addiction' showed a difference in attitude (nurses: mean = 3.64, SD = 0.82 vs. physicians: mean = 3.15, SD = 0.97) and "opioids impair patient's immune function" (nurses: mean = 3.23, SD = 1.12 vs. physicians: mean = 2.05, SD = 1.20) However, there was no difference between nurses and physicians, on 'fatalistic beliefs.' Both groups showed low mean barrier scores on the BQ-II subscale 'fatalism.' (See Table 5.2). An independent *t*-test (equal variances assumed) estimated that the mean difference in the 'fatalism' scores between nurses and physicians was 0.46 (95% CI: -0.22, 0.31). An independent *t*-test on the BQ-II subscale 'fatalism' was not significant, $t(150) = 0.351$, $p > 0.05$. This could mean that Libyan nurses and physicians believe that cancer pain can be relieved, supporting the null hypothesis (H_0).

Although, the results showed that nurses had higher attitudinal and knowledgeable barrier scores towards CPM than physicians, $p < 0.001$. When this

result was compared to other studies, the result indicates that both groups (Libyan nurses and physicians) showed less knowledge and poorer attitudes towards CPM than HCPs from other countries (See sub-section 5.2.10 below). This result suggests that Libyan HCPs' poor attitudes and perceptions and lack of knowledge about cancer pain and opioids might affect CPM in Libya, supporting the alternative hypothesis (H_1). Table 5.2 shows all respondents' perspectives on barriers to CPM between nurses and physicians.

Table 5-2 Perceived Barriers to CPM on the BQ-II by Libyan HCPs (n = 152), using an independent t-test (unadjusted estimate)

Items in the questionnaire	Mean scores (SD)		95% CI	P-value
	Nurses	Physicians		
1. Drowsiness from pain medicine is difficult to control	3.1 (1.7)	2.4 (1.5)	0.175, 1.221	0.009**
2. Confusion from pain medicine cannot be controlled	3.0 (1.6)	2.2 (1.4)	0.306, 1.273	0.002**
3. When the patient uses pain medicine, his/her body becomes used to its effects, and pretty soon, it will not work anymore	4.0 (1.0)	3.5 (1.4)	0.137, 0.901	0.008**
4. Using pain medicine blocks the patient's ability to know if he/she has any new pain	3.5 (1.5)	3.0 (1.7)	0.242, 1.316	0.005**
5. Nausea from pain medicine cannot be relieved	2.5 (2.0)	1.3 (1.3)	0.631, 1.783	0.000***
6. Pain medicine makes patients say or do embarrassing things	2.5 (1.9)	1.6 (1.4)	0.289, 1.452	0.004**
7. If a patient takes pain medicine when he/she has some pain, then it might not work as well if the pain becomes worse	3.5 (1.5)	3.2 (1.5)	-0.233, 0.766	0.293
8. Pain medicine can keep patients from knowing what is going on in their bodies	3.3 (1.6)	2.2 (1.7)	0.473, 1.569	0.000***
9. Constipation from pain medicine cannot be relieved	2.5 (1.7)	1.4 (1.4)	0.525, 1.587	0.000***
10. It is easier for a patient to put up with pain than the side effects that come from pain medicine	3.3 (1.7)	2.1 (1.8)	0.563, 1.697	0.000***
11. If the patient uses pain medicine now, it will not work as well if he/she needs it later	3.4 (1.6)	2.6 (1.7)	0.243, 1.357	0.005**
12. Pain medicine can mask changes in the patient's health	3.3 (1.7)	2.6 (1.6)	0.217, 1.298	0.006**
13. Cancer pain can be relieved	1.3 (1.4)	1.2 (1.16)	-0.325, 0.549	0.611
14. Pain medicine can effectively control cancer pain	1.5 (1.3)	1.5 (1.4)	-0.416, 0.486	0.878
15. Medicine can relieve cancer pain	1.2 (1.4)	1.1 (1.2)	-0.385, 0.462	0.857
16. It is important for the patient to be strong by not talking about his/her pain	3.3 (1.7)	1.8 (1.9)	0.809, 1.998	0.000***
17. It is important for the doctor to focus on curing illness and not waste time controlling pain	3.8 (1.7)	1.5 (2.0)	1.627, 2.829	0.000***
18. If doctors have to deal with the pain, they will not concentrate on curing the disease	2.1 (1.9)	1.2 (1.7)	0.358, 1.586	0.002**
19. Doctors might find it annoying to be told about the pain	2.2 (2.0)	1.0 (1.5)	0.615, 1.869	0.000***
20. Reports of pain could distract a doctor from curing cancer	2.1 (2.0)	1.1 (1.6)	0.378, 1.594	0.002**
21. If the patient talks about pain, people will think he/she is a complainer	2.9 (2.0)	2.0 (2.0)	0.438, 1.717	0.001**
22. There is a danger of patients' becoming addicted to pain medicine	4.0 (1.4)	3.2 (1.5)	0.306, 1.273	0.002**
23. Pain medicine weakens the immune system	3.0 (1.8)	1.9 (1.7)	0.580, 1.736	0.000***
24. Many people with cancer get addicted to pain medicine	4.0 (1.5)	3.4 (1.5)	-0.072, 0.914	0.094
25. Using pain medicine can harm a patient's immune system	3.5 (1.7)	1.7 (1.7)	1.245, 2.362	0.000***
26. Pain medicine can hurt a patient's immune system	3.4 (1.7)	1.7 (1.7)	1.202, 2.314	0.000***
27. Pain medicine is very addictive	3.8 (1.6)	3.0 (1.5)	0.277, 1.274	0.003**
Overall mean scores for the BQ-II	3.8 (0.7)	2.9 (0.8)	0.64, 1.12	0.000***

SD = Standard Deviation; % = percentage; CI = Confidence Interval; P-value = the probability; ** = $p < 0.05$; *** = $p < 0.001$

5.2.4 Common barriers to CPM among Libyan HCPs

The most common responses on the overall BQ-II and its subscales (rating 3 or above: > 50%; indicating greater attitudinal barriers and poorer knowledge towards CPM) between Libyan nurses and physicians were: 70% (n = 40/57) for nurses and 43% (n = 41/95) for physicians, for the statement "Using pain medicine can block the patient from knowing what is going on in his/her body." Furthermore, 53% (30/57) of nurses thought that "Drug side effects,' such as 'constipation' is difficult to relieve" compared with 15% (n = 24/95) of physicians. Moreover, 72% (n = 41/57) of nurses and 34% (n = 34/95) of physicians believed

that “a ‘strong patient’ does not complain about pain.” In addition, 81% (n = 46/57) of nurses compared to 31% (n = 29/95) of physicians, for the statement that pain could ‘distract the doctor’ for the statement “Doctors should focus on curing cancer and not wasting their time by controlling pain.” Besides, 84% (n = 48/57) of nurses expressed deep concern about ‘opioids addiction’ compared to 69% (n = 66/95) of physicians. Additionally, the concern that ‘harmful effects’ of “opioids can impair a patient’s immune system” also caused concern among nurses 70% (n = 40/57) and physicians 27% (n = 26/95). (See Figure 5.3). This result indicates that Libyan oncology physicians had higher positive attitudes and levels of adequate knowledge about cancer pain and opioids than nurses. However, this was an independent *t*-test (unadjusted estimate). Thus, a multiple linear regression analysis was needed to investigate whether the Libyan HCPs’ demographic variables (e.g., age, gender, marital status, profession, educational level, training, work experience, or using WHO for CPM) were significantly associated with participants’ mean overall BQ-II and its subscales scores (adjusted estimate). (See sub-section 5.2.5 below).

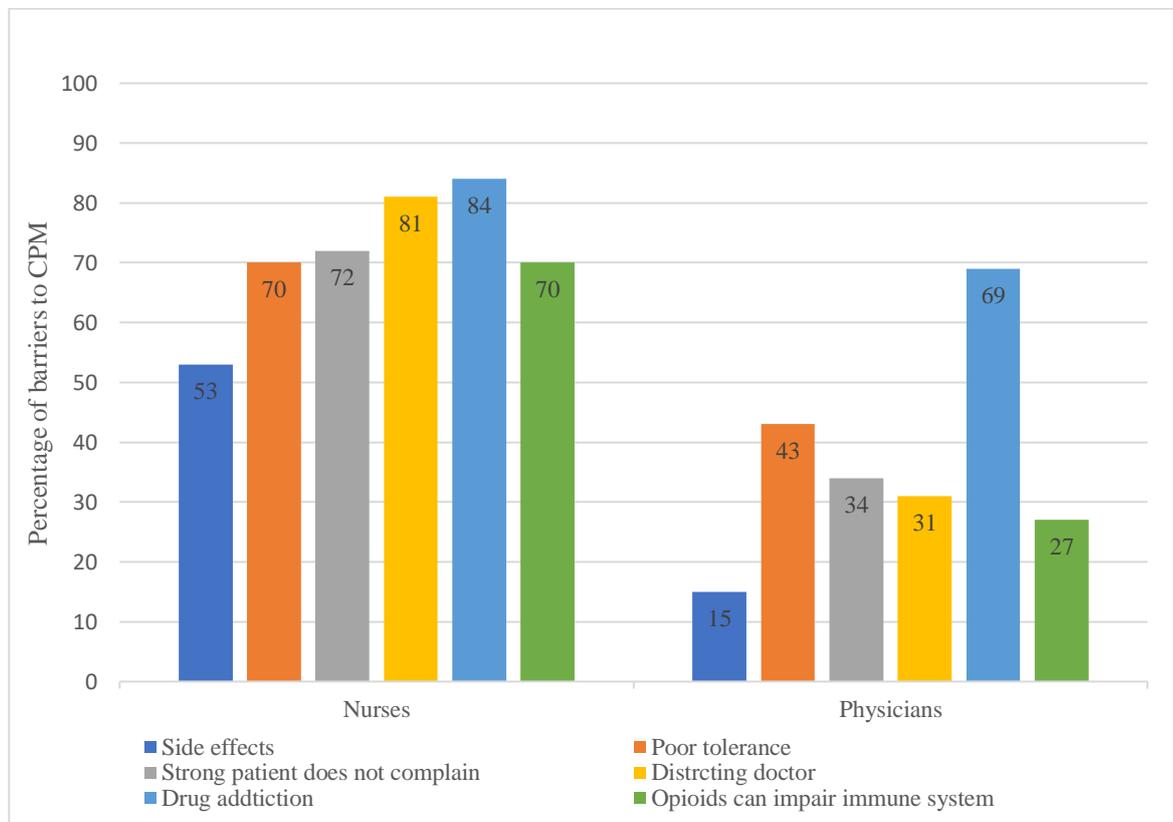


Figure 5-3 Comparison of the most common barriers to CPM between Libyan nurses and physicians

5.2.5 Comparison between Libyan HCPs' demographic variables and the mean overall BQ-II

Multiple linear regression analysis was performed to investigate whether the Libyan HCPs' demographic variables (age, gender, marital status, profession, educational level, training, work experience, or using WHO for CPM) were significantly associated with participants' mean overall BQ-II scores (adjusted estimate). All of the assumptions were met. The mean overall BQ-II scores were used as the dependent (outcome) variables, and age, gender, marital status, profession, educational level, training, work experience, and WHO for CPM were entered concurrently as independent (cause) variables. Multiple regression results indicated that the model explained the $R^2 = 0.331$, which depicts that the model explains 33.1% of the variance in the mean overall BQ-II scores. The combination of variables showed that the regression model was significantly associated with the mean overall BQ-II performance, $F(11,134) = 6.014$, $p < 0.001$. However, only profession (nurses vs. physicians) and educational levels (high-school vs. undergraduate vs. postgraduate degrees) contributed significantly to the model ($B = -0.530$, $p < 0.05$) and ($B = -0.641$, $p < 0.05$), respectively. This result indicates that nurses had higher barrier scores to CPM than physicians ($B = -0.530$). Furthermore, those who were with high-school and undergraduate degrees ($B = -0.082$) showed higher barrier scores to CPM than those with postgraduate degrees ($B = -0.641$).

However, age, gender, marital status (single vs. married vs. divorced), training, work experience, and using WHO for CPM were not significantly associated with the mean overall BQ-II scores. (See Table 5.3). Hence, this result shows that educational levels have inverse relationships, as when there is an increase in educational levels, the barriers to CPM (the mean overall BQ-II scores) decrease. The bootstrapped 95% confidence interval for the slope of the mean overall BQ-II scores is presented in table 5.3.

Table 5-3 Summary of multiple linear regression findings between mean overall BQ-II and the socio-demographic factors

Variables	Levels	Beta Coefficients	R ²	Coefficient (95% CI)	t-value	P-value
Constant		4.547	0.331	2.610, 6.483	4.644	0.000***
Age		0.040	0.331	-0.239, 0.319	0.283	0.778
Gender	Ref = Male	-	-	-	-	-
	Female	-0.082	0.331	-0.343, 0.178	-0.624	0.534
Marital status	Ref = Widowed	-	-	-	-	-
	Single	0.119	0.331	-1.351, 1.590	0.161	0.873
	Married	0.169	0.331	-1.295, 1.633	0.228	0.820
	Divorced	-0.572	0.331	-2.134, 0.990	-0.724	0.470
Profession	Ref = Nurses	-	-	-	-	-
	Physicians	-0.530	0.331	-1.054, -0.005	-1.998	0.048**
Education	Ref = Undergraduate	-	-	-	-	-
	High-school	-0.208	0.331	-0.753, -0.336	-0.757	0.450
	Postgraduate	-0.641	0.331	-1.239, -0.043	-2.121	0.036**
Training		-0.261	0.331	-0.634, 0.113	-1.380	0.170
Work experience		-0.106	0.331	-0.451, 0.240	-0.604	0.547
WHO for CPM		0.088	0.331	-0.175, 0.352	0.664	0.508

p-value = the probability; CI = Confidence Interval; Overall BQ-II scores = the 27 items on Barriers Questionnaire II; R² = Coefficient of determination; % = percentage; n = number; CI = Confidence Interval; ** = p < 0.05; *** = p < 0.001

5.2.6 Comparison between the mean BQ-II subscale physiological effects and Libyan HCPs' demographic variables

Multiple linear regression analysis was conducted to investigate whether the socio-demographic factors (age, gender, marital status, profession, educational level, training, work experience, or WHO for CPM) were significantly associated with participants' mean BQ-II subscale physiological effects scores (adjusted estimate). All of the assumptions were met. The mean BQ-II physiological effects scores were used as the dependent (outcome) variables, and age, gender, marital status, profession, educational level, training, work experience, and WHO for CPM were entered concurrently as independent (cause) variables. Multiple regression results indicated that the model explained the $R^2 = 0.267$, which indicates that the model explains 26.7% of the variance in the mean BQ-II physiological effects scores. The combination of variables presented that the regression model was significantly associated with the mean BQ-II physiological effects performance, $F(11, 134) = 4.427$, $p < 0.001$. However, only professionals (nurses vs. physicians) contributed significantly to the model ($B = -0.615$, $p < 0.05$), indicating that physicians had lower barrier scores to CPM than nurses ($B = -0.615$).

The socio-demographic factors: age, gender, marital status (single vs. married vs. divorced), educational levels (high-school vs. undergraduate vs. postgraduate degree), training, work experience, and WHO for CPM did not significantly associate with the mean overall BQ-II scores. (See Table 5.4). The bootstrapped 95% confidence interval for the slope of the mean BQ-II physiological effects scores also are presented in table 5.4 below.

Accordingly, these result shows that the profession was significantly associated with participants' mean BQ-II subscale “physiological effects” scores; compared to the nurses, the physicians had lower mean barrier scores. However, there was no longer a mean grade difference between age, gender, marital status, educational levels, training, work experience, and WHO for CPM groups, indicating that age, gender, marital status, educational levels, training, work experience, and WHO for CPM did not contribute to the multiple regression model. (See Table 5.4).

Table 5-4 Summary of multiple linear regression findings between mean BQ-II subscale physiological Effects (PE) and the socio-demographic factors

Variables	Levels	Beta Coefficients	R ²	Coefficient (95% CI)	t-value	P-value
Constant		4.076	0.267	2.055, 6.096	3.990	0.000***
Age		-0.150	0.267	-0.141, 0.441	1.018	0.310
Gender	Ref = Male	-	-	-	-	-
	Female	-0.031	0.267	-0.240, 0.303	0.229	0.819
Marital status	Ref = Widowed	-	-	-	-	-
	Single	0.284	0.267	-1.250, 1.818	0.366	0.715
	Married	0.290	0.267	-1.238, 1.817	0.375	0.708
	Divorced	-0.399	0.267	-2.029, 1.231	-0.484	0.629
Profession	Ref = Nurses	-	-	-	-	-
	Physicians	-0.615	0.267	-1.162, -0.068	-2.224	0.028**
Education	Ref = Undergraduate	-	-	-	-	-
	High-school	0.019	0.267	-0.549, 0.587	0.065	0.948
	Postgraduate	-0.323	0.267	-0.947, 0.301	-1.025	0.307
Training		-0.383	0.267	-0.772, 0.008	-1.940	0.055
Work experience		-0.077	0.267	-0.437, 0.284	-0.420	0.675
WHO for CPM		0.157	0.267	-0.118, 0.432	1.131	0.260

p-value = the probability; CI = Confidence Interval; BQ-II = the Barriers Questionnaire II subscale; PE = Physiological Effects; R² = Coefficient of determination; % = percentage; n = number; CI = Confidence Interval; ** = *p* < 0.05; *** = *p* < 0.001

5.2.7 Comparison between the mean BQ-II subscale fatalism and Libyan HCPs' demographic variables

Multiple linear regression analysis was performed to investigate whether the socio-demographic factors (age, gender, marital status, profession, educational level, training, work experience, or WHO for CPM) were significantly associated with participants' mean BQ-II subscale fatalism scores (adjusted estimate). All of the assumptions were met. The mean BQ-II fatalism scores were used as the dependent (outcome) variables, and age, gender, marital status, profession, educational level, training, work experience, and WHO for CPM have entered concurrently as independent (cause) variables.

Multiple regression results show that the model explained the $R^2 = 0.122$, which depicts that the model explains 12.2% of the variance in the mean BQ-II fatalism scores. The combination of variables presented that the regression model was not significantly associated with the mean BQ-II fatalistic beliefs, $F(11,134) = 1.699$, $p > 0.05$. Only marital status (single vs. married vs. divorced), were significantly associate with the mean BQ-II subscale fatalism scores ($B = -3,011$, $p < 0.05$), ($B = -3.007$, $p < 0.05$), ($B = -2.770$, $p < 0.05$), respectively. However, for the rest of the socio-demographic factors: age, gender, profession (nurses vs. physicians), educational levels (high-school vs. undergraduate vs. postgraduate degrees), training, work experience, and WHO for CPM did not significantly associate with the mean BQ-II subscale fatalism scores and (95% confidence interval) for the slope of the mean BQ-II subscale fatalism scores. (See Table 5.5).

Accordingly, the result shows that participants who were single, married, or divorced fell within the mean subscale "fatalism" BQ-II scores, which means that those who were single ($B = -3,011$), married ($B = -3.007$), and divorced ($B = -2.770$) showed higher barrier scores to CPM than those who were widowed when questionnaires (the subscale "fatalism" BQ-II) were analysed. For the rest of the variables, there is no longer a mean grade difference between the socio-demographic factors (age, gender, profession, educational levels, training, work experience, and WHO for CPM groups), indicating that age, gender, profession,

educational levels, training, work experience, and WHO for CPM did not contribute to the multiple regression model. (See Table 5.5).

Table 5-5 Summary of multiple linear regression findings between mean BQ-II subscale Fatalism (F) and the socio-demographic factors

Variables	Levels	Beta Coefficients	R ²	Coefficient (95% CI)	t-value	P-value
Constant		4.712	0.122	2.624, 6.799	4.464	0.000***
Age		0.107	0.122	-0.407, 0.194	-0.702	0.484
Gender	Ref = Male	-	-	-	-	-
	Female	-0.002	0.122	-0.283, 0.279	-0.014	0.989
Marital status	Ref = Widowed	-	-	-	-	-
	Single	-3.011	0.122	-4.596, -1.426	-3.758	0.000***
	Married	-3.007	0.122	-4.585, -1.429	-3.769	0.000***
	Divorced	-2.770	0.122	-4.453, -1.086	-3.254	0.001**
Profession	Ref = Nurses	-	-	-	-	-
	Physicians	0.288	0.122	-0.277, 0.853	1.008	0.315
Education	Ref = Undergraduate	-	-	-	-	-
	High-school	-0.524	0.122	-1.111, 0.063	-1.767	0.080
	Postgraduate	-0.446	0.122	-1.090, 0.198	-1.370	0.173
Training		0.091	0.122	-0.312, 0.493	0.447	0.656
Work experience		-0.026	0.122	-0.398, 0.347	-0.136	0.892
WHO for CPM		0.005	0.122	-0.279, 0.289	0.036	0.971

p-value = the probability; CI = Confidence Interval; BQ-II subscale (F) = the Barriers Questionnaire II subscale (Fatalism); R² = Coefficient of determination; % = percentage; n = number; CI = Confidence Interval; ** = p < 0.05; *** = p < 0.001

5.2.8 Comparison between the mean BQ-II subscale communication and Libyan HCPs' demographic variables

Multiple linear regression analysis was conducted to determine whether the socio-demographic factors (age, gender, marital status, profession, educational level, training, work experience, or WHO for CPM) were significantly associated with participants' mean BQ-II subscale communication scores. All of the assumptions were met. The mean BQ-II communication scores were used as the dependent (outcome) variables, and the socio-demographic factors (age, gender, marital status, profession, educational level, training, work experience, and WHO for CPM) were entered concurrently as independent (cause) variables. Multiple regression results indicate that the model explained the R² = 0.335, which depicts that the model explains 33.5% of the variance in the mean BQ-II "communication" scores. The combination of variables presented that the regression model was significantly associated with the mean BQ-II subscale "communication" performance, $F(11,134) = 6.148$, $p < 0.001$. However, only educational level (high-school vs. undergraduate vs. postgraduate degrees) contributed significantly to the model ($B = -1.692$, $p < 0.001$) and ($B = -2.072$, $p < 0.001$),

respectively. This result shows that participants with high-school and undergraduate degrees had higher barrier scores to CPM ($B = -1.692$) than those with postgraduate degrees ($B = -2.072$).

However, age, gender, marital status (single vs. married vs. divorced), profession, training, work experience, and WHO for CPM were not significantly associated with the mean BQ-II subscale “communication” scores and the bootstrapped (95% confidence interval) for the slope of the mean BQ-II subscale “communication” scores. (See Table 5.6).

Therefore, this result illustrates there was no longer a mean grade difference between age, gender, marital status, profession, training, work experience, and WHO for CPM groups, indicating that age, gender, marital status, profession, training, work experience, and WHO for CPM did not contribute to the multiple regression model. (See Table 5.6).

Table 5-6 Summary of multiple linear regression findings between mean BQ-II subscale Communication (C) and the socio-demographic factors

Variables	Levels	Beta Coefficients	R ²	Coefficient (95% CI)	t-value	P-value
Constant		3.721	0.335	0.882, 6.561	2.592	0.011**
Age		-0.145	0.335	-0.554, 0.265	-0.699	0.486
Gender	Ref = Male	-	-	-	-	-
	Female	-0.318	0.335	-0.700, 0.064	-1.644	0.102
Marital status	Ref = Widowed	-	--	-	--	-
	Single	0.114	0.335	-2.042, 2.270	0.104	0.917
	Married	0.134	0.335	-2.013, 2.280	0.123	0.902
	Divorced	-0.771	0.335	-3.062, 1.519	-0.666	0.506
Profession	Ref = Nurses	-	-	-	-	-
	Physicians	0.473	0.335	-0.296, 1.242	1.217	0.226
Education	Ref = Undergraduate	-	-	-	--	-
	High-school	-1.692	0.335	-2.490, -0.894	-4.192	0.000***
	Postgraduate	-2.072	0.335	-2.948, -1.196	-4.676	0.000***
Training		-0.343	0.335	-0.890, 0.205	-1.238	0.218
Work experience		-0.042	0.335	-0.549, 0.465	-0.164	0.870
WHO for CPM		0.032	0.335	-0.354, 0.419	0.166	0.868

p-value = the probability; CI = Confidence Interval; BQ-II subscale (C) = the Barriers Questionnaire II subscale (Communication); R² = Coefficient of determination; % = percentage; n = number; CI = Confidence Interval; ** = p < 0.05; *** = p < 0.001

5.2.9 Comparison between the mean BQ-II subscale harmful effects and Libyan HCPs' demographic variables

Multiple linear regression analysis was conducted to determine whether the socio-demographic factors (age, gender, marital status, profession, educational level, training, work experience, or WHO for CPM) were significantly associated with participants' mean BQ-II subscale harmful effects scores. All of the assumptions were met. The mean BQ-II harmful effects scores were used as the dependent (outcome) variables, and the socio-demographic factors (age, gender, marital status, profession, educational level, training, work experience, and WHO for CPM) were entered concurrently as independent (cause) variables. Multiple regression results indicate that the model explained the $R^2 = 0.306$, which depicts that the model explains 30.6% of the variance in the mean BQ-II "harmful effects" scores. The combination of variables presented that the regression model has significantly associated with the mean BQ-II subscale "harmful effects" performance, $F(11,134) = 5.362$, $p < 0.001$. However, only profession (nurses vs. physicians) and education (high-school vs. undergraduate vs. postgraduate degrees) contributed significantly to the model ($B = -1.614$, $p < 0.001$) and ($B = 1.123$, $p < 0.05$), respectively. This result illustrates that nurses had more barrier scores to CPM than physicians ($B = -1.614$), and the participants with high-school and undergraduate degrees had more barrier scores to CPM ($B = 1.123$) than those with a postgraduate degree ($B = 0.363$).

However, the socio-demographic factors: age, gender, marital status (single vs. married vs. divorced), training, work experience, and WHO for CPM did not significantly associate with the mean BQ-II subscale "harmful effects" scores. (See Table 5.7). The bootstrapped (95% confidence interval) for the slope of the mean BQ-II subscale "harmful effects" scores is also presented in table 5.7 below.

Hence, this result shows that there was no longer a mean grade difference between age, gender, marital status, training, work experience, and WHO for CPM groups, indicating that age, gender, marital status, training, work experience, and WHO for CPM did not contribute to the multiple regression model. (See Table 5.7).

Table 5-7 Summary of multiple linear regression findings between mean BQ-II subscale Harmful Effects (HE) and the socio-demographic factors

Variables	Levels	Beta Coefficients	R ²	Coefficient (95% CI)	t-value	P-value
Constant		4.205	0.306	1.622, 6.787	3.220	0.002**
Age		0.087	0.306	-0.285, 0.459	0.461	0.645
Gender	Ref = Male	-	-	-	-	-
	Female	-0.069	0.306	-0.416, 0.279	-0.390	0.697
Marital status	Ref = Widowed	-	-	-	-	-
	Single	1.557	0.306	-0.404, 3.518	1.571	0.119
	Married	1.722	0.306	-0.230, 3.675	1.745	0.083
	Divorced	0.808	0.306	-1.275, 2.891	0.767	0.444
Profession	Ref = Nurses	-	-	-	-	-
	Physicians	-1.614	0.306	-2.314, -0.915	-4.567	0.000***
Education	Ref = Undergraduate	-	-	-	-	-
	High-school	1.123	0.306	0.397, 1.849	3.060	0.003**
	Postgraduate	0.363	0.306	-0.434, 1.160	0.900	0.370
Training		-0.042	0.306	-0.540, 0.456	-0.166	0.868
Work experience		-0.224	0.306	-0.684, 0.237	-0.959	0.339
WHO for CPM		0.026	0.306	-0.325, 0.377	0.147	0.883

P-value = the probability; CI = Confidence Interval; BQ-II subscale (HE) = the Barriers Questionnaire II subscale (Harmful Effects); R² = Coefficient of determination; % = percentage; n = number; CI = Confidence Interval; ** = p < 0.05; *** = p < 0.001

5.2.10 Comparison of mean overall BQ-II and subscales scores between Libyan, Jordanian, and Albanian HCPs

A z test was performed to determine whether Libyan HCPs had different barrier scores on the overall BQ-II and its subscales from Jordanian HCPs and Albanian HCPs. The reason for choosing these two studies (Jordanian and Albanian studies) as both studies used the same BQ-II questionnaire, and the data, which were needed for comparison, were available in their studies (Al Qadire, 2011b; Xhixha et al., 2013). A z test was used to compare the average mean overall BQ-II scores of a sample of 152 Libyan HCPs (mean = 3.3) to the average mean overall BQ-II scores of Jordanian HCPs (mean = 2.0, SD = 0.9) (Al Qadire, 2011b) and Albanian HCPs (mean = 1.6, SD = 0.7) (Xhixha et al., 2013). (See Table 5.8).

The result indicates a significant difference in the mean 'overall BQ-II' scores between Libyan HCPs and Jordanian HCPs, $z = + 17.80$, $p < 0.001$. A similar result was found when the mean overall BQ-II scores for Libyan HCPs were compared to Albanian HCPs, $z = + 29.94$, $p < 0.001$. The result also shows a significant difference in the mean BQ-II subscale 'physiological effects' between Libyan HCPs and Jordanian HCPs, $z = + 16.95$, $p < 0.001$. A similar result was found when Libyan HCPs were compared to Albanian HCPs, $z = + 21.57$, $p < 0.001$. This result indicates that Libyan HCPs had higher mean barrier scores than Jordanian and Albanian HCPs. (See Table 5.8).

However, on the ‘fatalism’ subscale means scores for Libyan, Jordanian, and Albanian HCPs, the scores were the lowest compared to other subscales (mean = 1.7, SD 0.8), (mean = 1.4, SD = 1.0), and (mean = 1.0, SD = 0.2), respectively. This result shows that these three groups (Libyan, Jordanian, and Albanian HCPs) may believe cancer pain can be treated using pain medications. However, based on the z test, there was a perceptible difference in the mean BQ-II subscale ‘fatalism’ between Libyan HCPs and Jordanian HCPs, $z = + 3.70$, $p < 0.05$. A similar result was found when comparing Libyan HCPs to Albanian HCPs, $z = +43.15$, $p < 0.001$.

Furthermore, there was a significant difference in the mean BQ-II subscale ‘communication’ between Libyan HCPs and Jordanian HCPs, $z = + 7.19$, $p < 0.001$. A similar result was found when comparing Libyan HCPs with Albanian HCPs, $z = + 92.46$, $p < 0.001$. A z test result also showed that Libyan HCPs had higher mean barrier scores on the BQ subscale ‘harmful effects’ than Jordanian HCPs ($z = + 13.56$, $p < 0.001$) and Albanian HCPs ($z = + 53.42$, $p < 0.001$).

Table 5-8 Mean barrier scores on the overall BQ-II and its subscales between Libyan, Jordanian, and Albanian HCPs

Variables	Mean (SD)		
	Libyan HCPs (n = 152)	Jordanian HCPs (n = 21)	Albanian HCPs (n = 189)
Overall BQ-II items	3.3 (0.8)	2.0 (0.9)	1.6 (0.7)
Physiological effects	3.4 (0.8)	2.3 (0.8)	2.0 (0.8)
Fatalism	1.7 (0.8)	1.4 (1.0)	1.0 (0.2)
Communication	2.5 (1.2)	1.8 (1.2)	1.0 (0.2)
Harmful effects	3.3 (1.0)	2.2 (1.0)	2.0 (0.3)

HCPs = Healthcare Professionals; BQ-II = the Barriers Questionnaire II; SD = Standard Deviation; n = number

Moreover, the “physiological and harmful effects of pain medications” were higher concerns in the Libyan HCPs (mean = 3.4, SD = 0.8) and (mean = 3.3, SD = 1.0) than Jordanian HCPs (mean = 2.3, SD = 0.8) and (mean = 2.2, SD = 1.0), and Albanian HCPs (mean = 1.6, SD = 0.7) and (mean = 2.0, SD = 0.3), respectively. This result indicates that Libyan HCPs show more lack of knowledge and poorer attitudes towards CPM than other HCPs in other countries (e.g., Jordan and Albania). This result is in line with the alternative hypothesis (H_6) in this study, which stated that “Doctors and nurses in Libya may have more barriers toward

CPM than HCPs in other countries.” The Libyan HCPs' response to the overall BQ-II and its subscales is presented in the appendix (32).

5.2.11 The most common barriers to CPM among HCPs from three countries

The most common mean barrier scores among Libyan, Jordanian, and Albanian HCPs were ‘poor tolerance,’ ‘drug addiction,’ and ‘opioid side effects.’ For example, Libyan HCPs believed that “patients' bodies could increasingly become tolerant to pain medications, resulting in such medicines becoming ineffective,” and the mean score for this item was higher in Libyan HCPs (mean = 3.7, SD = 1.3) compared to Jordanian HCPs (mean = 3.1, SD = 1.7) (Al Qadire, 2011b) and Albanian HCPs (mean = 2.5, SD = 1.8) (Xhixha et al., 2013). (See Figure 5.4).

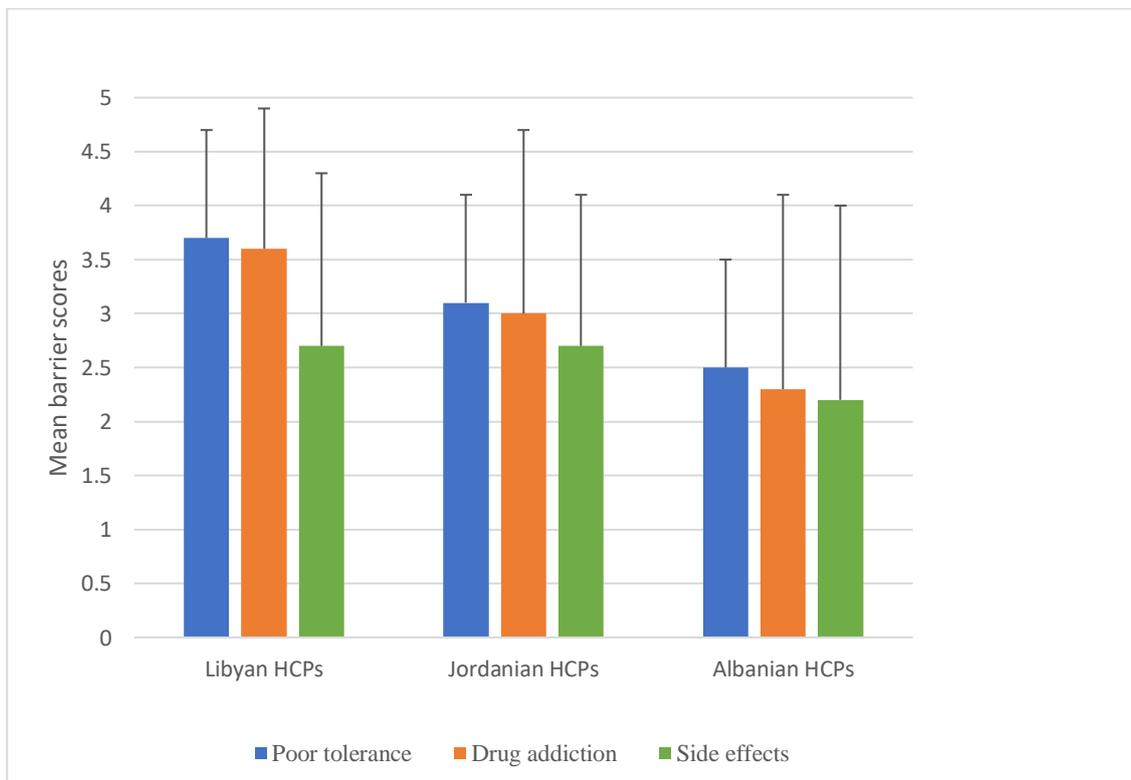


Figure 5-4 Comparison of the mean most common barriers between Libyan, Jordanian, and Albanian HCPs

Another comparison of common barrier scores on the BQ-II subscale items between the HCPs from the three countries (Libya, Jordan, and Albania) was performed. For instance, Libyan HCPs believed that “if the patients used pain medications, their ability to recognise any new pain would be blocked” was also higher in Libyan HCPs with a mean score of 3.4 (SD = 1.7) than Jordanian HCPs (mean = 2.9, SD = 1.4) and Albanian HCPs (mean = 3.0, SD = 1.7). This was followed by another concern of tolerance, as Libyan HCPs thought that “if a patient took pain medicine when he/she had mild Pain, such medication might not be effective as well if his/her Pain became severe” (mean = 3.3, SD = 1.5) compared to Jordanian HCPs (mean = 3.1, SD = 1.7) and Albanian HCPs (mean = 2.5, SD = 1.9). Besides another common concern among Libyan HCPs was ‘drug addiction’, as the three questions in the items related to ‘drug addiction’ were higher in Libyan HCPs (mean = 3.6, SD = 1.5) compared to Jordanian HCPs (mean = 3.0, SD = 1.5) and Albanian HCPs (mean = 2.3, SD = 1.9). Overall, this result indicates that oncology HCPs in Libya have higher barriers to effective CPM than HCPs in other countries, supporting an alternative hypothesis (H₆).

5.3 Summary of the key findings

This quantitative study (study three) in this thesis aimed to evaluate further nurses' and physicians' knowledge, attitudes, and perceived barriers regarding cancer pain and its management in Libya. This survey (study three) showed perceived barriers to effective CPM related to lack of knowledge and poor attitudes towards CPM among oncology HCPs in Libya. Libyan nurses and physicians scored higher barrier mean scores on the BQ-II overall and subscale items and showed lower adequate knowledge about cancer pain and opioids than HCPs in other countries (e.g., Jordan and Albania). This study also showed that participants with only high-school-level qualifications (equivalent to UK A levels) and undergraduate degrees had higher mean barrier scores on the overall BQ-II and its subscales than those with postgraduate-level qualifications. This result indicated that participants with postgraduate levels were associated with lower mean barrier scores towards CPM.

The result also indicated that both groups of Libyan HCPs who had training in CPM and those who did not, and those who had short-term (less than one year) and who had long-term (greater than one year) work experience in cancer care settings showed a similar level of barriers towards CPM. This evidence supports the null hypothesis (H_0), which is that there is no relationship between training in CPM and work experience in cancer care settings, and enhancing HCPs' knowledge and attitudes towards CPM. This result means that short training in CPM and work experience in cancer care settings did not improve the Libyan nurses' and physicians' knowledge and attitudes towards CPM.

Chapter 6

Comprehensive Discussion and Conclusion

6.1 Introduction

This chapter comprehensively discusses the key findings of the three studies included in this sequential exploratory mixed-methods study, which aimed to explore Libyan HCPs, patients, and family caregivers' views about cancer pain and its management. Firstly, the chapter starts with integrating and summarising the main findings of the three studies in this thesis in section 6.2, which are presented in chapters three, four, and five, respectively. Secondly, the results from three studies in this mixed-methods study are discussed in section 6.3. Thirdly, this chapter provides research strengths and limitations in section 6.4. Fourthly, in section 6.5, the researcher reflected on undertaking this study. Fifthly, section 6.6 involves the research contributions to research and practice. Finally, the chapter ends with a conclusion and recommendations in section 6.7.

6.2 Integration and summary of results

The study's main aim was divided into three sub-aims to achieve the overall purpose of this study: (1) The first aim was to systematically review research on the nature and impact of attitudes and knowledge towards CPM. (2) The second aim was to explore and understand Libyan HCPs,' patients,' and family caregivers' perceptions of cancer pain and its management. (3) The third aim was to evaluate HCPs' knowledge, attitudes, and potential barriers regarding cancer pain and its management in Libya.

To address the purpose of this sequential exploratory mixed-methods study and to answer the research questions, the data from the three studies (systematic review, qualitative study, and quantitative study) of this thesis were integrated on three different occasions. The first point was at the intermediate stage when the participants for the second study were selected based on the responses given in the first study (Hanson et al., 2005). The second point of integration was when

the participants for the third study were selected based on the responses given in the second study (Creswell et al., 2003). The third point of interaction was applied, where both complementary and convergent (triangulations) of the findings are described and discussed in the next section (Ivankova et al., 2006; Östlund et al., 2011).

To understand the views of Libyan HCPs, patients, and family caregivers about cancer pain and its management and to recognise the factors related to potential barriers to effective CPM in Libya, this thesis employed a mixed-methods design, the three methods (systematic review, qualitative, and quantitative methods) were sequential, and the data from each study were triangulated. Each method has different approaches and perspectives, with the results complementing each other and yielding a comprehensive picture. This thesis began relatively broadly by systematically reviewing and combining information related to HCPs,' cancer patients,' caregivers,' and the general public's attitudes and knowledge towards CPM from various studies. Higgins and Green (2011) stated that the purpose of a systematic review is to synthesise research evidence and identify the limitations of current knowledge and propose directions for future research. Study one showed similar attitudinal barriers to effective CPM among HCPs, cancer patients, family caregivers, and the public. The most commonly cited barriers were fear of drug addiction, poor tolerance of medication, and side effects of opioids. The result also found differences between HCPs (physicians versus nurses) and countries based on their potential exposure to palliative care training and services. The overall result of study one confirmed that there are still barriers to effective CPM caused by HCPs,' cancer patients,' family caregivers,' and the general public's lack of knowledge and/or poor attitudes towards effective CPM, resulting in unalleviated cancer pain. However, the studies were limited to quantitative methods and did not include qualitative studies (in-depth evidence) to show people's views, perceptions, and beliefs about cancer pain and opioids for CPM. Hence, study two (qualitative study) was needed to gain a more detailed understanding of how these attitudinal barriers arise within different contexts. Study two aimed to explore Libyan HCPs,' patients,' and caregivers' views about cancer pain and its management.

Study two showed that Libyan cancer patients were concerned about the social stigma of opioids, feared drug addiction, and could not pay for medicines if they faced financial difficulties. Instead, patients and caregivers emphasised religious and cultural beliefs for managing cancer pain, including the use of the Qur'an and cauterisation (ironing the place of cancer or pain with fire) as coping strategies for CPM. As CPM barriers, Libyan HCPs perceived a lack of policies and guidelines, pain rating scales, and professional education and training. Based on the findings from study two (qualitative study) and to generalise the qualitative results, further research with a large sample size was required to fully understand contextual differences in Libya's current state of practice regarding CPM and HCPs' attitudes and knowledge of CPM in Libya. Thus, study three (quantitative study) was conducted.

In study three, the results suggest that Libyan oncology HCPs hold perceived barriers, lack of knowledge, and poor perceptions and attitudes towards CPM. Nurses showed higher barrier scores towards CPM than physicians. The six significant differences in the attitudinal barriers between nurses and physicians were 'opioid side effects,' 'poor tolerance,' 'strong patient endures pain,' 'distract the physician,' 'drug addiction,' and 'opioids impair immune function.' Study three results also indicated that Libyan HCPs with high-level qualifications were associated with lower barrier scores to effective CPM.

In line with the mixed-methods design of the thesis, the general discussion represents a meta-inference of the assembled results from studies adopting different methods to provide overall convergent findings (Creswell et al., 2007).

6.3 Discussion of findings from three studies

6.3.1 Discussion of findings from study one

Study one in this thesis aimed to systematically review research on the nature and impact of attitudes and knowledge towards CPM. Even though all included studies in this review used the same design (cross-sectional design), the

questionnaires used to conduct surveys in this particular area were different, and some studies did not state which questionnaire was used or failed to provide information regarding the validity of the tools. Therefore, it was difficult to compare studies directly, and the reliability of these included studies in this review could be compromised (Poudel et al., 2018; JBI, 2016). However, almost two-thirds of the included studies, 25 out of the 36 (69.44%), were rated good quality.

Overall, study one showed that most included studies indicated similar attitudinal barriers to effective CPM shared across HCPs, patients, caregivers, and the public. The barriers most commonly cited by HCPs (McCaffery and Ferrell, 1995; Wells et al., 2001; Bernardi et al., 2007b; Kim et al., 2011; Yanjun et al., 2010b; Darawad et al., 2017b; Elliott and Elliott, 1992b; Jeon et al., 2007), patients and their caregivers (Colak et al., 2014b; Lin et al., 2000; Vallerand et al., 2007b; Lou and Shang, 2017), and the general public (Levin et al., 1985) were the fear of poor tolerance, side effects of opioids, and drug addiction. These findings are consistent with the existing literature. For example, a recent study by Saifan et al. (2019), found upon surveying 473 HCPs in Jordan, that the most clearly identified barriers towards CPM were negative attitudes and lack of knowledge towards CPM among HCPs, which resulted from fear of drug addiction, opioid side effects, and cultural beliefs. Another study by Nyirigira Gaston et al. (2021) aimed to evaluate the level of knowledge and attitude of HCPs towards CPM and also found that out of 80 participants, more than 66% of HCPs obtained a score below 50% on the Knowledge and Attitude Survey (KAS) towards chronic cancer pain and its management, which indicated inadequate knowledge about CPM among HCPs and about 51% of the HCPs had negative attitudes towards pain management and opioids.

However, the most common barriers cited by HCPs were contrary to the previous literature, which have suggested that the most important barriers were poor assessment of pain and its management, patient reluctance to take opioids, and inadequate staff knowledge of CPM (Breuer et al., 2011a; Zhang et al., 2015; Darawad et al., 2017b; Eftekhar et al., 2007a; Furstenberg et al., 1998; Ger et al., 2000a; Jho et al., 2014; Jeon et al., 2007). Furthermore, a previous systematic

review by Jacobsen et al. (2007) showed that physicians from countries, such as some states in the US, Australia, and Denmark, were more likely to prescribe strong opioids for CPM at recommended / appropriate doses as they were less concerned about opioid addiction (Jacobsen et al., 2007). Nevertheless, their general findings were that physicians consistently reported being concerned about high doses of opioids and the fear of side effects, and these fears were common reasons for reluctance to prescribe adequate opioids for managing cancer pain (Jacobsen et al., 2007). It can thus be suggested that people from different countries have different attitudes and knowledge about CPM. Therefore, it may be the case that these variations could result in some patients might not receiving appropriate CPM.

6.3.1.1 Patient's Knowledge and Attitudes Towards CPM

Most studies with cancer patients showed low mean scores on patients' knowledge and attitudes towards CPM (Riddell and Fitch, 1997; Colak et al., 2014b; Cohen et al., 2005; Lou and Shang, 2017). This outcome may be explained that many patients could be reluctant to report their pain to HCPs because they have mistaken beliefs regarding opioid medication (Oldenmenger et al., 2009b). The common key concerns among patients with cancer about opioid analgesics were fear of tolerance, opioid side effects, and drug addiction (Lin et al., 2000; Lou and Shang, 2017; Colak et al., 2014b). This finding was also consistent with the literature review of this study (Jacobsen et al., 2009a).

Evidence showed that people who hold negative perceptions about strong opioids rejected to use of opioids for CPM (Silbermann, 2011; Yates et al., 2002; Ho et al., 2020). Silbermann (2011) argued that many patients and their caregivers viewed opioid medications as a path to death; accordingly, opioid analgesics became their last choice. A recent qualitative study involving 31 participants (18 adult cancer patients and 13 caregivers) found that many cancer patients and their caregivers preferred to use morphine for CPM as a last option because they hold concerns and negative perceptions about strong opioids, including drug side effects and addiction, as well as morphine is only used at the terminal stages (Ho et al., 2020). Although pain is considered an individual

experience, many patients are influenced by their religious or cultural beliefs, mainly when interpreting their pain or accepting CPM medication (Alnems, 2012b; Narayan, 2010; Davidhizar and Giger, 2004; Colak et al., 2014b). In study one in this thesis, negative attitudes towards morphine were shown by Turkish and Jordanian patients, who continued to reject morphine for their cancer pain following sessions that aimed to alleviate fear and increase knowledge about opioids. The reasons given for this were fear of addiction, religious reasons, and cultural prohibitions (Al Qadire, 2012a; Colak et al., 2014c). The results of this study would agree with the existing literature regarding the influence of religious and cultural beliefs on cancer and pain management. Silbermann and Hassan (2011) stated that patients' responses to cancer or pain could differ based on the patient's beliefs and culture. Therefore, it is possible that religious and cultural beliefs can be barriers to effective CPM. For instance, due to religious and cultural beliefs, some patients could believe that they should endure their pain courageously (Ho et al., 2013; Colak et al., 2014b). Hence, understanding patients' religious and cultural beliefs can give the HCPs consideration into how the patient views cancer and pain (Silbermann and Hassan, 2011; Swihart and Martin, 2020). The evidence suggests that HCPs should recognise and understand that patients often refer to their religious, spiritual, and cultural beliefs when considering medical treatment (Swihart and Martin, 2020). Nevertheless, HCPs can also be influenced by their cultural or religious beliefs, as it has been argued that cultural and religious beliefs among HCPs were reported as one of the most obviously identified barriers to effective CPM (Rajeh Saifan et al., 2019; Prandi et al., 2015; Al Khalaileh and Al Qadire, 2012b).

6.3.1.2 HCPs' Knowledge and Attitudes Towards CPM

Several studies included in study one showed that physicians had a better level of attitudes and knowledge towards CPM than nurses (Jho et al., 2014; Furstenberg et al., 1998; Jeon et al., 2007; Darawad et al., 2017b). There was also a difference between oncologists and surgeons regarding their level of knowledge about CPM, as oncologists showed more knowledge and positive attitudes towards cancer pain and opioids for CPM than surgeons (Gallagher et al., 2004). It seems possible that these results are due to work experience and

training in CPM, as many studies have shown that working in cancer patients' care settings and receiving training in CPM can improve HCPs' knowledge and attitudes towards CPM (Elliott et al., 1995; O'Brien et al., 1996; Jeon et al., 2007; Howell et al., 2000b; Yanjun et al., 2010b; Larue et al., 1995; Hollen et al., 2000; Utne et al., 2018).

The results also showed a variation between nurses from different countries regarding the level of knowledge and attitudes towards CPM (McCaffery and Ferrell, 1995). For instance, Canadian and American nurses reported better knowledge and attitudes about selecting morphine for CPM than nurses from Spain and Japan (McCaffery and Ferrell, 1995). It seems that the variation in knowledge about CPM among those nurses could indicate that morphine is under-prescribed. This view was supported by previous literature, which reported that the adherence rates to opioids for CPM varied from 20% to 95%, with most cancer patients taking their treatments only as needed (Oldenmenger et al., 2009b).

A significant variance among oncology nurses' knowledge of pain was also found in different regions of Italy. For example, nurses who worked in the centre region of Italy had the lowest score in pain knowledge compared to the North and South areas (Bernardi et al., 2007b). A possible reason for this could be that nurses who recorded higher mean scores about their pain knowledge had attended more educational courses about pain management (Bernardi et al., 2007b). The result also showed that some oncology nurses had an incorrect self-evaluation about their knowledge of CPM (Bernardi et al., 2007b; Yildirim et al., 2008). This finding is consistent with Omran et al. (2014), who found that Jordanian oncology and non-oncology nurses have low knowledge about CPM.

In contrast to earlier findings, several studies indicated that oncology nurses and doctors achieved higher scores on the Knowledge and attitudes surveys (KAS) compared to general nurses and physicians (Shahriary et al., 2015; Gallagher et al., 2004; Jeon et al., 2007; Larue et al., 1995; Utne et al., 2018). These positive results could be due to the work experience of HCPs in cancer pain settings, as

was reported by McCaffery and Ferrell (1995), who stated that nursing staff from countries such as Canada and the US, which have the longest experience of palliative care units, showed a better level of attitudes and knowledge about CPM than nurses from countries (Japan and Spain) that had palliative care services more recently. It can thus be suggested that experience in cancer care or pain settings could enhance HCPs' attitudes and knowledge about CPM.

Nevertheless, it seems that experience in oncology or pain units without professional education and continuing training in CPM is not enough to increase HCPs' knowledge about CPM. This view was supported by Bernardi et al. (2007b), who reported that the years of experience of cancer care nurses were not correlated to pain knowledge scores. Accordingly, it is possible that professional education in CPM is the key issue for improving the HCPs' level of knowledge and attitudes towards CPM. Several authors have suggested that professional education and continuing training in CPM can improve HCPs' attitudes and knowledge about CPM (Omran et al., 2014; Lai et al., 2003; Patiraki et al., 2006b; Allard et al., 2001; Alvarez and Agra, 2006; Bennett et al., 2011). According to previous reviews of educational interventions aimed to improve CPM in different settings, a significant effect was shown on pain scores; however, the quality of opioid prescription and interference from pain in daily activities were not affected by the majority of interventions (Allard et al., 2001; Alvarez and Agra, 2006; Bennett et al., 2009; Oldenmenger et al., 2018). In general, therefore, it seems that a lack of professional education and continuing training in CPM could be one of the essential key barriers to CPM among HCPs (Ger et al., 2000a; Hooten and Bruce, 2011a). A study reported that physicians' lack of knowledge and training in CPM was one of the highest barriers to morphine usage in clinical practice (Yanjun et al., 2010a). Von Roenn et al. (1993) also claimed that HCPs, who had professional education and training in CPM, could aid cancer patients in both reporting their pain and in the effective use of the opioids prescribed to them. It is also well documented that there is less than optimal pain management for patients with cancer due to a lack of professional education about CPM (McCaffrey and Ferrell, 1997; Chwistek, 2017). Many studies have shown that HCPs who had experience in palliative care units, received training, and a high level of education in CPM obtained higher scores on the knowledge of CPM (Jho

et al., 2014; Patiraki et al., 2006b; Lai et al., 2003; Omran et al., 2014; Yanjun et al., 2010b; Utne et al., 2018). Therefore, it seems clear that the combination between professional education, continuing training, and experience in palliative care and CPM settings are crucial for improving HCPs' knowledge and attitudes towards CPM.

6.3.1.3 Caregivers' Knowledge and Attitudes Towards CPM

Various studies have shown that family caregivers had a low knowledge and attitudes towards CPM (Lin et al., 2000; Vallerand et al., 2007b; Lou and Shang, 2017). These negative attitudes and inadequate knowledge by caregivers about opioids and cancer pain could result in attitudinal barriers to effective CPM (Elliott et al., 1996; Lin, 2000; Lin et al., 2000). The correlation between caregivers' attitudes and their patients' pain knowledge towards CPM is interesting because patients' attitudes towards CPM were influenced by their caregivers' attitudes and the patients' pain knowledge (Lou and Shang, 2017). Hence, caregivers should have general awareness and adequate knowledge about CPM. This is important to increase caregivers' ability to participate in CPM and enable them to assess pain and help their patients take adequate doses of opioids for CPM (Yates et al., 2004b). It has been argued that caregivers with sufficient pain management knowledge had significantly fewer barriers to CPM than those without (Vallerand et al., 2007a).

Interestingly, all three studies, including family caregivers of study one in this thesis, showed that caregivers held the same concerns about CPM. These concerns were fear of opioid addiction, opioid-related side effects, poor tolerance, and the belief that pain meant disease progression (Lin et al., 2000; Vallerand et al., 2007b; Lou and Shang, 2017). The negative attitudes and concerns about opioids for CPM are consistent with previous literature (Saifan et al., 2015). A study by Vallerand et al. (2007b) found that caregivers in the US had lower concerns about opioid-related side effects, fears of addiction, disease progression, and poor tolerance, which could mean that caregivers in the US have more knowledge and good attitudes towards CPM. However, these concerns are still counted as the main barriers to effective CPM (Reddy et al.,

2013). Therefore, it seems that to improve CPM, caregivers should have general awareness and adequate knowledge about opioids and cancer pain.

6.3.1.4 Public's Knowledge and Attitudes Towards CPM

Results from studies that identified with the general public's attitudes and knowledge towards CPM showed that many people were concerned about disease progression and believed that pain was usually associated with this progression. However, some people had significant concerns about opioid side effects, poor tolerance, and drug addiction (Levin et al., 1985). However, this outcome is in contrast to the previous literature, which illustrated that the percentage of people who were not afraid of becoming addicted to morphine if prescribed for managing cancer pain increased from 26% in 1990 to 69% in 1996 (Larue et al., 1999). Surprisingly, only two studies were found in the general public's attitudes and knowledge towards CPM, and both articles were published before 2000; consequently, updated studies about this area are needed. It can thus be suggested that based on the results from these two studies, people's awareness about the use of opioids for CPM has increased and negative concern about opioids has decreased. This could be due to increasing general awareness and adequate knowledge about CPM.

6.3.1.5 Summary of discussion from study one

Overall, the result from study one has found some evidence that there are negative attitudes and a lack of knowledge towards CPM among the four groups (HCPs, patients, caregivers, and the public) included in study one. These findings are consistent with those of recent literature reviews (Bouya et al., 2018; Saifan et al., 2015; van den Beuken-van Everdingen et al., 2007b; Van den Beuken-van Everdingen et al., 2016b; Colak et al., 2014b; Breivik et al., 2009; Greco et al., 2014; Saifan et al., 2019). Therefore, it can be argued that due to these negative attitudes and lack of knowledge about effective CPM, the management of cancer pain remains a significant problem worldwide, especially in countries in Europe, Africa, and Asia (Saini and Bhatnagar, 2016; Breivik et al., 2009; Van den Beuken-van Everdingen et al., 2016b; Li et al., 2018; Reis-Pina et al., 2015; 2018;

Thinh et al., 2018). This could be due to a lack of education and training about CPM among HCPs and a lack of general awareness and adequate knowledge about CPM among patients, caregivers, and the public, as stated in all of the included studies. Accordingly, HCPs expressed a desire for additional education and training on CPM. A review indicated that educational programmes on CPM, including CPM topics in nursing curricula, and training programmes on CPM, are the most important factors for enhancing nurses' knowledge and attitudes towards CPM (Bouya et al., 2018). It has also been argued that nurses who had received educational programmes on CPM reported a significantly higher mean of scores on CPM knowledge than those who did not have pain education (Bernardi et al., 2007b). It is possible, therefore, that professional education and continued training in CPM are needed to enhance HCPs' knowledge and attitudes about CPM. Furthermore, patients, caregivers, and the public need general awareness and adequate knowledge about CPM. A review reported that providing educational sessions on CPM can improve caregivers' knowledge and reduce their attitudinal barriers to effective CPM (Meeker et al., 2011). Regarding the general public's views, it is expected and inevitable that the general public will know very little about CPM unless they have cancer or someone close to them does. Thus, wider general awareness and increased knowledge about CPM are desirable.

In general, however, it was unclear how these attitudinal barriers and factors negatively influenced the HCPs, cancer patients, and family caregivers' attitudes and knowledge towards CPM. Hence, a more in-depth understanding of the conceptions and attitudes towards CPM was required (Ung et al., 2016). Furthermore, given the similarities in religious and cultural practices between Libya, Turkey, and Jordan, Libyan patients and their family caregivers' perceptions, beliefs, and attitudes towards CPM may also be similar to those described in the Turkish and Jordanian studies (Al Qadire, 2012a; Colak et al., 2014c). Moreover, Libyan HCPs might be influenced by their religious and cultural beliefs, similar to HCPs from other countries (Al Khalailah and Al Qadire, 2012b; Al Qadire, 2011b; Rajeh Saifan et al., 2019), resulting in further CPM barriers. Additionally, although knowledge about potential barriers to effective CPM due to HCPs,' patients,' caregivers' views, perceptions, beliefs, and attitudes was

documented in many studies from different countries (Al-Ghabeesh et al., 2020; Kwon, 2014a; Darawad et al., 2019a; Lou and Shang, 2017; Vallerand et al., 2007b), there is no published research on this subject in Libya. Likewise, the CPM situation among Libyan HCPs has not been previously assessed, despite the poor QoL, which has been found among cancer patients in Libya (Nouh et al., 2018; Agila, 2020; Hashemi et al., 2019). Consequently, these reasons collectively formed the foundations for the exploratory nature of study two aims of the thesis.

6.3.2 Discussion of findings from study two

Based on the findings discussed in study one in this thesis and to answer the research question in study two, this study (qualitative study) was conducted to explore Libyan HCPs', patients', and caregivers' views and perceptions about cancer pain and its management. This is the first qualitative study that explores Libyan HCPs', cancer patients, and family caregivers' views and perceptions about CPM to the best of the researcher's knowledge. The qualitative analysis of interviews revealed six categories representing the perceived barriers to CPM among Libyan HCPs, cancer patients, and their caregivers. These categories were barriers to effective CPM related to the influence of religious, cultural, and economic factors on CPM and barriers related to patients, caregivers, HCPs, and the healthcare system. The following sub-sections present a discussion of each of these categories.

6.3.2.1 Influence of religion on CPM

The findings obtained from the analysis of interviews in this study showed that many cancer patients and their caregivers relied on their religious beliefs, including belief and trust in Allah, and a divine fate, to cope with cancer and pain. This outcome may be explained by the fact that patients might cope with their disease and tolerate their suffering as they seek help from Allah through prayer (Videbeck, 2011; Sollgruber et al., 2018). Furthermore, caregivers might help their patients by supporting them with spiritual needs and providing hope and peace (Magill, 2009; Kiyancicek and Caydam, 2017; Mendieta and Buckingham,

2017). However, such religious beliefs could be a barrier to the medical management of cancer and pain because most Libyan patients and their caregivers were reluctant to use pain medication in the current study.

Similar to the findings of earlier literature (Hatamipour et al., 2015; Hosseini et al., 2016; Erol et al., 2018; Makhoul et al., 2020), many patients and their caregivers in study two of this thesis believed that Qur'an could cure diseases, such as cancer, and relieve physical suffering like pain. Thus, the Qur'an was often used by Libyan patients and their caregivers to help patients cope with their disease, anxiety, and pain, which is consistent with the existing literature. Although some studies with Muslim cancer patients show positive beliefs about their disease and pain (Hatamipour et al., 2015), these beliefs may influence CPM despite reluctance to use medical treatment, such as opioids for CPM (Bosch and Baños, 2002). In this study, although reciting verses from the Qur'an was helpful to support Libyan patients and their caregivers in coping with their condition and specifically with cancer pain, this could negatively influence effective CPM in Libya, as some patients and their caregivers preferred to use the Qur'an instead of medications for CPM.

Some Libyan HCPs in this study also believed that specific verses from the Qur'an could be recited and used as a coping strategy to help patients to cope with the distress associated with cancer and pain. This finding suggests that the Qur'an could be used as a coping strategy to help patients with their distress related to disease and anxiety, as was shown in previous literature (Sulaiman et al., 2001; Nolen-Hoeksema et al., 2008). However, religious beliefs could be a barrier to effective CPM, as some patients and their caregivers might refuse to use opioids for CPM due to the misconception that the Qur'an will cure their cancer and relieve their suffering. Attia (2015), who is one of the well-known Islamic scholars of Al Azhar University in Egypt, has clearly explained the misunderstanding of this verse "*(And We send down of the Qur'an that which is a cure and a mercy for the believers).*" Verse (17:82 Surat AL-Isra). He stated that the meaning of cure as expressed in this verse does not mean that the Qur'an cures the diseases like cancer and relieves physical pain, as some Muslims have

thought. However, the verse means that the Qur'an cures spiritual diseases in people's chests and hearts, such as jealousy, animosity, and hate (Attia, 2015).

Study two in this thesis also illustrates that some Libyan HCPs described religious practices as applicable to support patients alongside, and complementary to, medical intervention. This result confirms evidence from the existing literature, which suggests that HCPs should recognise and understand that patients often turn to their religious and spiritual beliefs when considering medical treatment (Dedeli and Kaptan, 2013; Swihart and Martin, 2020). Several studies showed that patients with pain, most likely to have better well-being psychologically and used positive coping strategies to cope with their suffering, were either religious or spiritual individuals (Dedeli and Kaptan, 2013; Baetz and Bowen, 2008). Nevertheless, such coping strategies were related to better pain tolerance rather than pain relief (Baetz and Bowen, 2008).

In the present study, although some Libyan HCPs emphasised that patients should use medications for CPM alongside copying strategies (religious beliefs), some patients and their caregivers preferred to use religious beliefs exclusively as a coping strategy to tolerate pain; thus, they refused to use opioids for CPM. It can thus be suggested that patients who used only religious beliefs as a coping strategy for cancer pain might suffer from cancer pain as such strategy was used to tolerate the pain instead of relieving the pain as opioid analgesics usually do (Baetz and Bowen, 2008). It is possible, therefore, that using religious beliefs as a coping strategy by patients and caregivers can be a barrier to effective CPM in Libya.

6.3.2.2 Influence of culture on CPM

Another unanticipated finding in study two was Arabic traditional cautery (Kaiy – ironing the place of cancer or pain with fire), which was commonly used by some Libyan patients and their caregivers as an alternative therapy to manage cancer and pain. The current thematic analysis indicated that the use of cautery could have a negative impact on CPM in Libya. For example, some Libyan patients and

their caregivers believed that cauterization was the faster way to treat the disease and consequent pain. Therefore, they preferred to use it instead of medical CPM. It seems that it is complicated to explain this result, but it might be related to a narration, which they thought was narrated by the Prophet Muhammed (PBUH). However, there was probably a misunderstanding about this narration, as the authentic narration was that the Prophet (PBUH) *said: "Healing is in three things: A gulp of honey, cupping and branding with fire (cauterizing). Nevertheless, I forbid my followers to use (cauterization) branding with fire."* (Al-Bukhari, 1996 cited in; Fitzpatrick and Walker, 2014, p. 264). Unfortunately, it seems that because of the misconception about this narration, some patients and their caregivers might prefer to use cauterization (Kaiy) instead of medical treatment to manage their cancer and pain. The emphasis on the use of cauterization in this study is consistent with what is in the current literature regarding studies related to cultural beliefs, including the use of cauterization, could be a barrier to effective cancer and pain management (Farid and El-Mansoury, 2015; Elzahaf et al., 2016b; Aboushanab and Alsanad, 2018; Abou-Elhamd, 2009a).

Although Libyan HCPs in the current study have similar religious and cultural beliefs to the patients and caregivers, most HCPs believed cultural beliefs could negatively affect cancer and pain treatments. They (HCPs) emphasized that some cancer patients and their caregivers preferred to use cauterization as alternative therapy instead of medical treatments to manage their cancer and pain. Similar to a recent qualitative study (Eshete et al., 2019), most HCPs in the current study said that some patients wanted to take opioids for their cancer pain, but their caregivers usually refuse to give opioids to their patients. These results provide further support for the hypothesis that cultural beliefs could be one of the major factors resulting in barriers to CPM. A meta-analysis showed that cultural beliefs among Western and Asian patients were barriers to effective CPM (Chen et al., 2012). In study two, some Libyan patients and their caregivers perceived the use of cauterization as an alternative therapy to manage cancer pain. They believed it would work as it has a cultural perspective for treatment and is preferable to opioids for CPM. HCPs were aware of such cultural beliefs, but they could not do anything as that was patients' and their caregivers' preferences and wishes. As mentioned in the present literature that many HCPs believed cultural beliefs had

an adverse effect on CPM (Farid and El-Mansoury, 2015; Abou-Elhamd, 2009a). For instance, a study highlighted that due to the application of cautery by some patients to cure their cancer, cancer management is usually delayed, increasing the aggressiveness of the disease associated with chronic cancer pain (Farid and El-Mansoury, 2015). In the current study, patients' and caregivers' views about the use of cautery for CPM might arise from lower education levels and a lack of general misunderstanding about cautery and CPM, as reported by some HCPs in the existing literature (Farid and El-Mansoury, 2015). Consequently, it can be suggested that the practice of cautery is another issue that influences CPM in Libya.

Study two in this thesis confirms the findings with those of other literature (Lunn, 2003; Leong et al., 2016; Kolmar and Kamal, 2018), highlighting that cultural and religious beliefs could play an essential role in cancer patients' and caregivers' attitudes towards CPM. In the current study, opioids were another social stigma among Libyan patients, their family caregivers, and newly qualified HCPs due to a fear of poor tolerance and drug addiction. This could be another reason for Libyan patients and caregivers refusing to use opioids for CPM. The results of this study would agree with the literature regarding the stigma of opioids that can be a barrier to effective CPM (Bulls et al., 2022a). Studies stated that some people might be reluctant to report pain because they might have a mistaken belief or social stigma regarding opioid medication (Oldenmenger et al., 2009a), or the use of opioids can be prohibited in their culture (Lovering, 2006). In study two, Libyan patients' concerns about opioids might result from religious reasons or cultural prohibitions. This view is consistent with (study one) recent systematic review (Makhlouf et al., 2020), which showed the same concerns about opioids in Turkish patients (Colak et al., 2014c; Lovering, 2006) and Jordanian patients (Al Qadire, 2012a). A possible explanation for this might be that some Libyan patients might refuse to take opioids for their cancer pain, as people surrounding them (e.g., caregivers, HCPs, or support systems) might be negatively impacted by the social stigma of opioids as this was mentioned by many earlier studies in the existing literature (Corrigan et al., 2011; Earnshaw and Chaudoir, 2009; Earnshaw et al., 2013; Schenker et al., 2021a). A recent study revealed that one of the main barriers to effective CPM was that cancer patients, who received

opioids for CPM, feel stigmatised by HCPs, pharmacists, and society (Schenker et al., 2021a). These results reflect those of Lou and Shang (2017), who also emphasised that cancer patients' attitudes towards opioids were influenced by their family caregivers' attitudes and the patient's knowledge about cancer pain and opioids. In study two, some Libyan patients might refuse to take opioids for their cancer pain, as their family caregivers might have negative attitudes towards opioids. In the current literature, several studies revealed that opioid stigma was one of the main barriers to effective CPM. For example, a study conducted by Bulls et al. (2019) aimed to explore opioid stigma among cancer patients undergoing active treatment in a supportive care clinic and reported that among 97 cancer patients who received a prescription of opioids for CPM, 59 (61%) of patients endorsed the social stigma of opioids, resulting in less opioid medication being taken than needed. The results of Study two of this thesis would agree with the literature, which suggested that cancer patients' attitudes towards opioids could be highly influenced by the social stigma of opioids (Bulls et al., 2019). It can thus be suggested that the social stigma of opioids could be another reason for refusing to use opioids for CPM by the Libyan patients, caregivers, and some HCPs.

6.3.2.3 Influence of economic factors on CPM

Financial difficulties among cancer patients and their caregivers in this study were found to cause further concerns. The cost of cancer treatment in Libya is estimated that one dose can cost between 3,000 and 4,000 (Libyan dinars), which is equivalent to \$2,170 to \$2,900 at the official exchange rate (Reuters, 2018).

Although the financial hardships among cancer patients have now become a more familiar term to be discussed in the medical literature worldwide (Carrera et al., 2018; Kushnick, 2015; Laurance, 2013; Zhang et al., 2017), unfortunately, the financial difficulties among cancer patients seem to be ignored in developing countries (Su et al., 2020), including Libya. In this study (study two), some patients may endure cancer pain due to a lack of financial resources for cancer treatment and pain prescriptions. A study conducted in 2013 included more than 100 specialists in chronic myeloid leukaemia from different countries, including

the UK, which emphasised that many cancer patients lack access to anticancer drugs due to the high prices of cancer treatments (Laurance, 2013). Another study highlighted that cancer patients and their family caregivers were often concerned about financial hardship when anticipating the newer classes of cancer drug therapies (Delgado-Guay et al., 2015). Su et al. (2020) reported that 18% of those who faced financial difficulties had to borrow money for their anticancer drugs, which was among more than half of cancer survivors. In study two in this thesis, most cancer patients, who had experienced financial hardships, had sold their personal belongings and borrowed money to pay for their cancer procedure and treatment. The emphasis on the direct negative impact of financial difficulties on cancer and pain management in this study is consistent with what is in the existing literature regarding studies related to delayed or avoided medications by some cancer patients due to a financial issue. Zafar et al. (2013) emphasised that medical treatment and pain prescriptions are more likely to be delayed or avoided by some cancer patients who are economically affected by cancer procedures and treatment.

Comparing the existing findings with those of other studies from Western countries (Yabroff et al., 2016; Hanly et al., 2018), it can thus be suggested that Libyan cancer survivors might have more concerns about financial difficulties than those mentioned in previous studies. For instance, a study conducted in the USA by Yabroff et al. (2016) reported that only about 7% of cancer survivors had to borrow money or go into debt due to financial hardships. A systematic review conducted by Azzani et al. (2015) aimed to investigate the prevalence of perceived financial hardship and associated factors among cancer patients and their caregivers and reported that the prevalence of economic hardship perceptions in included studies was from about 15% to 79 %. Their results found that financial difficulties were common among people with low income, resulting in the discontinuation of cancer treatment. A recent study conducted in Singapore aimed to evaluate the association of total pain and suffering and perceived the quality of healthcare with financial hardships among advanced cancer patients, reported that 35% of cancer patients had financial difficulties with higher scores related to total pain and suffering, including physical, social, psychological, and spiritual health outcomes (Malhotra et al., 2020). In study two, most cancer

patients and their caregivers were low-income; thus, cancer patients, who had experienced financial hardships, had sold their personal belongings and borrowed money to pay for their cancer procedure and treatment. Similar to the findings of the literature (Azzani et al., 2015; Zafar et al., 2013), cancer treatment and pain prescriptions might be terminated due to financial difficulties in the current study. It can therefore be suggested that the economic hardships of cancer treatment and cancer pain prescriptions among cancer patients and their family caregivers may be another issue that influences CPM in Libya.

6.3.2.4 Barriers to CPM related to patients and caregivers

The results in study two appear to suggest further support for the published body of the existing literature and found that cancer patients at different stages of their disease still do not receive appropriate CPM (Greco et al., 2014; Dees et al., 2011; Al Qadire et al., 2013; Chwistek, 2017; Tinh et al., 2018). For example, in this study (study two), Libyan cancer patients experienced pain either at an advanced stage of their disease or after the doses of cancer treatment (chemotherapies and/or radiotherapies). Similar to previous studies (Caraceni and Weinstein, 2001; Fainsinger et al., 2010; Knudsen et al., 2012), some patients believed pain indicated disease progression. In contrast, others thought that pain was due to cancer treatment. Several studies have shown that cancer patients, who experienced pain at an advanced stage of their disease or after the doses of cancer treatment, might be reluctant to take opioids for CPM (Caraceni and Weinstein, 2001; Fainsinger et al., 2010; Knudsen et al., 2012), as they might expect that their pain was inevitable (Liu et al., 2018; Eshete et al., 2019). This could be a reason for Libyan patients in this study who refused opioids for CPM. However, the concerns about poor tolerance and drug addiction could probably be the main reason that Libyan patients and their caregivers refused to use opioids to manage cancer pain. The results of this study would agree with the literature regarding poor attitudes and perceptions towards opioids resulting in barriers to CPM. Lou and Shang (2017) found, upon surveying 363 cancer patients and caregivers in China, that participants showed poor attitudes towards CPM, including poor tolerance, drug addiction, and side effects. It seems clear that there is a strong relationship between people's views or perceptions of

opioids and barriers to effective CPM, as this also has been reported in the existing literature. Several studies highlighted that patients' and caregivers' attitudes, views, and perceptions of opioids were one of the main barriers to effective CPM (Cohen et al., 2005; Colak et al., 2014a; Lou and Shang, 2017; Kwon, 2014b). It seems possible that some people's views, perceptions, and attitudes towards opioids are due to a misunderstanding of Islamic rules, as they might believe that taking opioids for CPM is against religious beliefs or Islamic rule because opioids known as narcotic drugs have the potential for abuse. Furthermore, recreational narcotics are forbidden in Islam (Attum et al., 2022). However, many Muslim scholars have emphasised that Islam allows using opioids for pain and CPM (Sheikh, 1998; Choong, 2015). It has been stated that unnecessary pain and suffering have no place in Islam (Sheikh, 1998). Thus, Muslim patients should not hesitate to benefit from medications for CPM, which are available to help relieve their pain and stop their suffering (Sheikh, 1998; Choong, 2015).

6.3.2.5 Barriers to CPM related to HCPs

Similar to the findings of earlier studies (Elliott and Elliott, 1992a; Bernardi et al., 2007a; Jeon et al., 2007), some HCPs in this study showed negative perceptual and attitudinal barriers to effective CPM, including fear of poor tolerance and drug addiction. The emphasis on the influences of HCPs' poor attitudes and perceptions towards effective CPM in this study is consistent with the current literature. Nasser et al. (2016) found that fear of side effects, tolerance, and addiction to opioids was reported among newly qualified physicians with less experience in cancer care and CPM as the most common barrier to effective CPM. In this study, newly qualified physicians hesitated to prescribe opioids for CPM. It seems that Libyan HCPs, who refused to use opioids for CPM, are misled by false views or perceptions and lack of knowledge and training regarding the use of opioids and the incidence of addiction.

Another barrier to effective CPM could be related to a lack of knowledge about CPM among Libyan HCPs. In study two, most HCPs had barriers to effective CPM due to a lack of comprehensive knowledge about CPM. The results of this

study are consistent with earlier findings in the current literature (Darawad et al., 2017a; McCaffery and Ferrell, 1995; Yanjun et al., 2010a; Kim et al., 2011). It is possible; therefore, that work experience in cancer care settings might enhance HCPs' attitudes and knowledge about CPM. A study conducted in Brazil by Dos Santos Ferreira et al. (2019) found that nurses with more extensive work experience in cancer care settings had adequate knowledge about CPM in comparison with those without such experience. In this study, Libyan HCPs, who had more experience in oncology clinics, showed more knowledge and positive attitudes towards CPM than newly qualified HCPs. However, the outcomes of this study are contrary to previous studies (Bernardi et al., 2007b; Oldenmenger et al., 2009b) in the existing literature, which found that the number of years of experience with cancer HCPs was not correlated with pain knowledge scores.

It seems that there is a difference between the experience in cancer settings and the experience in palliative care units. A study found that HCPs, who had work experience in palliative care settings, reported significant mean knowledge scores about CPM (Etafa et al., 2020). Another study conducted in China by Li et al. (2021) indicated that oncology nurses who work in palliative care and have experience in CPM were associated with adequate knowledge and positive attitudes towards CPM. In this study, none of the Libyan HCPs had experience in either CPM or palliative care settings. To manage Libyan patients with cancer pain, most Libyan HCPs used textbooks and internet resources and their individual experiences in cancer care settings. It can thus be suggested that work experience in pain and palliative care settings can be the key issue in improving HCPs' knowledge and attitudes towards effective CPM.

In comparison with Canadian and American HCPs (McCaffery and Ferrell, 1995) and British HCPs (Wells et al., 2002), who have work experience in palliative care settings and follow specific guidelines for CPM, perhaps have more knowledge and positive attitudes towards CPM than Libyan HCPs. The evidence from the current literature showed that Canadian and American nurses, who have the longest experience in palliative care settings, showed positive attitudes and a better level of knowledge about CPM than Japanese and Spanish nurses, who

had less experience in palliative care units (McCaffery and Ferrell, 1995). A possible explanation for this might be that limited knowledge and poor attitudes towards CPM among Libyan HCPs were due to a lack of experience in palliative care settings, as palliative care does not exist in the Libyan healthcare system (El Ansary et al., 2014b). This view would agree with the existing literature. A study found that HCPs, who had work experience in palliative care settings, reported significant mean knowledge scores about CPM, $p < 0.05$ (Etafa et al., 2020).

However, in contrast to previous literature, it has been argued that direct experience in oncology and palliative care units without professional education and continuing training in CPM is not enough to improve HCPs' attitudes and knowledge about CPM (Darawad et al., 2019b; Li et al., 2021; Oldenmenger et al., 2009b). A study by Mosich et al. (2017) indicated that participants, who scored higher on CPM knowledge, were physicians with undergraduate palliative care education and training in CPM. A similar finding was also reported by Martín-Martín et al. (2021). A study conducted by Darawad et al. (2019b) found that one of the significant barriers to effective CPM was associated with a lack of training in CPM. A survey also reported that due to a lack of education and training in cancer pain and opioids, most physicians had inadequate knowledge and poor attitudes towards optimal analgesics and prescribing opioids for CPM (Ger et al., 2000b). The outcomes of earlier studies in the current literature are consistent with what is in this study (study two). In study two, none of the Libyan HCPs had education or training in CPM, and they reported poor attitudes and a lack of knowledge about CPM, resulting in some cases of cancer pain that might not have received adequate CPM in Libya. This result reflects those of Kopf and Patel (2010), who also found that in developing countries, few HCPs received adequate education and training in pain management as an undergraduate programme.

The emphasis on the positive effect of education and training in palliative care and pain management on HCPs' attitudes and knowledge about CPM in this study is consistent with the current literature. A recent survey found that HCPs, who either had Good Pain Management (GPM) programme or participated in

advanced training in CPM, had positive attitudes and adequate knowledge about CPM (Liu et al., 2021). In contrast to earlier findings, however, a study reported that although about 50% of participants had professional training in CPM recently, fear of side effects, poor tolerance, and addiction to opioids was still reported among roughly 45% of physicians as the most common barrier to effective CPM (Nasser et al., 2016). Nevertheless, this was more common among newly qualified physicians with fewer experiences in CPM (Nasser et al., 2016). In the current study, Libyan physicians reported that newly qualified doctors usually avoid prescribed opioids for CPM, as they were concerned about poor tolerance and addiction to opioids. Therefore, it seems that positive attitudes and adequate knowledge about cancer pain and opioids among HCPs are associated with advanced professional education, continuous training, and experience in CPM. This view would agree with the existing literature regarding the importance of professional education and training in CPM. Wells et al. (2002) highlighted an improvement in HCPs' knowledge and attitudes about opioids for CPM following professional education, training, and experience in CPM. Another study also reported that most physicians, who had continued palliative care training, correctly answered about 70% of questions related to attitudes and knowledge about CPM (Rurup et al., 2010). It can thus be suggested that professional education and continuing training in CPM are needed to enhance Libyan HCPs' attitudes and knowledge about CPM.

Several studies also have suggested the positive effects of educational interventions on HCPs' attitudes and Knowledge about CPM (Alvarez and Agra, 2006; Allard et al., 2001; Bennett et al., 2011; El-Aqoul et al., 2020; Xhixha et al., 2013; Gustafsson and Borglin, 2013). For example, a recent survey reported that the mean scores of nurses' attitudes and knowledge towards CPM were significantly different between the educational intervention group and the control group ($P < 0.05$). Their findings suggested that a pain management education programme can improve nurses' attitudes and knowledge about CPM (El-Aqoul et al., 2020). However, Kasasbeh et al. (2017) argued that although educational interventions have been widely recognised to improve HCPs' knowledge and attitudes towards CPM, many HCPs still have negative attitudes towards opioids for CPM that might impact the delivery of quality care to patients with cancer pain.

McMillan et al. (2005) also asserted that HCPs' attitudes towards cancer pain and opioids are harder to change than their knowledge. In the current study, Libyan HCPs showed poor attitudes towards strong opioids for CPM. Thus, some Libyan physicians hesitated to prescribe strong opioids for CPM as they hold concerns about opioids, such as poor tolerance and drug addiction. This finding is consistent with studies in the current literature, which showed similar concerns about opioids among HCPs in some Arab countries in the Middle East and North Africa (MENA) region (Al Khalaileh and Al Qadire, 2012b; Kaki, 2011; Nasser et al., 2016; Yildirim et al., 2008). It can thus be suggested that negative attitudes and lack of knowledge among Libyan HCPs could be another barrier to adequate CPM in Libya.

6.3.2.6 Barriers related to the healthcare system

The findings of this study are consistent with many previous studies (Kuzeyli Yildirim and Uyar, 2006; Kwon, 2014a; Samara et al., 2018; Goblan et al., 2021), which highlighted those barriers related to the healthcare system, including the lack of CPM guidelines, limits of access to opioids, and unavailability of pain and palliative care specialists, as well as inadequate pain assessment are key barriers to adequate CPM. Although guidelines such as World Health Organisation (WHO) (WHO, 2019) and National Institute for Health and Care Excellence (NICE) (NICE, 2012) have been established to be used in CPM worldwide, in this study, such guidelines were not followed by Libyan HCPs because these guidelines do not exist in their clinics. Furthermore, despite the availability of valid tools for cancer pain assessment (BPS, 2019a), such tools are not available for assessing cancer pain in Libya. Most Libyan HCPs relied on the patient's facial expressions and self-reports to assess cancer pain in the present study. It is possible, therefore, that a non-standard assessment of cancer pain might impact CPM in Libya. A study suggests that one of the significant barriers to adequate CPM was associated with relying on HCPs' assessments of facial expressions or patient self-reports (Anderson et al., 2000). A cross-sectional study conducted by Samara et al. (2018) also reported that inadequate pain assessment was perceived by about (90%) of the physicians as the highest barrier to effective CPM. Another survey reported that inadequate pain assessment was cited by

approximately 77% of nurses as the most frequently perceived barrier to CPM (Toba et al., 2019). Several previous studies also highlighted that a lack of regular pain assessment by the HCPs was one of the most significant essential barriers to effective CPM (Jacobsen et al., 2009a; Breuer et al., 2011b; Haumann et al., 2017; Darawad et al., 2019b). The possible explanation for this might be that this result is due to a lack of knowledge about cancer pain and its management among HCPs. Hamdan (2019) found that nurses in educational hospitals use pain assessment tools more often than nurses in governmental and private hospitals.

Limit access to opioids for CPM could be another barrier to effective CPM in Libya. Similar to the findings of earlier studies (Kwon, 2014b; Adams, 2008), in the current study, the shortage of opioids, such as morphine for CPM, was a barrier to effective CPM in Libya. For instance, morphine was not prescribed by Libyan doctors to their outpatients for CPM in many cases, as morphine tablets did not exist in their places and morphine injections were usually unavailable. Although strong opioids, such as morphine, remain the most effective and recommended for CPM (WHO, 2019), in this study, morphine was limited access to be used for CPM, which could be a barrier to effective CPM in Libya. The current study's findings are consistent with the existing literature. Kwon (2014b), found that lack of access to opioids for CPM has been highlighted as one of the main barriers to effective CPM. Similar findings also were reported by Adams (2008). It has been estimated that around 6 million out of 8.2 million people who die annually due to advanced cancer worldwide had limited access to strong opioids, mainly due to their unavailability, particularly in developing countries (Berterame et al., 2016). A possible explanation for the lack of the availability of strong opioids for CPM in developing countries, including Libya, may be due to the lack of knowledge and poor attitudes among policymakers or governments; thus, they might reject or restrict the use of strong opioids for CPM. Shamieh and Jazieh (2010b) emphasised that access to strong opioids for CPM in developing countries is either limited or legally restricted. Even in some developed countries with good access to opioids, barriers related to limited access to opioids and excessive regulations were interfering with effective CPM in many European countries (Cherny et al., 2010), and at least 30% of patients in some developed countries are undertreated for their cancer pain (Greco et al., 2014). However,

this is likely more obvious in developing countries than in developed countries (HRW, 2011). A recent systematic review conducted in South, Southeast, East, and Central Asia, revealed that policymakers' negative attitudes and restrictive laws were more common barriers to opioid access (Clark et al., 2021). Another possible explanation for this could be that as narcotic drugs have the potential for abuse, strong opioids, including morphine, are regulated under the Single Convention on Narcotic Drugs of 1961 and the national drug control laws (INCB, 2021; HRW, 2011). Accordingly, due to an attempt to control the illegal use of strong opioids, some governments in developing countries, including Libyan, might have imposed stricter regulations than those required by the Single Convention (Shamieh and Jazieh, 2010b; Li et al., 2018). For example, in Egypt and Morocco, special licenses for the prescription of strong opioids, such as morphine, are required, and certain physicians only can prescribe them with a daily limit to the amount (HRW, 2011). Therefore, it can be suggested that there is evidence that cancer patients in developing countries still do not receive appropriate CPM (Saini and Bhatnagar, 2016; HRW, 2011), including Libya.

Additional potential barriers to effective CPM identified in this study could be the lack of specialists in oncology, palliative care, CPM, shortage of HCPs staff, and heavy workload. The results of this study match those observed in earlier studies (Alasiry and Löfvenmark, 2013; Mędrzycka-Dąbrowska et al., 2015; Scarborough and Smith, 2018; Zuccaro et al., 2012). A study found that nurses' ability to provide effective CPM was negatively influenced by a heavy workload, resulting in a delay in administering medications for CPM, poor pain assessment and management documentation, and neglecting patients' complaints about cancer pain (Alqahtani, 2014a). Other studies have indicated that limited access to pain and palliative care specialists was one of the common barriers to effective CPM (Scarborough and Smith, 2018; Kwon, 2014a; Orujlu et al., 2021). It is difficult to explain this result, but the shortage of medical staff, the lack of specialists in oncology, palliative care, CPM, and the heavy workload in Libyan oncology settings might result in similar factors that were mentioned in previous literature, which could influence effective CPM in Libya.

6.3.2.7 Summary of discussion from study two

Overall, the results of this study have found some evidence that there are negative attitudes and a lack of knowledge towards CPM among Libyan HCPs, cancer patients, and their family caregivers. These findings are consistent with a study one (systematic review) in this thesis (Makhlouf et al., 2020). The current study also found that religious, cultural, and economic factors could be barriers to CPM in Libya. Another possible barrier to effective CPM might be related to the healthcare system, including lack of guidelines, adequate knowledge and training in CPM, lack of opioids for CPM, shortage of specialists in oncology, palliative care, CPM, and heavy workload. Accordingly, it can be argued that due to these abovementioned potential factors, the management of cancer pain remains a significant problem in Libya. Especially as mentioned in the current literature review, the Libyan healthcare system being heavily damaged and underfunded since the revolution in 2011 (El Oakley et al., 2013b). Furthermore, palliative care (El Ansary et al., 2014a) and pain management services (Petropoulos et al., 2016; Elzahaf et al., 2016b) do not exist in the Libyan healthcare system.

In all, study two in this thesis built on study one and provided some deeper contextual understanding of how Libyan HCPs,' patients,' and caregivers' views and perceptions of cancer pain and strong opioids may influence CPM in Libya. The next step will be to quantitatively further examine interpreted propositions of Libyan nurses' and physicians' knowledge, attitudes, and potential barriers regarding CPM and determine whether these could be transferred to a wider population.

6.3.3 Discussion of findings from study three

Based on the findings discussed in study two and to answer the research questions in study three in this thesis, study three was conducted to examine the nurses' and physicians' knowledge, attitudes, and potential barriers regarding cancer pain and its management in Libya. This is the first survey to evaluate knowledge, attitudes, and potential barriers regarding CPM among Libyan nurses and physicians to the best of the researcher's knowledge. Similar to previous

studies (Al Qadire, 2011a; Saifan et al., 2019; Jho et al., 2014; Darawad et al., 2017a) in the current literature, the result of this study showed that Libyan oncology nurses had a high level of barriers to effective CPM than physicians. However, both Libyan nurses and physicians in the current study scored a higher barrier mean on the BQ-II overall and subscale items than in previous studies (Al Qadire, 2011a; Saifan et al., 2019; Xhixha et al., 2013; Al Khalaileh and Al Qadire, 2012a).

6.3.3.1 Barriers to CPM related to HCPs' attitudes

In this study, although Libyan nurses showed more attitudinal barriers to effective CPM than physicians, both Libyan nurses and physicians had higher attitudinal barriers to CPM than HCPs in other countries (Al Qadire, 2011a; Al Khalaileh and Al Qadire, 2012a; Saifan et al., 2019; Xhixha et al., 2013). Libyan HCPs' negative attitudes towards opioids were related to side effects of opioids, poor tolerance, and drug addiction. The findings of the current study would agree with earlier studies in this literature (Bernardi et al., 2007a; Darawad et al., 2017a; Kim et al., 2011; Jeon et al., 2007; Nasser et al., 2016). The result of this study fully supported that HCPs' negative attitudes towards opioid analgesics can be a barrier to adequate CPM. This finding suggested that due to negative attitudes among Libyan HCPs about using opioids for CPM, opioids could be reluctant to be used by some Libyan oncology nurses and physicians for CPM. A recent survey conducted by Vranken et al. (2020) found that physicians, who were reluctant to prescribe opioids, were associated with attitudinal barriers to opioids. Another study also reported that about 70% of physicians acknowledged negative attitudes about opioids (opiophobia) as one of the main barriers to effective CPM (Charalambous et al., 2019). It has been stated that HCPs who have poor attitudes (e.g., poor tolerance, drug addiction, and side effects) about strong opioids for CPM are more likely to undertreat patients with cancer pain (Nasser et al., 2016; Makhoulf et al., 2020). The emphasis on the impact of HCPs' attitudes towards opioids on effective CPM in this study is consistent with the existing literature. A study found that about 73% of physicians hesitated to increase opioid dosage and frequency for CPM due to poor attitudes towards opioids, including the undue fear of poor tolerance and drug addiction (Ger et al.,

2000a). Therefore, the result of this study suggests that nurses' and physicians' attitudes about the role of opioids for CPM might impact CPM in Libya.

6.3.3.2 Barriers to CPM related to HCPs' Knowledge

The results of this study (study three) would agree with many earlier studies in the current literature regarding the lack of HCPs' knowledge about CPM is one of the main barriers to effective CPM (Bernardi et al., 2007b; Darawad et al., 2017b; Elliott and Elliott, 1992b; Jeon et al., 2007; Kim et al., 2011; McCaffery and Ferrell, 1995; Wells et al., 2001; Yanjun et al., 2010b). A survey reported that lack of knowledge about CPM among approximately 61% of HCPs was one of the most frequently cited barriers to CPM (Zhang et al., 2015). In this study, Libyan HCPs showed higher barrier scores on the BQ-II subscale items 'physiological effects' and 'harmful effects' than other HCPs in Jordan and Albania (Al Qadire, 2011a; Xhixha et al., 2013; Saifan et al., 2019; Al Khalaileh and Al Qadire, 2012a). Moreover, they (Libyan HCPs) showed higher barrier scores on the BQ-II subscale 'communication' than other HCPs in previous studies (Al Qadire, 2011a; Al Khalaileh and Al Qadire, 2012b; Xhixha et al., 2013). Although the fatalism subscale mean scores for Libyan HCPs, Jordanian HCPs, and Albanian HCPs were the lowest compared to other subscales, in this study, Libyan HCPs also had higher barriers scores on subscale 'fatalism' than Jordanian HCPs (Al Qadire, 2011a) and Albanian HCPs (Xhixha et al., 2013). All these differences in barrier scores indicate that oncology HCPs in Libya showed a lower knowledge of CPM than HCPs in other countries. Arslan et al. (2014) suggested that HCPs, who are dealing with cancer patients, should have adequate knowledge about cancer pain and its management to improve CPM. El-Aqoul et al. (2020) also argued that positive attitudes and a sufficient level of knowledge about CPM are essential to providing high-quality nursing care for patients with cancer pain. It can thus be suggested that cancer pain in Libya might be inadequately managed due to a lack of knowledge about CPM among Libyan HCPs.

Although many studies in the existing literature have confirmed that training in CPM was very beneficial for enhancing the practice, attitudes, and knowledge of HCPs (Yang et al., 2014; Liu et al., 2021; Yanjun et al., 2010a), Libyan HCPs

who had a short period of training in CPM and those who did not report similar barrier scores on the overall BQ-II and its subscales in this study. The results of this study (study three) are consistent with previous studies (Xue et al., 2007; Howell et al., 2000a; Ou et al., 2021). It can thus be suggested that short training in CPM did not enhance Libyan HCPs' attitudes and knowledge about CPM. However, only 19 out of 152 Libyan HCPs in this study had training in CPM. Thus, it can be said that Libyan HCPs had lack training in CPM. The results of this study would agree with the current literature, which highlighted that a lack of training in CPM among HCPs had been reported as a significant barrier to effective CPM (Darawad et al., 2019b; Liu et al., 2021; Yanjun et al., 2010a; Zhang et al., 2015).

The emphasis on the positive influence of continuous training in CPM on HCPs' knowledge and attitudes towards CPM in this study is consistent with what is in the existing literature. Liu et al. (2021) found that HCPs who reported receiving advanced training in CPM showed a positive impact on CPM compared with those who did not. Another study by Yanjun et al. (2010a) shared the same findings, indicating that HCPs who reported having received training in CPM demonstrated significantly higher mean scores about knowledge of CPM than physicians who never had such training. Many studies have emphasised that training in CPM can enhance HCPs' attitude, knowledge, and practice about CPM (Alnajar et al., 2019; Gustafsson and Borglin, 2013; Jeon et al., 2007; Utne et al., 2019; Yanjun et al., 2010a). A systematic review emphasised that professional education and training programmes on CPM are the most important factors for enhancing nurses' knowledge and attitudes towards CPM (Bouya et al., 2018). It seems that the lack of professional training and education in CPM among Libyan HCPs can be a further barrier to effective CPM. It can thus be suggested that professional training and education in CPM are needed to enhance Libyan HCPs' Knowledge and attitudes towards CPM.

While several studies in the current literature have shown that an experience in cancer care settings can develop the standard of CPM services (Yanjun et al., 2010a; Utne et al., 2018; Jeon et al., 2007), in this study, both groups of HCPs who had short-term (less than one year) and long-term (more than one year)

experience in cancer settings, showed a similar level of barriers to CPM. However, in contrast to the previous studies (Jeon et al., 2007; Utne et al., 2018; Yanjun et al., 2010a), the results of this study would agree with other findings in the literature. A study by Bernardi et al. (2007b) reported that the years of experience of cancer nurses were not related to pain knowledge scores. Another study showed that years of experience of oncology nurses were not associated with the 'knowledge and attitudes survey regarding pain (KASRP)' scores (Al-Atiyyat et al., 2019). The results from the current study may explain that Libyan HCPs could have inadequate knowledge and poor attitudes towards CPM due to a lack of experience in palliative care (El Ansary et al., 2014b; Silbermann et al., 2014; Fadhil et al., 2017) and pain management settings (Petropoulos et al., 2016; Elzahaf et al., 2016b) because such services do not exist in the Libyan healthcare system.

The confirmation on the experience in CPM or palliative care setting is desirable to improve CPM in this study is consistent with what is in the existing literature. Evidence indicated that HCPs, who have experience in pain clinics and palliative care settings showed better attitudes towards opioids and knowledge about CPM than those who did not (Darawad et al., 2019b; Li et al., 2021; Martín-Martín et al., 2021; Rurup et al., 2010). For instance, a recent study by Martín-Martín et al. (2021) found that physicians with more extended experience in palliative care and CPM settings scored higher with knowledge about palliative care and CPM than those who did not. However, as mentioned in the current literature, it seems that professional education in CPM can be the key issue with experience in palliative care and CPM to improve HCPs' attitudes and knowledge about CPM. A survey found that HCPs who worked in clinics with academic attachments (training and education) showed adequate knowledge and positive attitudes towards CPM than those in non-academic hospitals (Zhang et al., 2015). Another study also found a significant relationship between adequate pain assessment by HCPs and hospital type, through which nurses who work in educational hospitals used pain assessment tools more often than nurses in governmental and private hospitals (Hamdan, 2019). It is possible, therefore, that professional education, continuing training, and experience in palliative care and CPM settings are needed to improve Libyan HCPs' attitudes and knowledge about CPM.

Nevertheless, in contrast to the existing literature, previous studies conducted in North America (Erkes et al., 2001) and Turkey (Tufekci et al., 2013) found that there was no statistically significant difference between the level of education and the average correct answers in the 'knowledge and attitudes survey regarding pain (KASRP)' among North American and Turkish nurses. In contrast to earlier findings, however, the results of the current study would agree with the literature. In this study, Libyan HCPs with higher educational levels (postgraduate degrees) were associated with lower barrier scores on the BQ-II questionnaire than those with high-school and undergraduate degrees. The finding of this study would also agree with that of previous studies (Lai et al., 2003; Patiraki et al., 2006a; Alqahtani, 2014c), which found that nurses with higher levels of education (i.e., Master's degrees) scored an increase in the average number of correct answers on the instruments for assessing their knowledge about CPM.

Several studies have shown that pain education can enhance HCPs' attitudes and knowledge about CPM (Alvarez and Agra, 2006; Gustafsson and Borglin, 2013; Xhixha et al., 2013). For example, a study by Gustafsson and Borglin (2013) found that a theory-based educational intervention in CPM can be used to enhance nurses' attitudes and knowledge about CPM. In this study, HCPs who had pain education at the postgraduate level showed more knowledge about CPM than those who did not. It can thus be suggested that professional education in CPM can enhance Libyan HCPs' Knowledge and attitudes towards CPM.

Although various studies have considered the effects of educational interventions on HCPs' attitudes and Knowledge towards CPM (Alvarez and Agra, 2006; Allard et al., 2001; Bennett et al., 2011; Gustafsson and Borglin, 2013; Xhixha et al., 2013), some HCPs still have negative attitudes towards opioids for CPM that might negatively impact effective CPM (Kasasbeh et al., 2017; Murnion et al., 2010; McMillan et al., 2005). A study conducted in Australia showed that patients received inadequate pain management due to poor attitudes towards opioids and pain relief among HCPs (Murnion et al., 2010). It seems that people who hold poor attitudes and perceptions towards opioids and cancer pain could be due to their cultural and religious beliefs. This view is consistent with the current

literature (Al Khalaileh and Al Qadire, 2012b; Kaki, 2011; Nasser et al., 2016; Rajeh Saifan et al., 2019; Yildirim et al., 2008). Similar findings were reported in studies one (Makhlouf et al., 2020), two (Makhlouf et al., 2022), and three in this thesis. For example, results in study one showed that Turkish and Jordanian patients rejected strong opioids (morphine) for CPM because of their negative attitudes towards them, and in particular, they fear addiction citing religious and cultural reasons for rejecting such opioids for CPM (Al Qadire, 2012a; Colak et al., 2014c). In studies two and three in this thesis, Libyan patients, caregivers, and newly qualified HCPs also showed negative attitudes and concerns towards opioids for CPM, which could be due to their religious or cultural beliefs. The results of this study would agree with the existing literature regarding the influence of religious and cultural beliefs on CPM. Silbermann and Hassan (2011) argued that religious and cultural beliefs could affect peoples' interpretation of the pain and consideration of the treatment. It can thus be suggested that to improve CPM in Libya, a multidisciplinary team, including oncologists, clinical nurses, CPM specialists, psychiatrists, social workers, and religious scholars, should be located at each hospital and oncology centre. Furthermore, continuing professional education and training in CPM are required to improve Libyan HCPs' attitudes and knowledge about CPM.

6.3.4 Summary of key discussion from three studies

Studies one, two, and three in this thesis confirmed that there are still barriers to effective CPM in Libya, which are caused by HCPs', cancer patients,' and family caregivers' lack of knowledge and/or poor attitudes towards CPM, resulting in unalleviated pain with cancer. Furthermore, study two showed that several factors had influenced CPM in Libya, including religion, culture, economy, and the healthcare systems. The findings of this study are consistent with previous studies in the current literature (Greco et al., 2014; Saifan et al., 2019; Kwon, 2014a; Oldenmenger et al., 2009b; Al Qadire, 2012b; Colak et al., 2014b). In study three, Libyan HCPs showed higher barrier scores on the BQ-II overall and subscale items than other HCPs in previous studies (Al Qadire, 2011a; Saifan et al., 2019; Xhixha et al., 2013; Al Khalaileh and Al Qadire, 2012a). This indicates that oncology HCPs in Libya have more barriers to CPM than HCPs in other

countries. Thus, it can be argued that due to these abovementioned factors, the management of cancer pain remains a significant problem in Libya.

Moreover, studies two and three in this thesis showed that Libyan HCPs lacked adequate knowledge and experience in CPM, which could be a barrier to effective CPM in Libya. Many studies in the existing literature emphasised that work experience in palliative care and CPM settings can enhance adequate knowledge and attitudes towards CPM among HCPs (McCaffery and Ferrell, 1995; Darawad et al., 2017a; Nasser et al., 2016). A study found that HCPs from countries such as the United States and Canada, which have the most extended work experience in palliative care and CPM settings, showed a better level of knowledge and positive attitudes towards CPM than HCPs from Spain and Japan that, at the time of the study had only recently updated the healthcare infrastructure to include palliative care facilities (McCaffery and Ferrell, 1995). Although the study may not be up to date (1995) when were the US and Canadian studies undertaken, it showed a clear comparison between HCPs from different countries regarding their knowledge and attitudes towards CPM and work experience in palliative care, and CPM units. It can thus be suggested that continuing professional education and training in CPM, including opioid treatment, phobia, and myths on opioid usage among HCPs (Hooten and Bruce, 2011b), and a multidisciplinary team, including oncologists, clinical nurses, CPM specialists, psychiatrists, social workers, and religious scholars, and establishing policies and procedures for palliative care and CPM services are needed to improve CPM in Libya.

6.4 Research strengths and limitations

6.4.1 Strengths and limitations for mixed-methods design

The mixed-methods research has many strengths that make such design recommended to be used (Creswell and Clark, 2011). Firstly, a mixed-methods study is usually conducted to answer broader research questions, as the researchers are not confined to a single approach or method. Secondly, to overcome the weaknesses in a specific method, the researchers can use the

strengths of an additional method in the same research study. Thirdly, stronger evidence for a conclusion can be provided by conducting a mixed-methods study, as such design allows convergence and corroboration of the findings. Furthermore, insight and understanding might be missed when using a single method; thus, such missing insight can be compensated for by using a mixed-methods approach.

In a mixed-methods study, the researcher is not restricted to a single data collection method. A mixed-methods study design can answer research questions that cannot be answered by either qualitative or quantitative research alone. Moreover, qualitative and quantitative methods in the same research can produce complete knowledge, which is needed to inform practice and theory (Creswell and Clark, 2017; Creswell, 2013c).

As a research methodology in mixed-methods design, pragmatism has its strengths and weaknesses like other methodologies (Creswell, 2013a; Morgan, 2014; Feilzer, 2010a; Pansiri, 2005). Firstly, it focuses on the results of the study situations and inquiry consequences rather than predecessor circumstances. Secondly, pragmatism can support researchers in choosing between different methods required to address a specific research question, and it helps determine which methods are the best for the target study. Finally, in adopting pragmatism, the researchers are actively involved in creating data and theories, as it is typically associated with abductive reasoning, which allows the researcher to move back and forth between deduction and induction.

The mixed-methods design has weaknesses (Teddlie and Tashakkori, 2011; Creswell and Clark, 2011), including multiple methods and approaches that need to be learnt by the researcher and understanding the way how to integrate them appropriately. As the rationales of methodological decisions are often justified by the research questions and the way of data analysis, applying a mixed-methods design can be a problematic issue, especially if the researcher lacks knowledge about multiple methods and how to mix each method effectively (e.g., problems of paradigm mixing, analysing qualitative data, interpreting conflicting results, and

reporting them). Furthermore, for a single researcher, a mixed-methods study is complex to conduct, especially if the two approaches are expected to be utilized concurrently. Finally, mixed-methods design is more time-consuming and more expensive.

Pragmatism, as a research methodology in mixed-methods design, also has some limitations: Firstly, pragmatism as philosophy has been rejected by some philosophers because such philosophy chooses not to engage in the debating of meta-theory as a solution to some philosophical debates (Johnson and Onwuegbuzie, 2004). Secondly, pragmatism has been criticised for ignoring philosophy and theory; however, it focuses on practical results (McCready, 2010). Finally, pragmatists argued that the research paradigms could be combined into another research paradigm, but they cannot remain separate (Onwuegbuzie et al., 2009).

6.4.2 Strengths and limitations for study one

To the best of the researcher's knowledge, this is the most up-to-date systematic review of the nature and impact of HCPs' attitudes and knowledge towards CPM. Furthermore, this SR was the first study that synthesized the results about barriers to CPM among HCPs, cancer patients, caregivers, and the general public.

In terms of the systematic review, there were two design limitations and four limitations associated with the data analysis and interpretation of the data. Firstly, as only studies published in English were considered within the inclusion criteria, as well as only including published studies, it is possible that there are studies that have been published in other languages and unpublished articles that could have been included in this review. The exclusion of such unpublished studies may have led to bias (Moher et al., 1996). Secondly, even though all included studies used the same design (cross-sectional design), the questionnaires used to conduct surveys in this particular area were different, and some studies did not state which questionnaire was used or failed to provide information regarding the

validity of the tools. Therefore, it was difficult to compare studies directly, and the reliability of these included studies in this review could be compromised (Poudel et al., 2018; JBI, 2016). Thirdly, in the quality analysis, 15 of the 36 included studies were judged to be fair quality – see Appendix 4. The reason for a fair quality score instead of a good quality score is that these articles had some methodological limitations. However, almost two-thirds of the identified studies, 25 out of the 36 studies (69.44%), were rated as good quality. Fourthly, a major concern about the narrative synthesis was that it lacks transparency and therefore introduces bias into the synthesis (Higgins et al., 2016; Valentine et al., 2017). Fifthly, studies from a number of important countries and regions, such as Africa (except Ethiopia), India, south America, central America were not included in this study because such studies from these countries were not identified by six electronic databases (the Cochrane Library, MEDLINE, PsycINFO, CINAHL, Web of Science, and EMBASE). Finally, included studies were from high and low-income countries, and thus, different healthcare systems and cultural beliefs across people from these countries could have affected their attitudes and knowledge of CPM.

6.4.3 Strengths and limitations for study two

To the best of the researcher's knowledge, this was the first qualitative study to explore Libyan HCP, patient, and caregiver views and perceptions about CPM. One limitation is that although the researcher sampled for maximum diversity, the range of views and perceptions that the researcher found may not reflect the views and perceptions of HCPs, cancer patients, and caregivers in all parts of Libya because the inclusion of participants was from Eastern Libya only. Another limitation is that the focus of this study did not include hospital managers and policymakers. A study conducted in Thailand reported that among 47 policymakers, about 75% of them had inadequate knowledge, and 66% had negative attitudes towards opioids for CPM (Srisawang et al., 2013). Another survey reported that strict regulation on the use of opioids was perceived by approximately 70% of nurses as the most common barrier to CPM related to the healthcare system (Toba et al., 2019). These barriers likely intersect to affect CPM among many HCPs, patients, and caregivers (Redmond, 1997; Gee and

Fins, 2003; Srisawang et al., 2013). It seems possible that these results are due to policymakers or governments rejecting or restricting the use of strong opioids for CPM, especially in developing countries, including Libya. A study highlighted that access to strong opioids for CPM in developing countries is limited or legally restricted (Shamieh and Jazieh, 2010b). A recent systematic review also showed that the common barriers to opioid access were policymakers' negative attitudes towards opioids and law restrictions about using strong opioids (Clark et al., 2021). Thus, the effect of policymakers' and hospital managers' roles on CPM should be examined in future research. A further limitation in this study is that as the public's attitudes and knowledge about cancer pain and opioids were highlighted as an under-researched area in study one, the current researcher could not include the views of the Libyan general public in this study, as it was difficult to gain ethical approval for the participation of general public from the Libyan government.

6.4.4 Strengths and limitations for study three

To the best of the researcher's knowledge, this was the first survey to evaluate knowledge, attitudes, and potential barriers regarding CPM among nurses and physicians in Libya. Furthermore, considering the multicentre settings in three different geographical regions of Libya (Eastern, North-western, and Western), outcomes can be better generalised to represent the sample population in question. This study has some limitations: Firstly, only oncology nurses and physicians were surveyed, and other HCPs, who might prescribe opioids for CPM, such as surgeons, anaesthesiologists, and general practitioners (GP), were excluded. Secondly, the use of convenience sampling could be another limitation, as it can lead to sampling bias and limit findings' generalisability (Bhattacharjee, 2012b). Thirdly, among the limitation of the current study is that the use of the BQ-II questionnaire with HCPs has been found in only six studies, and the psychometric properties and findings of the BQ-II are not known when used for HCPs (Al Khalailah and Al Qadire, 2012a; Al Qadire, 2011a; Saifan et al., 2019; Xhixha et al., 2013; Sakakibara et al., 2020; Sedeghy et al., 2016), as it was originally designed as a self-assessment instrument for patient-related barriers to CPM (Gunnarsdottir et al., 2002). Thus, the BQ-II is a reliable and valid

measure of patient-related barriers to CPM. However, the BQ-II has been recently validated and commonly used to measure HCPs-related barriers to CPM, including the Arabic version (Al Khalailah and Al Qadire, 2012b; Saifan et al., 2019). Fourthly, using an Arabic non-validated questionnaire (BQ-II) can be another threat to external validity. Nevertheless, such a questionnaire (Arabic version) was previously validated and used in previous studies (Al Qadire, 2011a; Al Khalailah and Al Qadire, 2012a; Saifan et al., 2019). Finally, another limitation is that the analyses are intended to be exploratory and hypothesis-generating. Consequently, no correction (e.g., Bonferroni correction) has been made, and the results are interpreted with caution.

6.5 Reflections on Undertaking the Study

My first experience with research was during my Master's degree in pain management in the UK. After completing my master's degree, I applied for a Doctor of Philosophy (Ph.D.) in the School of Medicine, University of Leeds. While writing the proposal, my supervisors and I agreed on the research title "Healthcare professionals,' patients,' caregivers,' views about cancer pain and its management in Libya." I chose this topic as my father died in 2005 due to lung cancer, and he suffered from cancer pain because adequate pain management and palliative care services have not existed in the Libyan healthcare system. Thus, cancer pain and its management have become my area of interest, as I do not want Libyan patients to suffer from cancer pain as my father did.

In the past, I had limited experience in quantitative research and systematic review and no expertise in qualitative and quantitative research and mixed-methods design. Throughout my Ph.D. journey, I was privileged and lucky to work with my supervisors on my thesis, a mixed-methods study consisting of a systematic review, qualitative study, and quantitative study. I have gained valuable academic skills and knowledge, including experience using different methods and methodologies, systematic review, research ethics, and submitting abstracts for conferences and publications, and my knowledge about cancer pain and its management improved during my Ph.D. journey.

Overall, I enjoyed and learnt a lot during my Ph.D. journey. (See appendix 42). However, there were some hard and long days as well. For example, from developing the research proposal to submitting the applications for ethics and research governance approval, recruiting participants, undertaking the qualitative and quantitative analysis, suspension of my scholarship due to corruption in Libya, and finally writing up the thesis, which was a series of challenges one after another.

Furthermore, the COVID-19 pandemic has slightly impacted my study progress, as some people might have. Especially as I needed to return to Libya in December 2020 for family reasons, and due to lockdown, I could not return to the UK. Hence, my study was suspended for three months between December 2020 and February 2021. Nevertheless, I received excellent support and guidance from my supervisors and the supportive community at the university, which helped me overcome these challenges. Publication of my work gave me motivation and pushed me forward. Thus, overall, I can say that the Ph.D. learning with admirable support from my supervisors has enabled me to become an independent person and complete my research journey, which marks the beginning of a future research career.

6.6 Research contributions

6.6.1 Contributions to research

To the best of the researcher's knowledge, study two in this thesis was the first study to explore Libyan HCP, patient, and caregiver perceptions about CPM. Based on the limitations of study two, further research with other HCPs, including surgeons, anaesthesiologists, and general practitioners (GP), is required. Furthermore, the cross-sectional design used in study three in this thesis provided an understanding that lack of knowledge and poor attitudes among Libyan HCPs were barriers to effective CPM in Libya. However, it is not clear if these barriers to CPM would differ across Libyan HCPs after educational interventions and experience in CPM over time. Therefore, a longitudinal examination is needed to explore the change in the HCPs' attitudes and

knowledge about cancer pain and opioids and the contributions of these barriers related to lack of knowledge and negative attitudes towards CPM over longer follow-up.

Moreover, as mentioned in the literature, it has been highlighted that pain associated with cancer negatively affects patients' and their caregivers' quality of life (QoL) (Yamagishi et al., 2012b). Although poor QoL has been found among cancer patients in Libya (Nouh et al., 2018; Agila, 2020; Hashemi et al., 2019), which also could be due to unrelieved cancer pain, there is no published research on the prevalence of cancer pain and consumption of opioids for CPM in Libya. Thus, it would be helpful to future studies on the prevalence of cancer pain and consumption of opioids such as morphine for CPM in Libya. The results of these studies will be really important for future policy in CPM programmes in Libya.

The findings of this study also found that Libyan HCPs' knowledge and attitudes towards opioids and cancer pain were influenced by their cultural and religious beliefs. As discussed earlier in this chapter, negative CPM attitudes and lack of knowledge can be managed by continuing professional education. Several studies have considered the effects of educational interventions on HCPs' attitudes and Knowledge towards CPM (Alvarez and Agra, 2006; Allard et al., 2001; Bennett et al., 2011; Xhixha et al., 2013). However, it has been argued that although educational interventions enhanced HCPs' knowledge about CPM, their attitudes towards cancer pain and opioids can be hard to change (McMillan et al., 2005). Accordingly, intervention regarding HCPs' attitudes and beliefs about cancer pain and opioids would be a future consideration.

It has been emphasised that the lack of educational programmes on CPM, including CPM topics in medical and nursing curricula, are barriers to enhancing HCPs' knowledge and attitudes towards CPM (Bouya et al., 2018; Nimmaanrat et al., 2010; Manalo, 2008). Thus, more research is required to explore the role of education and training in nursing and medical schools in Libya in establishing and enhancing awareness about CPM within the healthcare system.

6.6.2 Contributions to practice

This research on the views and perceptions of Libyan HCPs, patients, and caregivers about CPM can contribute to the design of future interventions for CPM. Hence, the findings of this study have several important implications for future practice. Firstly, educational and training interventions in CPM are needed to enhance Libyan HCPs' knowledge and attitudes towards CPM. As discussed earlier in this chapter, several authors have considered the effects of educational interventions on HCPs' attitudes and knowledge towards CPM (Omran et al., 2014; Lai et al., 2003; Patiraki et al., 2006b; Allard et al., 2001; Alvarez and Agra, 2006; Bennett et al., 2011; Bouya et al., 2018). A systematic review indicated that educational programmes on CPM, including CPM topics in nursing curricula and training programmes on CPM, are the most important factors for enhancing nurses' knowledge and attitudes towards CPM (Bouya et al., 2018). Another study found that nurses who had received educational programmes on CPM reported significantly higher mean scores on knowledge about CPM than those who did not have pain education (Bernardi et al., 2007b).

Furthermore, many studies highlighted that continuing training in CPM can enhance HCPs' attitudes and knowledge towards CPM (Darawad et al., 2017a; Nasser et al., 2016). Secondly, Libyan HCPs should follow CPM policy and guidelines such as the WHO (The WHO, 2018) and NICE (NICE, 2018; Bennett et al., 2012a) and use such guidelines in practice (Kim et al., 2020) as this is needed to improve CPM in Libya. Zech et al. (1995) emphasised that WHO guidelines should be widely distributed among HCPs working in cancer care and palliative care settings, as such guidelines are necessary to improve CPM. Another study found that oncology HCPs who work in hospitals using CPM guidelines were more knowledgeable and had positive attitudes towards CPM than (family HCPs and other practitioners) who did not use such guidelines (Levin et al., 1998). Finally, although it has been recommended by the WHO that each country should adopt a national policy for implementing palliative care services (Sepúlveda et al., 2002; WHO, 2020b), palliative care services do not exist in the Libyan healthcare system (El Ansary et al., 2014b). Many studies indicated that HCPs, who have experience in pain clinics and palliative care settings showed a better level of attitudes towards opioids and knowledge about CPM than those

who did not (Rurup et al., 2010; Darawad et al., 2019b; McCaffery and Ferrell, 1995). Therefore, palliative care and pain management services should be adopted into the Libyan health system to improve CPM in Libya.

Subsequently, improving and evaluating specific educational interventions and CPM guidelines and continuing training on opioids and CPM for Libyan HCPs that can be delivered briefly and easily in the Libyan context of CPM are needed (Bennett et al., 2009; Kim et al., 2020) to ensure such interventions meet cancer patient's needs and preferences for improving CPM in Libya (Latter et al., 2016; Kim et al., 2020). Likewise, cancer patients and caregivers will need different approaches to improve general awareness and CPM knowledge. The evidence indicated that family caregivers play an important role in managing their cancer patients' pain (Aranda et al., 2004; Lin et al., 2000; Porter et al., 2008). Caregivers might hold their own beliefs about cancer pain and opioids, influencing their role in CPM in home settings (Meeker et al., 2011; Riley-Doucet, 2005). For instance, it has been found that patients' attitudes towards CPM were influenced by their caregivers' attitudes and the patient's pain knowledge (Lou and Shang, 2017). Vallerand et al. (2007b) also indicated that caregivers with higher pain and opioid knowledge had significantly fewer barriers to CPM than those who did not. It can thus be suggested that HCPs could help and teach patients and caregivers about CPM to overcome myths/misconceptions about opioids and cancer pain, especially concerning poor tolerance and drug addiction. Additionally, caregivers need general awareness and an adequate level of knowledge about CPM to participate in CPM and enable them to assess pain and help their patients take adequate doses of opioids.

6.7 Conclusion and recommendations

6.7.1 Conclusion

The main purpose of this mixed-methods study was to explore Libyan HCPs', patients', and caregivers' views about cancer pain and its management. In order to achieve this aim, a mixture of systematic review, qualitative, and quantitative methods were conducted. Study one in this thesis (systematic review) confirmed

that there are still barriers to effective CPM by HCPs, patients, caregivers, and the general public's lack of knowledge and/or poor attitudes towards CPM, which might result in unalleviated cancer pain. More detailed understanding of how these attitudes arise within different contexts and tailoring educational initiatives to address these are likely to have the most impact on improving CPM.

Study two (qualitative study) shows that Libyan patients, caregivers, and HCPs hold negative attitudes and views about opioids and cancer pain due to religious and cultural beliefs. Furthermore, lack of knowledge, training in CPM, and experience in palliative care settings among Libyan HCPs might prevent effective CPM in Libya. Moreover, the economic and the Libyan healthcare system-related factors are barriers to effective CPM. To address these concerns, developing and evaluating interventions, such as CPM education and training, would be necessary to improve patients' outcomes with cancer pain in Libya.

Study three (quantitative study) showed that oncology HCPs in Libya perceived barriers to CPM related to lack of knowledge and poor attitudes towards CPM. Based on the results of study three, the researcher recommends developing strategies, including professional education and continuing training in CPM, addressing phobia and myths on opioid usage, and the benefits and complications of using opioids for CPM for HCPs involved in the care of cancer patients.

This thesis has provided a deeper insight into potential barriers to CPM in Libya, including HCPs,' patients,' and caregivers' lack of knowledge and/or poor attitudes towards CPM, as well as limited access to strong opioids and lack of guidelines for CPM and pain assessment tools and absence of CPM education, training, and experience in pain and palliative care settings, resulting in unalleviated cancer pain in Libya. Thus, the conclusions of this study support previous studies that suggest that there are still barriers to effective CPM. It can also be suggested that based on the existing evidence, educational interventions, general awareness about CPM, and continuing training and experience in pain clinics and palliative care settings should be continuously applied as they can

positively affect and enhance HCPs,' patients,' and caregivers' attitudes and knowledge towards CPM.

6.7.2 Future areas for development

The following recommendations for policy and practice in developing countries, including Libya, should be achieved to improve CPM:

- i. There is a need to revise the medical curriculum to include a training programme to enable all medical and nursing students in Libya to graduate with basic CPM and palliative care competency.
- ii. Libyan HCPs should follow guidelines, such as WHO and NICE for CPM.
- iii. Pain assessment tools should be used to assess cancer pain in Libya.
- iv. Strong opioids, such as morphine (tablets and injections), should be acceptable for CPM in Libyan hospitals.
- v. Since cancer pain is primarily managed in primary care and oncology settings in Libya, there is a need to teach and train GPs, oncologists, nurses, and pharmacists in CPM.
- vi. Libyan nurses and pharmacists involved in cancer care should be encouraged to become independent prescribers as this can help improve patients' access to pain medications for CPM.
- vii. The participation of a multidisciplinary team in CPM at the Libyan hospitals is considered to meet the needs of cancer patients.
- viii. Libyan caregivers need general awareness and an adequate level of knowledge about opioids and cancer pain to participate in CPM which enables them to assess pain and help their patients take adequate doses of opioids.

- ix. Since Libya lacks certain healthcare infrastructure, such as pain management and palliative care, such health services are needed to improve CPM in Libya.
- x. A study to explore the views of the general public about cancer pain and the use of opioids for CPM
- xi. A study with a documentary analysis about cancer care and pain management in Libya

References

- Abou-Elhamd, K.E. 2009a. Kaiy as traditional therapy for pain: is it helpful or a myth? *J Laryngol Otol.* **123**(5), pp.566-568.
- Abou-Elhamd, K.E.A. 2009b. Kaiy as traditional therapy for pain: is it helpful or a myth? *The Journal of Laryngology & Otolology.* **123**(5), pp.566-568.
- Aboushanab, T. and Alsanad, S. 2018. An Ethnomedical Perspective of Arabic Traditional Cauterization; Al-Kaiy. *Advanced Journal of Social Science.* **4**.
- Abu-Odah, H., Molassiotis, A. and Liu, J. 2020. Challenges on the provision of palliative care for patients with cancer in low- and middle-income countries: a systematic review of reviews. *BMC Palliative Care.* **19**(1), p55.
- Abu Khait, A. and Lazenby, M. 2021. Psychosocial-spiritual interventions among Muslims undergoing treatment for cancer: an integrative review. *BMC Palliative Care.* **20**(1), p51.
- Abudejaja, A.H. and Singh, R. 2000. Health for all in the Libyan Arab Jamahiriya. [Online]. **4**(6). [Accessed 14th June 2018]. Available from: <http://www.who.int/iris/handle/10665/118934>
- ACS. 2018. *Global Cancer: Facts & Figures*. [Online]. [Accessed 5th Septemebr]. Available from: <https://www.cancer.org/content/dam/cancer-org/research/cancer-facts-and-statistics/global-cancer-facts-and-figures/global-cancer-facts-and-figures-4th-edition.pdf>
- Adams, V. 2008. Access to pain relief: an essential human right. A report for World Hospice and Palliative Care Day 2007. Help the hospices for the Worldwide Palliative Care Alliance. *J Pain Palliat Care Pharmacother.* **22**(2), pp.101-129.
- Adel Attia, Ismail Siala and Azribi, F. 2022. General Oncology Care in Libya. In: Humaid O. Al-Shamsi, et al. eds. *Cancer in the Arab World*. [Online]. Springer, pp.133-146. Available from: https://link.springer.com/chapter/10.1007/978-981-16-7945-2_9
- Agila, A.R. 2020. Cancer commonness in Eastern and Western Libya and effect of the eating way on patients. *World Journal of Advanced Research and Reviews.* **5**(2), pp.186-192.
- Ahmadi, F. and Ahmadi, N. 2018. *Existential meaning-making for coping with serious illness: Studies in secular and religious societies*. London, UK: Routledge.
- Ajaj, S.A.-F. 2012. *Improving Patient Confidentiality Systems in Libya Using UK Experience*. thesis, University of Gloucestershire.

- Akin-Odanye, E.O. and Husman, A.J. 2021. Impact of stigma and stigma-focused interventions on screening and treatment outcomes in cancer patients. *Ecancermedicalscience*. **15**, p1308.
- Al-Amer, R., Ramjan, L., Glew, P., Darwish, M. and Salamonson, Y. 2015. Language translation challenges with Arabic speakers participating in qualitative research studies. *International Journal of Nursing Studies*. **54**.
- Al-Atiyyat, N., Salim, N.A., Tuffaha, M.G., Abu Nigim, H.A., Saleh, M.M., Alkhodary, M.E. and Brant, J.M. 2019. A Survey of the Knowledge and Attitudes of Oncology Nurses toward Pain in United Arab Emirates Oncology Settings. *Pain Manag Nurs*. **20**(3), pp.276-283.
- Al-Bukhari, S. 1996. Hadith. **7**.
- Al-Ghabeesh, S.H., Bashayreh, I.H., Saifan, A.R., Rayan, A. and Alshraifeen, A.A. 2020. Barriers to Effective Pain Management in Cancer Patients From the Perspective of Patients and Family Caregivers: A Qualitative Study. *Pain Management Nursing*. **21**(3), pp.238-244.
- Al-Kaaba Abdul Aziz, Hussein G.MA and O.H, K. 2015. *Professionalism and Ethics Handbook for Residents: A Particular Guide*. Saudi Arabia: Saudi Commission for Health Specialties.
- Al-Shahri, M.Z. and Al-Khenaizan, A. 2005. Palliative care for Muslim patients. *J Support Oncol*. **3**(6), pp.432-436.
- Al-Wahbi, A.M. 2006. The diabetic foot. In the Arab world. *Saudi medical journal*. **27**(2), pp.147-153.
- Al Binali, H.A.H. 2004. Chairman's reflections traditional medicine Among gulf arabs part II blood-letting. *Heart Views*. **5**(2), pp.74-85.
- Al Khalaileh, M. and Al Qadire, M. 2012a. Barriers to cancer pain management: Jordanian nurses' perspectives. *Int J Palliat Nurs*. **18**(11), pp.535-536, 538-540.
- Al Khalaileh, M. and Al Qadire, M. 2012b. Barriers to cancer pain management: Jordanian nurses' perspectives. *International Journal of Palliative Nursing*. **18**(11), pp.535-540.
- Al Qadire, M. 2011a. *An Implementation Study to Improve Cancer Pain Management in Jordan Using a Case Study*. Ph.D. thesis, Manchester.
- Al Qadire, M. 2011b. *An Implementation Study to Improve Cancer Pain Management in Jordan Using a Case Study*. PhD thesis, Manchester.
- Al Qadire, M. 2012a. Patient-related barriers to cancer pain management in Jordan. *J Pediatr Hematol Oncol*. **34 Suppl 1**, pp.S28-31.

Al Qadire, M. 2012b. Patient-related Barriers to Cancer Pain Management in Jordan. *Journal of Pediatric Hematology/Oncology*. **34**, pp.S28-S31.

Al Qadire, M., Tubaishat, A. and Aljezawi, M.M. 2013. Cancer pain in Jordan: prevalence and adequacy of treatment. *International Journal of Palliative Nursing*. **19**(3), pp.125-130.

Alasiry, S. and Löfvenmark, C. 2013. Nurses' perceptions of pain assessment and pain management for patients with myocardial infarction in a coronary care unit. *Middle East Journal of Nursing*. **7**, pp.9-22.

Alhdiri, M.A., Samat, N.A. and Mohamed, Z. 2017. Risk Estimation for Lung Cancer in Libya: Analysis Based on Standardized Morbidity Ratio, Poisson-Gamma Model, BYM Model and Mixture Model. *Asian Pacific journal of cancer prevention : APJCP*. **18**(3), pp.673-679.

Alhmali, R. 2007. *Student attitudes in the context of the curriculum in Libyan education in middle and high schools*. thesis, University of Glasgow.

Alhojailan, M.I. 2012. Thematic analysis: A critical review of its process and evaluation. *West East Journal of Social Sciences*. **1**(1), pp.39-47.

Allard, P., Maunsell, E., Labbé, J. and Dorval, M. 2001. Educational Interventions to Improve Cancer Pain Control: A Systematic Review. *Journal of Palliative Medicine*. **4**(2), pp.191-203.

Allen, M. 2017. Survey: Open-Ended Questions. In: Allen, M. ed. *The SAGE Encyclopedia of Communication Research Methods*

[Online]. Thousand Oaks, California: SAGE Available from:

<https://methods.sagepub.com/reference/the-sage-encyclopedia-of-communication-research-methods>

Almohaimmeed, B.M. 2012. *Customer behaviour towards Internet banking: A study of the dormant users of Saudi Arabia*. Doctor of Philosophy thesis, University of Birmingham.

Alnajjar, M.K., Darawad, M.W., Alshahwan, S.S. and Samarkandi, O.A. 2019. Knowledge and Attitudes Toward Cancer Pain Management Among Nurses at Oncology Units. *J Cancer Educ*. **34**(1), pp.186-193.

Alnems, A. 2012a. *Oncology nurses' cultural competence, knowledge, and attitudes toward cancer pain*. PhD thesis, San Diego.

Alnems, A. 2012b. *Oncology nurses' cultural competence, knowledge, and attitudes toward cancer pain*. PhD thesis, San Diego.

Alqahtani, M.E. 2014a. *Examining knowledge, attitudes and beliefs of oncology nurses towards pain management in Saudi Arabia*. Ph.D. thesis, Royal Melbourne Institute of Technology (RMIT).

Alqahtani, M.E. 2014b. *Examining knowledge, attitudes and beliefs of oncology nurses towards pain management in Saudi Arabia*. Ph.D. thesis, Royal Melbourne Institute of Technology (RMIT).

Alqahtani, M.E. 2014c. *Examining knowledge, attitudes and beliefs of oncology nurses towards pain management in Saudi Arabia*. Ph.D. thesis, Royal Melbourne Institute of Technology University Melbourne Australia.

Alsirafy, N.A., El-Mesidi, S.M., El-Sherief, W.A., Galal, K.M., Abou-Elela, E.N. and Aklan, N.A. 2011a. Opioid Needs of Patients with Advanced Cancer and the Morphine Dose-Limiting Law in Egypt. *Journal of Palliative Medicine*. **14**(1), pp.51-54.

Alsirafy, S.A., El-Mesidi, S.M., El-Sherief, W.A., Galal, K.M., Abou-Elela, E.N. and Aklan, N.A. 2011b. Opioid needs of patients with advanced cancer and the morphine dose-limiting law in Egypt. *Journal of palliative medicine*. **14**(1), pp.51-54.

Alvarez, M.P. and Agra, Y. 2006. Systematic review of educational interventions in palliative care for primary care physicians. *Palliative Medicine*. **20**(7), pp.673-683.

Anderson, K.O., Mendoza, T.R., Valero, V., Richman, S.P., Russell, C., Hurley, J., DeLeon, C., Washington, P., Palos, G., Payne, R. and Cleeland, C.S. 2000. Minority cancer patients and their providers: pain management attitudes and practice. *Cancer*. **88**(8), pp.1929-1938.

Anderson, K.O., Richman, S.P., Hurley, J., Palos, G., Valero, V., Mendoza, T.R., Gning, I. and Cleeland, C.S. 2002. Cancer pain management among underserved minority outpatients: perceived needs and barriers to optimal control. *Cancer*. **94**(8), pp.2295-2304.

Ano, G.G. and Vasconcelles, E.B. 2005. Religious coping and psychological adjustment to stress: a meta-analysis. *J Clin Psychol*. **61**(4), pp.461-480.

Aranda, S., YATES, P., EDWARDS, H., NASH, R., SKERMAN, H. and MCCARTHY, A. 2004. Barriers to effective cancer pain management: a survey of Australian family caregivers. *European Journal of Cancer Care*. **13**(4), pp.336-343.

Arndt, J., Cook, A., Goldenberg, J.L. and Cox, C.R. 2007. Cancer and the threat of death: The cognitive dynamics of death-thought suppression and its impact on behavioral health intentions. *Journal of Personality and Social Psychology*. **92**, pp.12-29.

Aromataris, E. and Pearson, A. 2014. The systematic review: an overview. *AJN The American Journal of Nursing*. **114**(3), pp.53-58.

Arslan, D., Koca, T., Akar, E., Tural, D. and Ozdogan, M. 2014. Cancer pain prevalence and its management. *Asian Pac J Cancer Prev*. **15**(20), pp.8557-8562.

Astrow, A.B., Mattson, I., Ponet, R.J. and White, M. 2005. Inter-Religious Perspectives on Hope and Limits in Cancer Treatment. *Journal of Clinical Oncology*. **23**(11), pp.2569-2573.

Attia, M. 2015. *Explanation of a verse of the Qur'an "(And we send down of the Qur'an that which is a cure and a mercy for the believers)" Verse (17:82 Surat AL-Isra).*

[Accessed 4th January 2020]. Available from:

<https://www.youtube.com/watch?v=FEKskxE2GmA>

Attum, B., Hafiz, S., Malik, A. and Shamoan, Z. 2022. Cultural Competence in the Care of Muslim Patients and Their Families. *StatPearls*. Treasure Island (FL): StatPearls Publishing

Copyright © 2022, StatPearls Publishing LLC.

Azzani, M., Roslani, A.C. and Su, T.T. 2015. The perceived cancer-related financial hardship among patients and their families: a systematic review. *Support Care Cancer*. **23**(3), pp.889-898.

Baetz, M. and Bowen, R. 2008. Chronic pain and fatigue: Associations with religion and spirituality. *Pain Res Manag*. **13**(5), pp.383-388.

Balboni, T.A., Vanderwerker, L.C., Block, S.D., Paulk, M.E., Lathan, C.S., Peteet, J.R. and Prigerson, H.G. 2007. Religiousness and spiritual support among advanced cancer patients and associations with end-of-life treatment preferences and quality of life. *J Clin Oncol*. **25**(5), pp.555-560.

Barker, C., Pistrang, N. and Elliot, R. 1994. *Research Methods in Clinical and Counselling Psychotherapy*. Chichester: Wiley.

Basri, N.A., Hong, G.C., Oon, N.L. and Kumagai, S. 2015. Islamic religiosity, depression and anxiety among muslim cancer patients. *IAFOR Journal of Psychology & the Behavioral Sciences*. **1**(1), pp.1-12.

Bennett, M.I. 2006. Theories, history, and current taxonomy. In: Bennett, M.I. ed. *Neuropathic Pain*. first ed. Oxford: Oxford University Press, pp.3-8.

Bennett, M.I. 2009. The Brief Pain Inventory: revealing the effect of cancer pain. *Lancet Oncol*. **10**(10), p1020.

Bennett, M.I., Bagnall, A.-M. and José Closs, S. 2009. How effective are patient-based educational interventions in the management of cancer pain? Systematic review and meta-analysis. *PAIN®*. **143**(3), pp.192-199.

Bennett, M.I., Flemming, K. and Closs, S.J. 2011. Education in cancer pain management. *Current Opinion in Supportive and Palliative Care*. **5**(1), pp.20-24.

Bennett, M.I., Graham, J., Schmidt-Hansen, M., Prettyjohns, M. and Arnold, S. 2012a. Prescribing strong opioids for pain in adult palliative care: summary of NICE guidance. *BMJ: British Medical Journal (Online)*. **344**.

Bennett, M.I., Kaasa, S., Barke, A., Korwisi, B., Rief, W. and Treede, R.D. 2019. The IASP classification of chronic pain for ICD-11: chronic cancer-related pain. *Pain*. **160**(1), pp.38-44.

- Bennett, M.I., Rayment, C., Hjermsstad, M., Aass, N., Caraceni, A. and Kaasa, S. 2012b. Prevalence and aetiology of neuropathic pain in cancer patients: a systematic review. *Pain*. **153**(2), pp.359-365.
- Berg, B.L. 2007. *Qualitative Research Methods for the Social Sciences*. 6th ed. New York, USA.: Pearson Education Inc.
- Bergman, M.M. 2008. *Advances In Mixed Methods Research: Theories and Applications*. 1st ed. Los Angeles: SAGE.
- Bernardi, M., Catania, G., Lambert, A., Tridello, G. and Luzzani, M. 2007a. Knowledge and attitudes about cancer pain management: a national survey of Italian oncology nurses. *Eur J Oncol Nurs*. **11**(3), pp.272-279.
- Bernardi, M., Catania, G., Lambert, A., Tridello, G. and Luzzani, M. 2007b. Knowledge and attitudes about cancer pain management: A national survey of Italian oncology nurses. *European Journal of Oncology Nursing*. **11**(3), pp.272-279.
- Berterame, S., Erthal, J., Thomas, J., Fellner, S., Vosse, B., Clare, P., Hao, W., Johnson, D.T., Mohar, A., Pavadia, J., Samak, A.K., Sipp, W., Sumyai, V., Suryawati, S., Toufiq, J., Yans, R. and Mattick, R.P. 2016. Use of and barriers to access to opioid analgesics: a worldwide, regional, and national study. *Lancet*. **387**(10028), pp.1644-1656.
- Betsi, N.A., Koudou, B., Cissé, G., Tschannen, A., Pignol, A., Ouattara, Y., Madougou, Z., Tanner, M. and Utzinger, J. 2006. Effect of an armed conflict on human resources and health systems in Côte d'Ivoire: prevention of and care for people with HIV/AIDS. *AIDS care*. **18**(4), pp.356-365.
- Bettany-Saltikov, J. 2012. *How to do a systematic literature review in nursing: a step-by-step guide*. McGraw-Hill Education (UK).
- Bhattacharjee, A. 2012a. *Social Science Research: Principles, Methods, and Practices*. [Online]. 2nd ed. Tampa, Florida, USA: University of South Florida: Scholar Commons. [Accessed 27th December 2018]. Available from: http://scholarcommons.usf.edu/oa_textbooks/3?utm_source=scholarcommons.usf.edu%2Foa_textbooks%2F3&utm_medium=PDF&utm_campaign=PDFCoverPages
- Bhattacharjee, A. 2012b. *Social Science Research: Principles, Methods, and Practices*. [Online]. 2nd ed. Tampa, Florida, USA: Scholar Commons; University of South Florida [Accessed 15 August 2020]. Available from: https://scholarcommons.usf.edu/cgi/viewcontent.cgi?article=1002&context=oa_textbooks
- Biesta, G. 2010. Pragmatism and the philosophical foundations of mixed methods research. In: Abbas, T. and Charles, T. eds. *Handbook of Mixed Methods in Social and Behavioral Research*. Thousand Oaks: Sage, pp.95–117.
- Bloom, D.E., Cafiero, E.T., Jané-Llopis, E., Abrahams-Gessel, S., Bloom, L.R., Fathima, S., Feigl, A.B., Gaziano, T., Mowafi, M., Pandya, A., Prettner, K., Rosenberg,

L., Seligman, B., Stein, A.Z. and Weinstein, C. 2011. *The Global Economic Burden of Noncommunicable Diseases*. Geneva: Harvard School of Public Health.

Bloomer, M.J. and Al-Mutair, A. 2013. Ensuring cultural sensitivity for Muslim patients in the Australian ICU: considerations for care. *Aust Crit Care*. **26**(4), pp.193-196.

Bodalal, Z., Azzuz, R. and Bendardaf, R. 2014. Cancers in eastern Libya: First results from Benghazi medical center. *World journal of gastroenterology: WJG*. **20**(20), p6293.

Borenstein, M., Rothstein, H. and Cohen, J. eds. 2001. *Power and Precision*. Englewood; USA: a trademark of Biostat, Inc.

Bosch, F. and Banos, J.-E. 2002. Religious beliefs of patients and caregivers as a barrier to the pharmacologic control of cancer pain*. *Clinical pharmacology and therapeutics*. **72**, pp.107-111.

Bosch, F. and Baños, J.E. 2002. Religious beliefs of patients and caregivers as a barrier to the pharmacologic control of cancer pain. *Clinical Pharmacology & Therapeutics*. **72**(2), pp.107-111.

Bottomley, A. 1998. *The Consequences of cancer on human functioning*. PhD thesis, Manchester.

Bouya, S., Balouchi, A., Maleknejad, A., Koochakzai, M., AIKhasawneh, E. and Abdollahimohammad, A. 2018. Cancer Pain Management Among Oncology Nurses: Knowledge, Attitude, Related Factors, and Clinical Recommendations: a Systematic Review. *Journal of Cancer Education*.

Bowling, A. 2014. *Research methods in health: investigating health and health services*. 4th ed. London, the UK: McGraw-Hill Education.

Boyatzis, R.E. 1998. *Transforming qualitative information: Thematic analysis and code development*. United States of America: sage.

BPS. 2010. *Cancer Pain Management*. (978-0-9551546-7-6). London: The British Pain Society's (BPS).

BPS. 2019a. *Pain Scales* [Online]. Available from: https://www.britishpainsociety.org/static/uploads/resources/files/Outcome_Measures_January_2019.pdf

BPS. 2019b. *Pain Scales*. [Online]. Available from: https://www.britishpainsociety.org/static/uploads/resources/files/Outcome_Measures_January_2019.pdf

Bradshaw, C., Atkinson, S. and Doody, O. 2017. Employing a Qualitative Description Approach in Health Care Research. *Global Qualitative Nursing Research*. **4**, p2333393617742282.

- Braun, V. and Clarke, V. 2006. Using thematic analysis in psychology. *Qualitative Research in Psychology*. **3**(2), pp.77-101.
- Braun, V. and Clarke, V. 2013. *Successful qualitative research: A practical guide for beginners*. London, UK: Sage.
- Breivik, H., Cherny, N., Collett, B., de Conno, F., Filbet, M., Foubert, A.J., Cohen, R. and Dow, L. 2009. Cancer-related pain: a pan-European survey of prevalence, treatment, and patient attitudes. *Annals of Oncology*. **20**(8), pp.1420-1433.
- Breuer, B., Fleishman, S.B., Cruciani, R.A. and Portenoy, R.K. 2011a. Medical Oncologists' Attitudes and Practice in Cancer Pain Management: A National Survey. *Journal of Clinical Oncology*. **29**(36), pp.4769-4775.
- Breuer, B., Fleishman, S.B., Cruciani, R.A. and Portenoy, R.K. 2011b. Medical oncologists' attitudes and practice in cancer pain management: a national survey. *J Clin Oncol*. **29**(36), pp.4769-4775.
- Brislin, R. 1986. The wording and translation of research instruments. In: Lonner, W. and Berry, J. eds. *Field methods in cross cultural research*. Beverly Hills, CA: Sage, pp.159–163.
- Britten, N. 1999. Qualitative interviews in healthcare. In: Pope, C. and Mays, N. eds. *Qualitative research in health care*. 2nd ed. London: BMJ Books, pp.9-11.
- Brook, P., Connell, J. and Pickering, T. 2011. *Oxford handbook of Pain management*. 1st ed. Oxford: Oxford University Press.
- Brown, K.W., Levy, A.R., Rosberger, Z. and Edgar, L. 2003. Psychological distress and cancer survival: a follow-up 10 years after diagnosis. *Psychosom Med*. **65**(4), pp.636-643.
- Browne, J.L., Ventura, A., Mosely, K. and Speight, J. 2013. 'I call it the blame and shame disease': a qualitative study about perceptions of social stigma surrounding type 2 diabetes. *BMJ Open*. **3**(11), pe003384.
- Brunelli, C., Zecca, E., Martini, C., Campa, T., Fagnoni, E., Bagnasco, M., Lanata, L. and Caraceni, A. 2010. Comparison of numerical and verbal rating scales to measure pain exacerbations in patients with chronic cancer pain. *Health and Quality of Life Outcomes*. **8**(1), p42.
- Brunton, G., Stansfeld, C. and Thomas, J. 2017. Finding relevant studies. In: Gough, D., et al. eds. *An introduction to systematic reviews*. 4th ed. London, UK: SAGE.
- Bryman, A. 2004. *Social Research Methods*. 2nd ed. Oxford: Oxford University Press.
- Bryman, A. 2006. Integrating quantitative and qualitative research: how is it done? *Qualitative Research*. **6**(1), pp.97-113.

Bryman, A. 2015. *Social research methods*. 5th ed. Oxford, UK: Oxford University Press.

Bryman, A. 2016. *Social research methods*. 5th ed. Oxford, UK: Oxford University Press.

Buglass, L. 2007. The assessment of acute pain in adults: What is acute pain? In: McGANN, K. ed. *Fundamental aspects of pain assessment and management*. MA Healthcare Limited, pp.25- 35.

Bulls, H.W., Chu, E., Goodin, B.R., Liebschutz, J.M., Wozniak, A., Schenker, Y. and Merlin, J.S. 2022a. Framework for opioid stigma in cancer pain. *Pain*. **163**(2), pp.e182-e189.

Bulls, H.W., Hamm, M., Wasilko, R., Cameron, F.d.A., Belin, S., Goodin, B.R., Liebschutz, J.M., Wozniak, A., Sabik, L.M., Merlin, J.S. and Schenker, Y. 2022b. Manifestations of Opioid Stigma in Patients With Advanced Cancer: Perspectives From Patients and Their Support Providers. *JCO Oncology Practice*. **63**(6), pOP.22.00251.

Bulls, H.W., Hoogland, A.I., Craig, D., Paice, J., Chang, Y.D., Oberoi-Jassal, R., Rajasekhara, S., Haas, M., Bobonis, M., Gonzalez, B.D., Portman, D. and Jim, H.S.L. 2019. Cancer and Opioids: Patient Experiences With Stigma (COPES)-A Pilot Study. *J Pain Symptom Manage*. **57**(4), pp.816-819.

Burls, A. 2009. *Evidence-based medicine: What is critical appraisal?* [Online]. Hayward Medical Communications. Available from: [file:///nask.man.ac.uk/home\\$/Desktop/39ae2ed11b14a4ccb41d35e9d1ba5d11-original.pdf](file:///nask.man.ac.uk/home$/Desktop/39ae2ed11b14a4ccb41d35e9d1ba5d11-original.pdf)

Butler, A., Hall, H. and Copnell, B. 2016. A guide to writing a qualitative systematic review protocol to enhance evidence-based practice in nursing and health care. *Worldviews on Evidence-Based Nursing*. **13**(3), pp.241-249.

Butt, G. 2008. Stigma in the context of hepatitis C: concept analysis. *Journal of Advanced Nursing*. **62**(6), pp.712-724.

Caelli, K., Ray, L. and Mill, J. 2003. 'Clear as Mud': Toward Greater Clarity in Generic Qualitative Research. *International Journal of Qualitative Methods*. **2**(2), pp.1-13.

Caraceni, A., Brunelli, C., Martini, C., Zecca, E. and De Conno, F. 2005. Cancer pain assessment in clinical trials. A review of the literature (1999-2002). *J Pain Symptom Manage*. **29**(5), pp.507-519.

Caraceni, A., Cherny, N., Fainsinger, R., Kaasa, S., Poulain, P., Radbruch, L. and De Conno, F. 2002. Pain Measurement Tools and Methods in Clinical Research in Palliative Care: Recommendations of an Expert Working Group of the European Association of Palliative Care. *Journal of Pain and Symptom Management*. **23**(3), pp.239-255.

- Caraceni, A., Galbiati, A., Brunelli, C., Gorni, G., Martini, C., Zecca, E. and De Conno, F. 2004. Cancer patient compliance in the self-administration of a pain assessment tool. *J Pain Symptom Manage.* **27**(5), pp.417-424.
- Caraceni, A. and Shkodra, M. 2019. Cancer Pain Assessment and Classification. *Cancers.* **11**(4), p510.
- Caraceni, A. and Weinstein, S.M. 2001. Classification of cancer pain syndromes. *Oncology (Williston Park).* **15**(12), pp.1627-1640, 1642; discussion 1642-1623, 1646-1627.
- Carnevale, F.A. 2002. Authentic qualitative research and the quest for methodological rigour. *Can J Nurs Res.* **34**(2), pp.121-128.
- Carrera, P.M., Kantarjian, H.M. and Blinder, V.S. 2018. The financial burden and distress of patients with cancer: Understanding and stepping-up action on the financial toxicity of cancer treatment. *CA: A Cancer Journal for Clinicians.* **68**(2), pp.153-165.
- Carter, S. and Henderson, L. 2005. Approaches to qualitative data collection in social science. In: Bowling, A. and Ebrahim, S. eds. *Handbook of Health Research Methods: Investigation, Measurement and Analysis.* Maidenhead: Open University Press.
- Charalambous, A., Zorpas, M., Cloconi, C. and Kading, Y. 2019. Healthcare professionals' perceptions on the use of opioid analgesics for the treatment of cancer-related pain in Cyprus: A mixed-method study. *SAGE Open Medicine.* **7**, p2050312119841823.
- Chase, S.E. 2011. Narrative Inquiry. In: Denzin, N.K. and Lincoln, Y.S. eds. *The SAGE Handbook of Qualitative Research.* London, the UK: SAGE.
- Chen, C.H., Tang, S.T. and Chen, C.H. 2012. Meta-analysis of cultural differences in Western and Asian patient-perceived barriers to managing cancer pain. *Palliative Medicine.* **26**(3), pp.206-221.
- Cherny, N.I., Baselga, J., de Conno, F. and Radbruch, L. 2010. Formulary availability and regulatory barriers to accessibility of opioids for cancer pain in Europe: a report from the ESMO/EAPC Opioid Policy Initiative. *Annals of Oncology.* **21**(3), pp.615-626.
- Choong, K.A. 2015. Islam and palliative care. *Global Bioethics.* **26**(1), pp.28-42.
- Chou, P.L., Rau, K.M. and Lin, C.C. 2011. Development and psychometric testing of a short version of the Barriers Questionnaire-Taiwan form for cancer patients. *Int J Nurs Stud.* **48**(9), pp.1071-1079.
- Chwistek, M. 2017. Recent advances in understanding and managing cancer pain. *F1000Research.* **6**, pp.945-945.
- CIA. 2021a. *The World FactBook: Geography.* [Online]. [Accessed 30th March]. Available from: <https://www.cia.gov/the-world-factbook/countries/libya/#geography>

CIA. 2021b. *The World FactBook: People and Society*. [Online]. [Accessed 30th March]. Available from: <https://www.cia.gov/the-world-factbook/countries/libya/#people-and-society>

Clark, J., Gnanapragasam, S., Greenley, S., Pearce, J. and Johnson, M. 2021. Perceptions and experiences of laws and regulations governing access to opioids in South, Southeast, East and Central Asia: A systematic review, critical interpretative synthesis and development of a conceptual framework. *Palliative Medicine*. **35**(1), pp.59-75.

Clark, N. 2004. *Education in Libya*. [Online]. [Accessed 11th June]. Available from: <https://wenr.wes.org/2004/07/wenr-julyaugust-2004-education-in-libya>

Clarke, E.B., French, B., Bilodeau, M.L., Capasso, V.C., Edwards, A. and Empoliti, J. 1996. Pain management knowledge, attitudes and clinical practice: the impact of nurses' characteristics and education. *J Pain Symptom Manage*. **11**(1), pp.18-31.

Clarke, M. 2007. Systematic reviews and meta-analysis of quantitative research. In: Webb, C. and Roe, B. eds. *Reviewing research evidence for nursing practice: Systematic reviews*. Oxford: Blackwell Publishing Ltd, pp.1-8.

Clarke, V. and Braun, V. 2013. Teaching thematic analysis: Overcoming challenges and developing strategies for effective learning. *The psychologist*. **26**(2), pp.120-123.

Cleary, J., Powell, R., Munene, G., Mwangi-Powell, F., Luyirika, E., Kiyange, F., Merriman, A., Scholten, W., Radbruch, L. and Torode, J. 2013a. Formulary availability and regulatory barriers to accessibility of opioids for cancer pain in Africa: a report from the Global Opioid Policy Initiative (GOPI). *Annals of oncology*. **24**(suppl 11), pp.xi14-xi23.

Cleary, J., Powell, R.A., Munene, G., Mwangi-Powell, F.N., Luyirika, E., Kiyange, F., Merriman, A., Scholten, W., Radbruch, L., Torode, J. and Cherny, N.I. 2013b. Formulary availability and regulatory barriers to accessibility of opioids for cancer pain in Africa: a report from the Global Opioid Policy Initiative (GOPI). *Ann Oncol*. **24 Suppl 11**, pp.xi14-23.

Cohen, M.Z., Musgrave, C.F., McGuire, D.B., Strumpf, N.E., Munsell, M.F., Mendoza, T.R. and Gips, M. 2005. The cancer pain experience of Israeli adults 65 years and older: the influence of pain interference, symptom severity, and knowledge and attitudes on pain and pain control. *Supportive Care in Cancer*. **13**(9), pp.708-714.

Colak, D., Oguz, A., Yazilitas, D., Imamoglu, I.G. and Altinbas, M. 2014a. Morphine: patient knowledge and attitudes in the central anatolia part of Turkey. *Asian Pac J Cancer Prev*. **15**(12), pp.4983-4988.

Colak, D., Oguz, A., Yazilitas, D., Imamoglu, I.G. and Altinbas, M. 2014b. Morphine: patient knowledge and attitudes in the central anatolia part of Turkey. *Asian Pac J Cancer Prev*. **15**(12), pp.4983-4988.

Colak, D., Oguz, A., Yazilitas, D., Immamoglu, I.G. and Altinbas, M. 2014c. Morphine: patient knowledge and attitudes in the Central Anatolia part of Turkey. *Asian Pac J Cancer Prev.* **15**(12), pp.4983 - 4988.

Collis, J. and Hussey, R. 2014. *Business research : a practical guide for undergraduate & postgraduate students* 4th ed. Houndmills, Basingstoke Palgrave Macmillan.

Conway, J. 2010. Integrating spiritual care as part of comprehensive cancer treatment. *Oncol Nurse Advis.* **1**, pp.24-27.

Cope, D.K. and Zhao, Z. 2011. Interventional Management for Cancer Pain. *Current Pain and Headache Reports.* **15**(4), pp.237-243.

Corbin, J. and Strauss, A. 2008. *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory.* [Online]. 3rd ed. ed. Thousand Oaks, California: SAGE. [Accessed 2020/06/28]. Available from: <https://methods.sagepub.com/book/basics-of-qualitative-research>

Corrigan, P.W., Rafacz, J. and Rüsç, N. 2011. Examining a progressive model of self-stigma and its impact on people with serious mental illness. *Psychiatry Res.* **189**(3), pp.339-343.

Cousins, M.J. and Gallagher, R.M. 2017. *Fast facts: Chronic and cancer pain.* [Online]. 4th ed. Oxford: Health press. Available from: [https://books.google.co.uk/books?hl=en&lr=&id=619uDwAAQBAJ&oi=fnd&pg=PP1&dq=COUSINS,+M.J.+and+GALLAGHER,+R.M.+\(2011\).+Fast+facts:+Chronic+and+cancer+pain.+2nd+ed.&ots=kTdLOAti1H&sig=JqZUznYPyJih-rblpN81h0r8TIU#v=onepage&q&f=false](https://books.google.co.uk/books?hl=en&lr=&id=619uDwAAQBAJ&oi=fnd&pg=PP1&dq=COUSINS,+M.J.+and+GALLAGHER,+R.M.+(2011).+Fast+facts:+Chronic+and+cancer+pain.+2nd+ed.&ots=kTdLOAti1H&sig=JqZUznYPyJih-rblpN81h0r8TIU#v=onepage&q&f=false)

CRD. 2009. *Systematic reviews: CRD's guidance for undertaking reviews in health care.* [Online]. York, the UK: Centre for Reviews & Dissemination, University of York. Available from: https://www.york.ac.uk/media/crd/Systematic_Reviews.pdf

Creswell, J. 2013a. *Qualitative Inquiry and research design: Choosing among five traditions* 3rd ed. Thousand Oaks, CA: Sage.

Creswell, J. and Poth, C. 2018. *Qualitative Inquiry and Research Design: Choosing among five approaches.* 4th ed. London: The UK: SAGE.

Creswell, J.W. 2007. Five qualitative approaches to inquiry. *Qualitative inquiry and research design: Choosing among five approaches.* **2**, pp.53-80.

Creswell, J.W. 2009. *Research Design: Qualitative, Quantitative, and Mixed Methods Approach.* 3rd ed. Thousand Oaks: Sage.

Creswell, J.W. 2013b. *Qualitative Inquiry and Research Design: Choosing among Five Approaches.* 3rd ed. Thousand Oaks: Sage.

Creswell, J.W. 2013c. *Research design: qualitative, quantitative, and mixed methods approaches.* 4th ed. New York, USA: Sage.

Creswell, J.W. and Clark, V.L. 2011. *Designing and Conducting Mixed Methods Research*. 2nd ed. Thousand Oaks: Sage.

Creswell, J.W. and Clark, V.L.P. 2017. *Designing and conducting mixed methods research*. Thousand Oaks, CA: Sage publications.

Creswell, J.W., Hanson, W.E., Clark Plano, V.L. and Morales, A. 2007. Qualitative research designs: Selection and implementation. *The counseling psychologist*. **35**(2), pp.236-264.

Creswell, J.W., Plano Clark, V., Gutmann, M. and Hanson, W. 2003. Advanced mixed methods research design. In: Tashakkori, A. and Teddie, C. eds. *Handbook of mixed methods in social and behavioural research*. Sage.

Creswell, J.W. and Plano Clark, V.L. 2017. *Designing And Conducting Mixed Methods Research*. 3rd ed. Thousand Oaks: SAGE.

Crotty, M. 1996. *Phenomenology and nursing research* South Melbourne, Australia: Churchill Livingstone.

Curtis, E.B., Krech, R. and Walsh, T. 1990. Common symptoms in patients with advanced cancer. *Journal of palliative care*. **7**(2), pp.25-29.

Darawad, M., Alnajar, M., Abdalrahim, M. and El-Aqoul, A. 2017a. Cancer pain management at oncology units: comparing knowledge, attitudes and perceived barriers between physicians and nurses. *Cancer Educ* **34**, pp.366-374.

Darawad, M., Alnajar, M.K., Abdalrahim, M.S. and El-Aqoul, A.M. 2017b. Cancer Pain Management at Oncology Units: Comparing Knowledge, Attitudes and Perceived Barriers Between Physicians and Nurses. *Journal of Cancer Education*.

Darawad, M., Alnajar, M.K., Abdalrahim, M.S. and El-Aqoul, A.M. 2019a. Cancer Pain Management at Oncology Units: Comparing Knowledge, Attitudes and Perceived Barriers Between Physicians and Nurses. *Journal of Cancer Education*. **34**(2), pp.366-374.

Darawad, M., Alnajar, M.K., Abdalrahim, M.S. and El-Aqoul, A.M. 2019b. Cancer Pain Management at Oncology Units: Comparing Knowledge, Attitudes and Perceived Barriers Between Physicians and Nurses. *J Cancer Educ*. **34**(2), pp.366-374.

Davidhizar, R. and Giger, J.N. 2004. A review of the literature on care of clients in pain who are culturally diverse. *International Nursing Review*. **51**(1), pp.47-55.

Daw, M.A., El-Bouzedi, A. and Dau, A.A. 2016. The assessment of efficiency and coordination within the Libyan health care system during the armed conflict-2011. *Clinical Epidemiology and Global Health*. **4**(3), pp.120-127.

Dawson, C. 2002. *A practical guide to research methods: A user-friendly guide to mastering research techniques and projects*. Oxford, UK: How to Books.

Dawson, C. 2009. *Introduction to research methods: A practical guide for anyone undertaking a research project*. 4th ed. Oxford: How To Books.

de Conno, F., Caraceni, A., Gamba, A., Mariani, L., Abbattista, A., Brunelli, C., La Mura, A. and Vcntafridda, V. 1994. Pain measurement in cancer patients: a comparison of six methods. *Pain*. **57**(2), pp.161-166.

De Lima, L. and Hamzah, E. 2004. Socioeconomic, Political and Cultural Issues in Palliative Care. In: Eduardo, B., et al. eds. *Palliative Care in the Developing World: Principles and Practice*. Houston: IAHPC Press, pp. 23-37.

De Lima, L., Sweeney, C., Palmer, J.L. and Bruera, E. 2004. Potent analgesics are more expensive for patients in developing countries: a comparative study. *Journal of pain & palliative care pharmacotherapy*. **18**(1), pp.59-70.

De Silva, B.S.S. and Rolls, C. 2011. Attitudes, beliefs, and practices of Sri Lankan nurses toward cancer pain management: An ethnographic study. *Nursing & Health Sciences*. **13**(4), pp.419-424.

Dedeli, O. and Kaptan, G. 2013. Spirituality and Religion in Pain and Pain Management. *Health psychology research*. **1**(3), pp.e29-e29.

Dees, M.K., Vernooij-Dassen, M.J., Dekkers, W.J., Vissers, K.C. and van Weel, C. 2011. 'Unbearable suffering': a qualitative study on the perspectives of patients who request assistance in dying. *Journal of Medical Ethics*. **37**(12), pp.727-734.

Delgado-Guay, M., Ferrer, J., Rieber, A.G., Rhondali, W., Tayjasanant, S., Ochoa, J., Cantu, H., Chisholm, G., Williams, J., Frisbee-Hume, S. and Bruera, E. 2015. Financial Distress and Its Associations With Physical and Emotional Symptoms and Quality of Life Among Advanced Cancer Patients. *Oncologist*. **20**(9), pp.1092-1098.

DeMarinis, V. 2018. Mental Health Diagnosis: Is it relative or universal in relation to culture? In: Stenmark, M., et al. eds. *Relativism and Post-Truth in Contemporary Society*. United States: Palgrave Macmillan.

Denscombe, M. 2014. *The good research guide: for small-scale social research projects*. 5th ed. England: Open University Press, Buckingham.

Dewey, J. 1925. *Experience and nature*. Whitefish, MT: Kessinger.

Dikko, M. 2016. Establishing Construct Validity and Reliability: Pilot Testing of a Qualitative Interview for Research in Takaful (Islamic Insurance). *The Qualitative Report*. **21**(3), pp.521-528.

Ding, S., Yin, C., Ger, L., Chen, A. and Kao, S. 1991. A clinical study on 268 patients with cervical carcinoma. *Zhonghua yi xue za zhi= Chinese medical journal; Free China ed.* **48**(6), pp.439-444.

Doane, D.P. and Seward, L.E. 2011. Measuring Skewness: A Forgotten Statistic? *Journal of Statistics Education*. **19**(2), pp.null-null.

Doody, O. and Bailey, M.E. 2016. Setting a research question, aim and objective. *Nurse Res.* **23**(4), pp.19-23.

Dos Santos Ferreira, F., Meira, K.C., Félix, R.S., de Oliveira, I.R.S., Pinto, C.M.I., Dos Santos Silva, M.A. and Dos Santos, J. 2019. Associated factors with the knowledge of nurses of a high complexity oncology centre in Brazil, on the management of cancer pain. *Ecancermedicalscience.* **13**, pp.928-928.

Doyle, L., Brady, A.-M. and Byrne, G. 2016a. An overview of mixed methods research – revisited. *Journal of Research in Nursing.* **21**(8), pp.623-635.

Doyle, L., Brady, A.-M. and Byrne, G. 2016b. An overview of mixed methods research revisited. *Journal of Research in Nursing.* **21**, pp.623 - 635.

Earnshaw, V.A. and Chaudoir, S.R. 2009. From conceptualizing to measuring HIV stigma: a review of HIV stigma mechanism measures. *AIDS Behav.* **13**(6), pp.1160-1177.

Earnshaw, V.A. and Quinn, D.M. 2012. The impact of stigma in healthcare on people living with chronic illnesses. *J Health Psychol.* **17**(2), pp.157-168.

Earnshaw, V.A., Smith, L.R., Chaudoir, S.R., Amico, K.R. and Copenhaver, M.M. 2013. HIV stigma mechanisms and well-being among PLWH: a test of the HIV stigma framework. *AIDS and behavior.* **17**(5), pp.1785-1795.

Easterby-Smith, M., Thorpe, R. and Jackson, P.R. 2012. *Management research.* 4th ed. London, UK: Sage.

Eftekhari, Z., Mohaghegh, M., Yarandi, F., Eghtesadi-Araghi, P., Moosavi-Jarahi, A., Gilani, M.M., Tabatabeefar, M., Toogeh, G. and Tahmasebi, M. 2007a. Knowledge and attitudes of physicians in Iran with regard to chronic cancer pain. *Asian Pacific Journal of Cancer Prevention.* **8**(3), p383.

Eftekhari, Z., Mohaghegh, M.A., Yarandi, F., Eghtesadi-Araghi, P., Moosavi-Jarahi, A., Gilani, M.M., Tabatabeefar, M., Toogeh, G. and Tahmasebi, M. 2007b. Knowledge and attitudes of physicians in Iran with regard to chronic cancer pain. *Asian Pac J Cancer Prev.* **8**(3), pp.383-386.

Eide, P. and Kahn, D. 2008. Ethical issues in the qualitative researcher—participant relationship. *Nursing ethics.* **15**(2), pp.199-207.

El-Aqoul, A., Obaid, A., Jarrah, I., Al-Rawashdeh, K. and Al Hroub, A. 2020. Effectiveness of Education Program on Nursing Knowledge and Attitude toward Pain Management. *Asia Pac J Oncol Nurs.* **7**(4), pp.382-388.

El-Fallah, M. 2014. *The development of the Libyan health system to improve the quality of the health services.* thesis, Manchester Metropolitan University.

El-Fallah, M. 2016. *The development of the Libyan health system to improve the quality of the health services.* PhD thesis, Manchester Metropolitan University.

El Ansary, M., Nejmi, M., Rizkallah, R., Shibani, M., Namisango, E., Mwangi-Powell, F. and Powell, R. 2014a. Palliative care research in northern Africa. *EUROPEAN JOURNAL OF PALLIATIVE CARE*. **21**(2), pp.98-100.

El Ansary, M., Nejmi, M., Rizkallah, R., Shibani, M., Namisango, E., Mwangi-Powell, F. and Powell, R.A. 2014b. Palliative care research in northern Africa. *EUROPEAN JOURNAL OF PALLIATIVE CARE*. **21**(2), pp.98-100.

El Oakley, R.M., Ghrew, M.H., Aboutwerat, A.A., Alageli, N.A., Neami, K.A., Kerwat, R.M., Elfituri, A.A., Ziglam, H.M., Saifenasser, A.M., Bahron, A.M., Aburawi, E.H., Sagar, S.A., Tajoury, A.E. and Benamer, H.T. 2013a. Consultation on the Libyan health systems: towards patient-centred services. *Libyan J Med*. **8**.

El Oakley, R.M., Ghrew, M.H., Aboutwerat, A.A., Alageli, N.A., Neami, K.A., Kerwat, R.M., Elfituri, A.A., Ziglam, H.M., Saifenasser, A.M., Bahron, A.M., Aburawi, E.H., Sagar, S.A., Tajoury, A.E., Benamer, H.T.S. and National Health Systems, C. 2013b. Consultation on the Libyan health systems: towards patient-centred services. *The Libyan journal of medicine*. **8**, p10.3402/ljm.v3408i3400.20233.

El Taguri, A., Elkhammas, E., Bakoush, O., Ashammakhi, N., Baccoush, M. and Betilmal, I. 2008. Libyan national health services the need to move to management-by-objectives. *Libyan Journal of Medicine*. **3**(3), pp.113-121.

Elcigil, A., Maltepe, H., Eşrefgil, G. and Mutafoglu, K. 2011. Nurses' perceived barriers to assessment and management of pain in a university hospital. *Journal of pediatric hematology/oncology*. **33 Suppl 1**, pp.S33-38.

Elkhammas, E. and Singh, N. 2010. Towards reforming health care services in developing countries: Taking Libya as an example. *Ibnosina Journal of Medicine and Biomedical Sciences*. **2**(4), pp.149-151.

Elkharam, W. 2014. *Knowledge of and Adherence to health advice among adults with diabetes in Libya*. Ph.D. thesis, Liverpool John Moores University.

Ell, K., Xie, B., Wells, A., Nedjat-Haiem, F., Lee, P.J. and Vourlekis, B. 2008. Economic stress among low-income women with cancer: effects on quality of life. *Cancer*. **112**(3), pp.616-625.

Elliott, B.A., Elliott, T.E., Murray, D.M., Braun, B.L. and Johnson, K.M. 1996. Patients and family members: The role of knowledge and attitudes in cancer pain. *Journal of Pain and Symptom Management*. **12**(4), pp.209-220.

Elliott, T.E. and Elliott, B.A. 1992a. Physician attitudes and beliefs about use of morphine for cancer pain. *J Pain Symptom Manage*. **7**(3), pp.141-148.

Elliott, T.E. and Elliott, B.A. 1992b. Physician attitudes and beliefs about use of morphine for cancer pain. *Journal of Pain and Symptom Management*. **7**(3), pp.141-148.

Elliott, T.E., Murray, D.M., Elliott, B.A., Braun, B., Oken, M.M., Johnson, K.M., Post-White, J. and Lichtblau, L. 1995. Physician knowledge and attitudes about cancer pain

management: A survey from the Minnesota cancer pain project. *Journal of Pain and Symptom Management*. **10**(7), pp.494-504.

Elzahaf, R.A., Johnson, M.I. and Tashani, O.A. 2016a. The epidemiology of chronic pain in Libya: a cross-sectional telephone survey. *BMC Public Health*. **16**(1), p776.

Elzahaf, R.A., Johnson, M.I. and Tashani, O.A. 2016b. The epidemiology of chronic pain in Libya: a cross-sectional telephone survey. *BMC public health*. **16**(1), pp.776-776.

Erkes, E.B., Parker, V.G., Carr, R.L. and Mayo, R.M. 2001. An examination of critical care nurses' knowledge and attitudes regarding pain management in hospitalized patients. *Pain Manag Nurs*. **2**(2), pp.47-53.

Ermiah, E., Abdalla, F., Buhmeida, A., Larbesh, E., Pyrhönen, S. and Collan, Y. 2012. Diagnosis delay in Libyan female breast cancer. *BMC Research Notes*. **5**(1), p452.

Erol, O., Unsar, S., Yacan, L., Pelin, M., Kurt, S. and Erdogan, B. 2018. Pain experiences of patients with advanced cancer: A qualitative descriptive study. *Eur J Oncol Nurs*. **33**, pp.28-34.

Eshete, M.T., Baeumler, P.I., Siebeck, M., Tesfaye, M., Wonde, D., Haileamlak, A., Michael, G.G., Ayele, Y. and Irnich, D. 2019. The views of patients, healthcare professionals and hospital officials on barriers to and facilitators of quality pain management in Ethiopian hospitals: A qualitative study. *PLoS One*. **14**(3), pe0213644.

Etafa, W., Wakuma, B., Fetensa, G., Tsegaye, R., Abdisa, E., Oluma, A., Tolossa, T., Mulisa, D. and Takele, T. 2020. Nurses' knowledge about palliative care and attitude towards end- of-life care in public hospitals in Wollega zones: A multicenter cross-sectional study. *PLOS ONE*. **15**(10), pe0238357.

Fadel, S.M. 2014. *Libya and illegal transit migration: An examination of the causes, dynamics and experience*. Ph.D. thesis, Exeter.

Fadhil, I., Lyons, G. and Payne, S. 2017. Barriers to, and opportunities for, palliative care development in the Eastern Mediterranean Region. *The Lancet Oncology*. **18**(3), pp.e176-e184.

Fainsinger, R.L., Nekolaichuk, C., Lawlor, P., Hagen, N., Bercovitch, M., Fisch, M., Galloway, L., Kaye, G., Landman, W., Spruyt, O., Zhukovsky, D., Bruera, E. and Hanson, J. 2010. An international multicentre validation study of a pain classification system for cancer patients. *Eur J Cancer*. **46**(16), pp.2896-2904.

Fang, S.Y., Lin, Y.C., Chen, T.C. and Lin, C.Y. 2015. Impact of marital coping on the relationship between body image and sexuality among breast cancer survivors. *Support Care Cancer*. **23**(9), pp.2551-2559.

Farid, M.K. and El-Mansoury, A. 2015. Kaiy (traditional cautery) in Benghazi, Libya: complications versus effectiveness. *Pan Afr Med J*. **22**, p98.

Faull, C., de Caestecker, S. and Black, F. 2012. *Handbook of Palliative Care*. Hoboken: Wiley-Blackwell.

Fazeny, B., Muhm, M., Hauser, I., Wenzel, C., Mares, P., Berzlanovich, A., Hagmeister, H. and Marosi, C. 2000. Barriers in cancer pain management. *Wiener Klinische Wochenschrift*. **112**(22), pp.978-981.

Feilzer, M. 2010a. Doing Mixed Methods Research Pragmatically: Implications for the Rediscovery of Pragmatism as a Research Paradigm. *Journal of Mixed Methods Research*. **4**(1), pp.6-16.

Feilzer, M.Y. 2010b. Doing Mixed Methods Research Pragmatically: Implications for the Rediscovery of Pragmatism as a Research Paradigm. *Journal of Mixed Methods Research*. **4**(1), pp.6-16.

Feizerfan, A. and Sheh, G. 2014. Transition from acute to chronic pain. *Continuing Education in Anaesthesia Critical Care & Pain*. **15**(2), pp.98-102.

Ferrell, B. and Coyle, N. 2010. *Oxford textbook of palliative care nursing*. 3rd ed. Oxford: Oxford University Press.

Ferrell, B.R. 1995. The impact of pain on quality of life. A decade of research. *Nurs Clin North Am*. **30**(4), pp.609-624.

Feuerstein, M. 2007. Defining cancer survivorship. *Journal of Cancer Survivorship: Research and Practice*. **1**(1), pp.5-7.

Fink, R.M. and Gallagher, E. 2019. Cancer Pain Assessment and Measurement. *Semin Oncol Nurs*. **35**(3), pp.229-234.

Fischer, D.J., Villines, D., Kim, Y.O., Epstein, J.B. and Wilkie, D.J. 2010. Anxiety, depression, and pain: differences by primary cancer. *Supportive Care in Cancer*. **18**(7), pp.801-810.

Fitchett G and Canada AL. 2010. The role of religion/spirituality in coping with cancer: Evidence, assessment, and intervention. In: Holland JC, et al. eds. *Psycho-Oncology*. New York: Oxford University Press, pp.440-446.

Fitzpatrick, C. and Walker, A.H. 2014. *Muhammad in History, Thought, and Culture: An Encyclopedia of the Prophet of God [2 volumes]*. ABC-CLIO.

Franklin, C. and Ballan, M. 2001. The Handbook of Social Work Research Methods. In: Bruce, A.T. ed. *Reliability and Validity in Qualitative Research*. Thousand Oaks, California: SAGE Publications, Inc., pp.273-292.

Furstenberg, C.T., Ahles, T.A., Whedon, M.B., Pierce, K.L., Dolan, M., Roberts, L. and Silberfarb, P.M. 1998. Knowledge and Attitudes of Health-Care Providers Toward Cancer Pain Management: A Comparison of Physicians, Nurses, and Pharmacists in the State of New Hampshire. *Journal of Pain and Symptom Management*. **15**(6), pp.335-349.

Fusch, P.I. and Ness, L. 2015. Are We There Yet? Data Saturation in Qualitative Research. *The Qualitative Report*. **20**, pp.1408-1416.

Gallagher, R., Hawley, P. and Yeomans, W. 2004. A survey of cancer pain management knowledge and attitudes of British Columbian physicians. *Pain Research and Management*. **9**(4), pp.188-194.

Gee, R.E. and Fins, J.J. 2003. Barriers to Pain and Symptom Management, Opioids, Health Policy, and Drug Benefits. *Journal of Pain and Symptom Management*. **25**(2), pp.101-103.

Ger, L.-P., Ho, S.-T. and Wang, J.-J. 2000a. Physicians' Knowledge and Attitudes Toward the Use of Analgesics for Cancer Pain Management: A Survey of Two Medical Centers in Taiwan. *Journal of Pain and Symptom Management*. **20**(5), pp.335-344.

Ger, L.-P., Ho, S.-T., Wang, J.-J. and Cherng, C.-H. 1998. The Prevalence and Severity of Cancer Pain: A Study of Newly-Diagnosed Cancer Patients in Taiwan. *Journal of Pain and Symptom Management*. **15**(5), pp.285-293.

Ger, L.P., Ho, S.T. and Wang, J.J. 2000b. Physicians' knowledge and attitudes toward the use of analgesics for cancer pain management: a survey of two medical centers in Taiwan. *J Pain Symptom Manage*. **20**(5), pp.335-344.

Ghobarah, H.A., Huth, P. and Russett, B. 2004. The post-war public health effects of civil conflict. *Social science & medicine*. **59**(4), pp.869-884.

Giacomini, M.K. and Cook, D.J. 2000. Users' guides to the medical literature: XXIII. Qualitative research in health care A. Are the results of the study valid? Evidence-Based Medicine Working Group. *JAMA*. **284**(3), pp.357-362.

Gill, P., Stewart, K., Treasure, E. and Chadwick, B. 2008. Methods of data collection in qualitative research: interviews and focus groups. *Br Dent J*. **204**(6), pp.291-295.

Givler, A. and Maani-Fogelman, P.A. 2020. The Importance Of Cultural Competence in Pain and Palliative Care. *StatPearls*. Treasure Island FL: StatPearls Publishing LLC.

Glajchen, M. and Bookbinder, M. 2001. Knowledge and perceived competence of home care nurses in pain management: a national survey. *J Pain Symptom Manage*. **21**(4), pp.307-316.

Glasziou, P., Irwig, L., Bain, C. and Colditz, G. 2001. *Systematic reviews in health care: a practical guide*. Cambridge University Press.

Goblan, M., Albashtawy, M., Omari, O.A., Khraisat, O., Al-Bashaireh, A., AlBashtawy, Z. and Alkhaldeh, A. 2021. Patient-related Barriers to Pain Management among Cancer Patients. *Medico Legal Update*. **21**(3), pp.256-259.

Goffman, E. 2009. *Stigma: Notes on the management of spoiled identity*. London: Simon and schuster.

Goldsmith, M.R., Bankhead, C.R. and Austoker, J. 2007. Synthesising quantitative and qualitative research in evidence-based patient information. *Journal of Epidemiology & Community Health*. **61**(3), pp.262-270.

Goucke, C.R. and Chaudakshetrin, P. 2018. Pain: A Neglected Problem in the Low-Resource Setting. *Anesthesia & Analgesia*. **126**(4), pp.1283-1286.

Goudas, L.C., Bloch, R., Gialeli-Goudas, M., Lau, J. and Carr, D.B. 2005. The Epidemiology of Cancer Pain. *Cancer Investigation*. **23**(2), pp.182-190.

Gough, D., Oliver, S. and Thomas, J. 2017. *An introduction to systematic reviews*. [Online]. 2nd ed. London: Sage. Available from: [https://books.google.co.uk/books?hl=en&lr=&id=ZgZODgAAQBAJ&oi=fnd&pg=PP1&q=Gough,+D.,+Oliver,+S.,+%26+Thomas,+J.+\(2012\).+An+introduction+to+systematic+reviews:+Sage.&ots=CwD3uhv9ID&sig=1EMGAa1nlf8EsKk_CaCwXHEsxvY#v=onepage&q=Gough%2C%20D.%2C%20Oliver%2C%20S.%2C%20%26%20Thomas%2C%20J.%20\(2012\).%20An%20introduction%20to%20systematic%20reviews%3A%20Sage.&f=false](https://books.google.co.uk/books?hl=en&lr=&id=ZgZODgAAQBAJ&oi=fnd&pg=PP1&q=Gough,+D.,+Oliver,+S.,+%26+Thomas,+J.+(2012).+An+introduction+to+systematic+reviews:+Sage.&ots=CwD3uhv9ID&sig=1EMGAa1nlf8EsKk_CaCwXHEsxvY#v=onepage&q=Gough%2C%20D.%2C%20Oliver%2C%20S.%2C%20%26%20Thomas%2C%20J.%20(2012).%20An%20introduction%20to%20systematic%20reviews%3A%20Sage.&f=false)

Gray, D.E. 2014. *Doing Research in the real world*. London: the UK: SAGE.

Gray, D.E. 2018. *Doing research in the real world*. 4th ed. London, UK: Sage.

Greco, M.T., Roberto, A., Corli, O., Deandrea, S., Bandieri, E., Cavuto, S. and Apolone, G. 2014. Quality of cancer pain management: an update of a systematic review of undertreatment of patients with cancer. *Journal of clinical oncology*. **32**(36), pp.4149-4154.

Green, C.R., Hart-Johnson, T. and Loeffler, D.R. 2011. Cancer-related chronic pain: examining quality of life in diverse cancer survivors. *Cancer*. **117**(9), pp.1994-2003.

Green, J. and Thorogood, N. 2004. *Qualitative methods for health research*. London: SAGE.

Green, J. and Thorogood, N. 2018. *Qualitative Methods for Health Research*. 4th ed. London: SAGE.

Greig, M.L., Chow, E., Bovett, G., Abdoell, M. and Gillies, C. 2005. Level of Concordance Between Proxy and Cancer Patient Ratings in Brief PainInventory. *Support Cancer Ther*. **3**(1), pp.54-58.

Grossoehme, D.H. 2014. Overview of qualitative research. *J Health Care Chaplain*. **20**(3), pp.109-122.

Guadagnoli, E. and Velicer, W.F. 1988. Relation of sample size to the stability of component patterns. *Psychol Bull*. **103**(2), pp.265-275.

Gunnarsdottir, S., Donovan, H.S., Serlin, R.C., Voge, C. and Ward, S. 2002. Patient-related barriers to pain management: the Barriers Questionnaire II (BQ-II). *Pain*. **99**(3), pp.385-396.

Gunnarsdottir, S., Serlin, R.C. and Ward, S. 2005. Patient-related barriers to pain management: the Icelandic Barriers Questionnaire II. *Journal of Pain and Symptom Management*. **29**(3), pp.273-285.

Gunnarsdottir, S., Ward, S. and Serlin, R.C. 2008. Attitudinal barriers to cancer pain management in the Icelandic population. *Cancer nursing*. **31**(2), pp.95-102.

Gustafsson, M. and Borglin, G. 2013. Can a theory-based educational intervention change nurses' knowledge and attitudes concerning cancer pain management? A quasi-experimental design. *BMC Health Services Research*. **13**(1), p328.

Haanpää, M., Attal, N., Backonja, M., Baron, R., Bennett, M., Bouhassira, D., Cruccu, G., Hansson, P., Haythornthwaite, J.A., Iannetti, G.D., Jensen, T.S., Kauppila, T., Nurmikko, T.J., Rice, A.S.C., Rowbotham, M., Serra, J., Sommer, C., Smith, B.H. and Treede, R.D. 2011. NeuPSIG guidelines on neuropathic pain assessment. *Pain*. **152**(1), pp.14-27.

Hadi, M.A., Alldred, D.P., Briggs, M., Marczewski, K. and Closs, S.J. 2017. 'Treated as a number, not treated as a person': a qualitative exploration of the perceived barriers to effective pain management of patients with chronic pain. *BMJ Open*. **7**(6), pe016454.

Haefeli, M. and Elfering, A. 2006. Pain assessment. *Eur Spine J*. **15 Suppl 1**(Suppl 1), pp.S17-24.

Hair, J.F., Black, W.C., Babin, B.J. and Anderson, R.E. 2010. *Multivariate data analysis a global perspective*. 7th ed. Essex, UK: Pearson Education.

Hamdan, K.M. 2019. Nurses' Assessment Practices of Pain Among Critically Ill Patients. *Pain Manag Nurs*. **20**(5), pp.489-496.

Hamieh, N.M., Akel, R., Anouti, B., Traboulsi, C., Makki, I., Hamieh, L. and Tfayli, A. 2018. Cancer-Related Pain: Prevalence, Severity and Management in a Tertiary Care Center in the Middle East. *Asian Pacific journal of cancer prevention : APJCP*. **19**(3), pp.769-775.

Hanly, P., Maguire, R., Ceilleachair, A.O. and Sharp, L. 2018. Financial hardship associated with colorectal cancer survivorship: The role of asset depletion and debt accumulation. *Psychooncology*. **27**(9), pp.2165-2171.

Hannes, K., Lockwood, C.H.K. and Pearson, A. eds. 2012. *Obstacles to the implementation of evidence based practice in Belgium: a worked example of meta-aggregation*. Wiley Blackwell.

Hanson, W.E., Creswell, J.W., Clark, V.L.P., Petska, K.S. and Creswell, J.D. 2005. Mixed Methods Research Designs in Counseling Psychology. *Journal of Counseling Psychology*. **52**, pp.224-235.

Haozous, E.A. and Knobf, M.T. 2013. "All my tears were gone": suffering and cancer pain in Southwest American Indians. *Journal of pain and symptom management*. **45**(6), pp.1050-1060.

Harrington, C.B., Hansen, J.A., Moskowitz, M., Todd, B.L. and Feuerstein, M. 2010. It's not over when it's over: long-term symptoms in cancer survivors--a systematic review. *Int J Psychiatry Med.* **40**(2), pp.163-181.

Hashemi, S.M., Balouchi, A., Al-Mawali, A., Rafiemanesh, H., Rezaie-Keikhaie, K., Bouya, S., Dehghan, B. and Farahani, M.A. 2019. Health-related quality of life of breast cancer patients in the Eastern Mediterranean region: a systematic review and meta-analysis. *Breast Cancer Res Treat.* **174**(3), pp.585-596.

Hassounah, S. 2013. *Post-Conflict Health System Assessment: The Case of Libya*. World Health Organization: Faculty of Medicine Imperial College London, Charing Cross Campus.

Hatamipour, K., Rassouli, M., Yaghmaie, F., Zendedel, K. and Majd, H.A. 2015. Spiritual needs of cancer patients: a qualitative study. *Indian journal of palliative care.* **21**(1), pp.61-67.

Haumann, J., Joosten, E.A. and Everdingen, M.H.J.v.d.B.-v. 2017. Pain prevalence in cancer patients: status quo or opportunities for improvement? *Current Opinion in Supportive and Palliative Care.* **11**(2), pp.99-104.

HDRC. 2011. *Helpdesk Report: Libyan Health Service Capacity*. the UK: Human Development Resource Centre (HDRC),.

Herr, K., Titler, M., Fine, P., Sanders, S., Cavanaugh, J., Swegle, J., Forcucci, C. and Tang, X. 2010. Assessing and treating pain in hospices: current state of evidence-based practices. *Journal of pain and symptom management.* **39**(5), pp.803-819.

Herr, K., Titler, M.G., Schilling, M.L., Marsh, J.L., Xie, X., Ardery, G., Clarke, W.R. and Everett, L.Q. 2004. Evidence-based assessment of acute pain in older adults: current nursing practices and perceived barriers. *Clin J Pain.* **20**(5), pp.331-340.

Higgins, J.P. and Green, S. 2011. *Cochrane handbook for systematic reviews of interventions*. John Wiley & Sons.

Higgins, J.P., Lasserson, T., Chandler, J. and Tovey, D. 2016. *Methodological expectations of cochrane intervention reviews*. [Online]. [Accessed 10th March]. Available from: <https://community.cochrane.org/sites/default/files/uploads/MECIR%20PRINTED%20BOOKLET%20FINAL%20v1.01.pdf>

Hill, A. and Spittlehouse, C. 2001. *What is critical appraisal?* Unpublished.

History World Net. 2019. *History of Libya*. [Online]. [Accessed 19 March]. Available from: <http://www.historyworld.net/wrldhis/PlainTextHistories.asp?historyid=aa83>

Hjermstad, M.J., Fainsinger, R. and Kaasa, S. 2009. Assessment and classification of cancer pain. *Curr Opin Support Palliat Care.* **3**(1), pp.24-30.

Hjermstad, M.J., Fayers, P.M., Haugen, D.F., Caraceni, A., Hanks, G.W., Loge, J.H., Fainsinger, R., Aass, N. and Kaasa, S. 2011. Studies Comparing Numerical Rating

Scales, Verbal Rating Scales, and Visual Analogue Scales for Assessment of Pain Intensity in Adults: A Systematic Literature Review. *Journal of Pain and Symptom Management*. **41**(6), pp.1073-1093.

Ho, A.H., Chan, C.L., Leung, P.P., Chochinov, H.M., Neimeyer, R.A., Pang, S.M. and Tse, D.M. 2013. Living and dying with dignity in Chinese society: perspectives of older palliative care patients in Hong Kong. *Age Ageing*. **42**(4), pp.455-461.

Ho, J.F.V., Yaakup, H., Low, G.S.H., Wong, S.L., Tho, L.M. and Tan, S.B. 2020. Morphine use for cancer pain: A strong analgesic used only at the end of life? A qualitative study on attitudes and perceptions of morphine in patients with advanced cancer and their caregivers. *Palliat Med*. **34**(5), pp.619-629.

Hølen, J.C., Hjermland, M.J., Loge, J.H., Fayers, P.M., Caraceni, A., De Conno, F., Forbes, K., Fürst, C.J., Radbruch, L. and Kaasa, S. 2006. Pain assessment tools: is the content appropriate for use in palliative care? *J Pain Symptom Manage*. **32**(6), pp.567-580.

Hollen, C.J., Hollen, C.W. and Stolte, K. 2000. Hospice and hospital oncology unit nurses: a comparative survey of knowledge and attitudes about cancer pain. *Oncology nursing forum*. **27**(10), pp.1593-1599.

Hollway, I. and Wheeler, S. 2010. *Qualitative Research in Nursing and Healthcare*. West Sussex: John Wiley & Sons Ltd.

Hooten, W.M. and Bruce, B.K. 2011a. Beliefs and attitudes about prescribing opioids among healthcare providers seeking continuing medical education. *Journal of opioid management*. **7**(6), pp.417-424.

Hooten, W.M. and Bruce, B.K. 2011b. Beliefs and attitudes about prescribing opioids among healthcare providers seeking continuing medical education. *J Opioid Manag*. **7**(6), pp.417-424.

Hosseini, L., Lotfi Kashani, F., Akbari, S., Akbari, M.E. and Sarafraz Mehr, S. 2016. The Islamic Perspective of Spiritual Intervention Effectiveness on Bio-Psychological Health Displayed by Gene Expression in Breast Cancer Patients. *Iran J Cancer Prev*. **9**(2), pe6360.

Howell, D., Butler, L., Vincent, L., Watt-Watson, J. and Stearns, N. 2000a. Influencing nurses' knowledge, attitudes, and practice in cancer pain management. *Cancer Nurs*. **23**(1), pp.55-63.

Howell, D., Butler, L., Vincent, L., Watt-Watson, J. and Stearns, N. 2000b. Influencing Nurses' Knowledge, Attitudes, and Practice in Cancer Pain Management. *Cancer Nursing*. **23**(1), pp.55-63.

Howitt, D. and Cramer, D. 2017. *Introduction to research methods in psychology*. 5th ed. Harlow: Pearson Education.

HRW. 2011. *Global State of Pain Treatment: Access to Palliative Care as a Human Right*. [Online]. [Accessed 03 December]. Available from: <https://www.hrw.org/sites/default/files/reports/hhr0511W.pdf>

Huang, H.-Y., Wilkie, D.J., Chapman, C.R. and Ting, L.-L. 2003. Pain trajectory of Taiwanese with nasopharyngeal carcinoma over the course of radiation therapy. *Journal of pain and symptom management*. **25**(3), pp.247-255.

IASP. 2018. *IASP Terminology: Pain Terms*. [Online]. [Accessed 25th December]. Available from: <https://www.iasp-pain.org/Education/Content.aspx?ItemNumber=1698#Pain>

Ibrahim, H.D.F., Khraim, F. and Al-Tawafsheh, A. 2020. Adult cancer patient“ barriers toward pain management: A literature review. *Journal of Nursing Education and Practice*. **10**, p38.

INCB. 2019. *Narcotic Drugs: Estimated World Requirements for 2020; statistics for 2018*. Vienna: United Nation.

INCB. 2021. *Single Convention on Narcotic Drugs, 1961*. [Online]. [Accessed 03 December]. Available from: https://www.incb.org/incb/en/narcotic-drugs/1961_Convention.html

Institute, C.R. 2019. *Immunotherapy Side Effects*. [Online]. [Accessed 30th April]. Available from: <https://www.cancerresearch.org/en-us/immunotherapy-side-effects#:~:text=Some%20of%20the%20most%20common,localized%20rashes%20and%20For%20blisters%2C>

Institute, N.C. 2021. *Types of Cancer Treatment*. [Online]. [Accessed 29th August]. Available from: <https://www.cancer.gov/about-cancer/treatment/types>

Ivankova, N.V., Creswell, J.W. and Stick, S.L. 2006. Using Mixed-Methods Sequential Explanatory Design: From Theory to Practice. *Field Methods*. **18**(1), pp.3-20.

Jaatun, E.A.A. 2016. *User-centered development of a computerized pain body map: Digital assessment of pain distribution in patients with advanced cancer*. Ph.D. thesis, Norwegian University of Science and Technology.

Jabeal, I. and Rashid, H. 2018. *The Libyan Health System: Study of Medical and Allied Health Education and Training Institutions*. Libya: The Libyan Health Education and Training Institutions.

Jacobsen, R., Møldrup, C., Christrup, L. and Sjøgren, P. 2009a. Patient-related barriers to cancer pain management: a systematic exploratory review. *Scandinavian Journal of Caring Sciences*. **23**(1), pp.190-208.

Jacobsen, R., Møldrup, C., Christrup, L., Sjøgren, P. and Hansen, O.B. 2009b. The Danish Barriers Questionnaire-II: Preliminary Validation in Cancer Pain Patients. *Pain Practice*. **9**(4), pp.266-274.

- Jacobsen, R., Samsanaviciene, J., Liubarskiene, Z., Sjøgren, P., Møldrup, C., Christrup, L., Sciupokas, A. and Hansen, O.B. 2014. Barriers to cancer pain management in Danish and Lithuanian patients treated in pain and palliative care units. *Pain Manag Nurs.* **15**(1), pp.51-58.
- Jacobsen, R., Sjøgren, P., Møldrup, C. and Christrup, L. 2007. Physician-related barriers to cancer pain management with opioid analgesics: a systematic review. *J Opioid Manag.* **3**(4), pp.207-214.
- Jafari, S., Sadeghi, R., Ebrahimipoor, M., Moghadam, M. and Alaviani, M. 2019. PATIENT-RELATED BARRIERS TO PAIN MANAGEMENT- THE IRANIAN BARRIERS QUESTIONNAIRE II (IR-BQII). *Journal of Evolution of Medical and Dental Sciences.* **8**, pp.896-901.
- Javadi, M. and Zarea, K. 2016. Understanding thematic analysis and its pitfall. *Journal of Client Care.* **1**(1), pp.33-39.
- JBI. 2016. *Critical appraisal checklist for Analytical Cross Sectional Studies.* [Online]. [Accessed 6th September]. Available from: <http://joannabriggs.org/research/critical-appraisal-tools.html>
- Jeon, Y.S., Kim, H.K., Cleeland, C.S. and Wang, X.S. 2007. Clinicians' practice and attitudes toward cancer pain management in Korea. *Supportive Care in Cancer.* **15**(5), p463.
- Jho, H.J., Kim, Y., Kong, K.A., Kim, D.H., Choi, J.Y., Nam, E.J., Choi, J.Y., Koh, S., Hwang, K.O., Baek, S.K. and Park, E.J. 2014. Knowledge, Practices, and Perceived Barriers Regarding Cancer Pain Management Among Physicians and Nurses In Korea: A Nationwide Multicenter Survey. *PLOS ONE.* **9**(8), pe105900.
- Joffe, H. and Yardley, L. 2004. Content and thematic analysis. In: Marks, D.F. and Yardley, L. eds. *Research methods for clinical and health psychology.* London, UK: Sage, pp.56-68.
- Johnson, R.B. and Onwuegbuzie, A.J. 2004. Mixed Methods Research: A Research Paradigm Whose Time Has Come. *Educational Researcher.* **33**(7), pp.14-26.
- Jones, J.M., McPherson, C.J., Zimmermann, C., Rodin, G., Le, L.W. and Cohen, S.R. 2011. Assessing agreement between terminally ill cancer patients' reports of their quality of life and family caregiver and palliative care physician proxy ratings. *J Pain Symptom Manage.* **42**(3), pp.354-365.
- Kagawa-Singer, M. 2011. Impact of culture on health outcomes. *J Pediatr Hematol Oncol.* **33 Suppl 2**, pp.S90-95.
- Kaki, A.M. 2006. Pain clinic experience in a teaching hospital in Western, Saudi Arabia. Relationship of patient's age and gender to various types of pain. *Saudi Med J.* **27**(12), pp.1882-1886.
- Kaki, A.M. 2011. Medical students' knowledge and attitude toward cancer pain management in Saudi Arabia. *Saudi medical journal.* **32**(6), pp.628-632.

- Kankeu, H.T., Saksena, P., Xu, K. and Evans, D.B. 2013. The financial burden from non-communicable diseases in low- and middle-income countries: a literature review. *Health Research Policy and Systems*. **11**(1), p31.
- Kappelman, M.D., Rifas-Shiman, S.L., Kleinman, K., Ollendorf, D., Bousvaros, A., Grand, R.J. and Finkelstein, J.A. 2007. The prevalence and geographic distribution of Crohn's disease and ulcerative colitis in the United States. *Clin Gastroenterol Hepatol*. **5**(12), pp.1424-1429.
- Kasasbeh, M.A.M., McCabe, C. and Payne, S. 2017. Cancer-related pain management: A review of knowledge and attitudes of healthcare professionals. *Eur J Cancer Care (Engl)*. **26**(6).
- Kassa, R.N. and Kassa, G.M. 2014. Nurses' Attitude, Practice and Barrier s toward Cancer Pain Management, Addis Ababa, Ethiopia. *J Cancer Sci Ther*. **6**(12), pp.483-487.
- Kearney, N. and Richardson, A. 2006. The importance of controlling cancer pain. In: MAASSEN, E. and PATIRAKI, E. eds. *Nursing patients with cancer: principles and practice*. 1st ed. Elsevier: Elsevier Health Sciences, pp., pp. 299-443.
- Keefe, F.J., Abernethy, A. and Campbell, L. 2005. Psychological Approaches to Understanding and Treating Disease-Related Pain. *Annual Review of Psychology*. **56**(1), pp.601-630.
- Khalifa, S.M. 2002. *The use of computers in the teaching of mathematics in Libyan primary schools*. thesis, University of Sunderland.
- Khan, K., Kunz, R., Kleijnen, J. and Antes, G. 2011. Systematic reviews to support evidence-based medicine. In.
- Kidd, J. 2018. *Libya: Location*. [Online]. [Accessed 25th, April,]. Available from: <https://cpb-us-w2.wpmucdn.com/u.osu.edu/dist/9/1401/files/2014/03/Libya-11hbcg6.pdf>
- Kim, H.-J. and Jung, S.-O. 2020. Comparative evaluations of single-item pain-intensity measures in cancer patients: Numeric rating scale vs. verbal rating scale. *Journal of Clinical Nursing*. **29**(15-16), pp.2945-2952.
- Kim, M.-h., Park, H., Park, E.C. and Park, K. 2011. Attitude and Knowledge of Physicians About Cancer Pain Management: Young Doctors of South Korea in Their Early Career. *Japanese Journal of Clinical Oncology*. **41**(6), pp.783-791.
- Kim, M., Jeong, S., McMillan, M. and Higgins, I. 2020. Translation of policy and guidelines into practice: lessons learned from implementation of the Cancer Pain Management Guideline. *Journal of Hospital Management and Health Policy*. **4**.
- Kim, S.H., Kang, S., Kim, Y.M., Kim, B.G., Seong, S.J., Cha, S.D., Park, C.Y. and Yun, Y.H. 2010. Prevalence and predictors of anxiety and depression among cervical cancer survivors in Korea. *Int J Gynecol Cancer*. **20**(6), pp.1017-1024.

Kinmond, K. 2012. Coming Up with a Research Question. In: Sullivan, C., et al. eds. *Doing Your Qualitative Psychology Project*. London: SAGE Publications Ltd, pp.23-36.

Kiyancicek, Z. and Caydam, O.D. 2017. Spiritual needs and practices among family caregivers of patients with cancer. *Acta Paulista de Enfermagem*. **30**, pp.628-634.

Kline, R.B. 2015. *Principles and practice of structural equation modeling*. 4th ed. New York, USA: Guilford Press.

Knudsen, A.K., Aass, N., Fainsinger, R., Caraceni, A., Klepstad, P., Jordhøy, M., Hjermsstad, M. and Kaasa, S. 2009. Classification of pain in cancer patients—a systematic literature review. *Palliative medicine*. **23**(4), pp.295-308.

Knudsen, A.K., Brunelli, C., Klepstad, P., Aass, N., Apolone, G., Corli, O., Montanari, M., Caraceni, A. and Kaasa, S. 2012. Which domains should be included in a cancer pain classification system? Analyses of longitudinal data. *Pain*. **153**(3), pp.696-703.

Koenig, H.G. 2012. Religion, spirituality, and health: the research and clinical implications. *ISRN Psychiatry*. **2012**, p278730.

Kolmar, A. and Kamal, A.H. 2018. Developing a Path to Improve Cultural Competency in Islam Among Palliative Care Professionals. *J Pain Symptom Manage*. **55**(3), pp.e1-e3.

Kopf, A. and Patel, N. 2010. *Guide to Pain Management in Low-Resource Settings*. [Online]. [Accessed 14th November]. Available from: https://iaspfiles.s3.amazonaws.com/production/public/2021/IASP-Guide_to_Pain_Management_in_Low-Resource_Settings-English.pdf

Krippendorff, K. 2018. *Content analysis: An introduction to its methodology*. 4th ed. Thousand Oaks: Sage

Kubzansky, L.D. and Thurston, R.C. 2007. Emotional vitality and incident coronary heart disease: benefits of healthy psychological functioning. *Arch Gen Psychiatry*. **64**(12), pp.1393-1401.

Kuforiji, O.A. 2017. *Qualitative study exploring Maternity Ward Attendants' perceptions of occupational (work related) stress and the coping methods they adopted within maternity care settings (hospital) in Nigeria*. thesis.

Kumar, N. 2007. *Report of a Delphi Study to determine the need for guidelines and to identify the number and topics of guidelines that should be developed by the WHO*. . [Online]. Available from: https://www.who.int/medicines/areas/quality_safety/delphi_study_pain_guidelines.pdf

Kumar, S.P. 2011. Utilization of brief pain inventory as an assessment tool for pain in patients with cancer: a focused review. *Indian journal of palliative care*. **17**(2), pp.108-115.

Kuper, A., Lingard, L. and Levinson, W. 2008. Critically appraising qualitative research. *BMJ*. **337**, pa1035.

- Kushnick, H.L. 2015. Pricing Cancer Drugs: When Does Pricing Become Profiteering? *AMA J Ethics*. **17**(8), pp.750-753.
- Kuzeyli Yildirim, Y. and Uyar, M. 2006. [Barriers to effective cancer pain management]. *Agri*. **18**(3), pp.12-19.
- Kvale, S. 2007. *Doing interviews*. 1st ed. London: Sage publications.
- Kwon, J.H. 2014a. Overcoming Barriers in Cancer Pain Management. *Journal of Clinical Oncology*. **32**(16), pp.1727-1733.
- Kwon, J.H. 2014b. Overcoming barriers in cancer pain management. *J Clin Oncol*. **32**(16), pp.1727-1733.
- Lacey, A. and Luff, D. 2001. *Qualitative data analysis*. Trent focus Sheffield.
- Lai, Y.-H., Chen, M.-L., Tsai, L.-Y., Lo, L.-H., Wei, L.-L., Hong, M.-Y., Hsiu, L.-N., Hsiao-Sheen, S.-T., Chen, S.-C., Kao, C.-C., Huang, T.-W., Chang, S.-C., Chen, L. and Guo, S.-L. 2003. Are nurses prepared to manage cancer pain? A national survey of nurses' knowledge about pain control in Taiwan. *Journal of Pain and Symptom Management*. **26**(5), pp.1016-1025.
- Lamas, D. and Rosenbaum, L. 2012. Painful Inequities — Palliative Care in Developing Countries. *New England Journal of Medicine*. **366**(3), pp.199-201.
- Langdrige, D. 2007. *Phenomenological psychology: theory, research and method*. 1st ed. Harlow: England: Prentice Hall.
- Larue, F., Colleau, S.M., Fontaine, A. and Brasseur, L. 1995. Oncologists and primary care physicians' attitudes toward pain control and morphine prescribing in france. *Cancer*. **76**(11), pp.2375-2382.
- Larue, F., Fontaine, A. and Brasseur, L. 1999. Evolution of the French Public's Knowledge and Attitudes Regarding Postoperative Pain, Cancer Pain, and Their Treatments: Two National Surveys over a Six-Year Period. *Anesthesia & Analgesia*. **89**(3), p659.
- Latter, S., Hopkinson, J.B., Richardson, A., Hughes, J.A., Lawson, E. and Edwards, D. 2016. How can we help family carers manage pain medicines for patients with advanced cancer? A systematic review of intervention studies. *BMJ Supportive & Palliative Care*. **6**(3), pp.263-275.
- Laurance, J. 2013. Makers of anticancer drugs are "profiteering," say 100 specialists from around the world. *Bmj*. **346**, pf2810.
- Lavrakas, P. 2008. Closed-Ended Qestions. In: Lavrakas, P. ed. *Encyclopedia of Survey Research Methods*
- [Online]. Thousand Oaks, California: Sage. Available from:
<https://methods.sagepub.com/reference/encyclopedia-of-survey-research-methods>

- Leong, M., Olnick, S., Akmal, T., Copenhaver, A. and Razzak, R. 2016. How Islam Influences End-of-Life Care: Education for Palliative Care Clinicians. *J Pain Symptom Manage.* **52**(6), pp.771-774 e773.
- Leung, L. 2015. Validity, reliability, and generalizability in qualitative research. *Journal of family medicine and primary care.* **4**(3), pp.324-327.
- Levin, D.N., Cleeland, C.S. and Dar, R. 1985. Public attitudes toward cancer pain. *Cancer.* **56**(9), pp.2337-2339.
- Levin, M.L., Berry, J.I. and Leiter, J. 1998. Management of pain in terminally ill patients: physician reports of knowledge, attitudes, and behavior. *J Pain Symptom Manage.* **15**(1), pp.27-40.
- Li, D., Gao, L., Ren, L.-Y., Zeng, X., Cui, E.-P., Zhang, L.-J. and Wu, Q. 2021. Knowledge and attitudes regarding cancer pain management among oncology nurses in China. *The Journal of international medical research.* **49**(1), pp.300060520979448-300060520979448.
- Li, Y.X., Yu, J.Q., Tang, L., Xu, B., Fang, F., Nie, H.X., Dai, X.Y., Zhang, Y., Li, L., Zhou, L.J., Han, W.J., Liu, M.J., Cui, J., Meng, X.L. and Zhao, J.J. 2013. Cancer pain management at home: voice from an underdeveloped region of China. *Cancer Nurs.* **36**(4), pp.326-334.
- Li, Z., Aninditha, T., Griene, B., Francis, J., Renato, P., Serrie, A., Umareddy, I., Boisseau, S. and Hadjiat, Y. 2018. Burden of cancer pain in developing countries: a narrative literature review. *ClinicoEconomics and outcomes research : CEOR.* **10**, pp.675-691.
- Liberati, A., Altman, D.G., Tetzlaff, J., Mulrow, C., Gøtzsche, P.C., Ioannidis, J.P., Clarke, M., Devereaux, P.J., Kleijnen, J. and Moher, D. 2009. The PRISMA statement for reporting systematic reviews and meta-analyses of studies that evaluate health care interventions: explanation and elaboration. *PLoS medicine.* **6**(7), pe1000100.
- Lim, S.N., Han, H.S., Lee, K.H., Lee, S.C., Kim, J., Yun, J., Park, S., Park, M., Choe, Y., Ryoo, H.M., Lee, K., Cho, D., Zang, D.Y. and Choi, J. 2015. A satisfaction survey on cancer pain management using a self-reporting pain assessment tool. *J Palliat Med.* **18**(3), pp.225-231.
- Lin, C.-C. 2000. Barriers to the analgesic management of cancer pain: a comparison of attitudes of Taiwanese patients and their family caregivers. *Pain.* **88**(1), pp.7-14.
- Lin, C.-C., Wang, P., Lai, Y.-L., Lin, C.-L., Tsai, S.-L. and Chen, T.T. 2000. Identifying attitudinal barriers to family management of cancer pain in palliative care in Taiwan. *Palliative Medicine.* **14**(6), pp.463-470.
- Lin, C.-Y., Burri, A. and Pakpour, A.H. 2016. Premature Ejaculation and Erectile Dysfunction in Iranian Prostate Cancer Patients. *Asian Pacific Journal of Cancer Prevention.* **17**(4), pp.1961-1966.

Lin, C.C. and Ward, S.E. 1995. Patient-related barriers to cancer pain management in Taiwan. *Cancer nursing*. **18**(1), pp.16-22.

Lincoln, Y.S. and Guba, E.G. 1985. *Naturalistic inquiry*. London: Sage.

Lincoln, Y.S. and Guba, E.G. 1986. But is it rigorous? Trustworthiness and authenticity in naturalistic evaluation. *New Directions for Program Evaluation*. **1986**(30), pp.73-84.

Littell, J.H., Corcoran, J. and Pillai, V. 2008. Systematic reviews and meta-analysis. [Online]. Available from:

<https://books.google.co.uk/books?hl=en&lr=&id=UpsRDAAAQBAJ&oi=fnd&pg=PR5&dq=Systematic+reviews+and+meta-analysis&ots=VgW60fmqe9&sig=YBs9Acx8JdX8W5MW8lxugyN4tOo#v=onepage&q=Systematic%20reviews%20and%20meta-analysis&f=false>

Liu, J., Zhang, M., Luo, J., Xie, J., Chen, X., Wang, H., Li, S., Yang, S., Peng, C., Yang, L., Deng, B., Zhang, Y., Wang, C., Hu, J. and Shi, C. 2021. Practice, Knowledge, and Attitude of Health Care Providers regarding Cancer Pain Management: A National Survey. *Pain Res Manag*. **2021**, p1247202.

Liu, Q., Gao, L.L., Dai, Y.L., Wang, Y., Wang, H.X., Luo, X.J., Chai, X.M., Mu, G.X., Liang, X.Y., Zhang, X., Liu, J., Yu, J.Q. and Li, Y.X. 2018. Breakthrough Pain: A Qualitative Study of Patients with Advanced Cancer in Northwest China. *Pain Manag Nurs*. **19**(5), pp.506-515.

Lockwood, C., Munn, Z. and Porritt, K. 2015. Qualitative research synthesis: methodological guidance for systematic reviewers utilizing meta-aggregation. *International journal of evidence-based healthcare*. **13**(3), pp.179-187.

Lofland, J. and Lofland, L. 1995. *Analyzing Social Setting*. Belmont, CA: Wadsworth.

Longo, C.J., Fitch, M.I., Loree, J.M., Carlson, L.E., Turner, D., Cheung, W.Y., Gopaul, D., Ellis, J., Ringash, J., Mathews, M., Wright, J., Stevens, C., D'Souza, D., Urquhart, R., Maity, T., Balderrama, F. and Haddad, E. 2021. Patient and family financial burden associated with cancer treatment in Canada: a national study. *Supportive Care in Cancer*. **29**(6), pp.3377-3386.

Lou, F. and Shang, S. 2017. Attitudes towards pain management in hospitalized cancer patients and their influencing factors. *Chinese journal of cancer research = Chung-kuo yen cheng yen chiu*. **29**(1), pp.75-85.

Lovering, S. 2006. Cultural Attitudes and Beliefs About Pain. *Journal of Transcultural Nursing*. **17**(4), pp.389-395.

Lui, L.Y., So, W.K. and Fong, D.Y. 2008. Knowledge and attitudes regarding pain management among nurses in Hong Kong medical units. *J Clin Nurs*. **17**(15), pp.2014-2021.

Lunn, J.S. 2003. Spiritual care in a multi-religious context. *J Pain Palliat Care Pharmacother*. **17**(3-4), pp.153-166; discussion 167-159.

Maanen, J., Manning, P. and Miller, M. 2001. Series editors' introduction. In: Stebbins, R. ed. *Exploratory research in the social sciences*. thousands Oak, CA: SAGE, pp.v–vi.

Machira, G., Kariuki, H. and Martindale, L. 2013. Impact of an educational pain management programme on nurses pain knowledge and attitudes in Kenya. *Int J Palliat Nurs*. **19**(7), pp.341-346.

Magill, L. 2009. The spiritual meaning of pre-loss music therapy to bereaved caregivers of advanced cancer patients. *Palliat Support Care*. **7**(1), pp.97-108.

Maguire, M. and Delahunt, B. 2017. Doing a thematic analysis: A practical, step-by-step guide for learning and teaching scholars. *2017*. **9**(3).

Mahfudh, S.S. 2010. Historical perspectives and trends in the management of pain for cancer patients in Oman. *Asian Pac J Cancer Prev*. **11**(Suppl 1), pp.93-96.

Makhlouf, S.M., Ahmed, S., Mulvey, M. and Bennett, M.I. 2022. Attitudes, Knowledge, and Perceived Barriers Towards Cancer Pain Management Among Healthcare Professionals in Libya: a National Multicenter Survey. *Journal of Cancer Education*.

Makhlouf, S.M., Pini, S., Ahmed, S. and Bennett, M.I. 2020. Managing Pain in People with Cancer—a Systematic Review of the Attitudes and Knowledge of Professionals, Patients, Caregivers and Public. *Journal of Cancer Education*. **35**(2), pp.214-240.

Malhotra, C., Harding, R., Teo, I., Ozdemir, S., Koh, G.C.H., Neo, P. and Lee, L.H. 2020. Financial difficulties are associated with greater total pain and suffering among patients with advanced cancer: results from the COMPASS study. *Supportive Care in Cancer*. **28**, p3781+.

Malhotra, N.K., Birks, D.F. and Wills, P. 2012. *Marketing Research - an applied approach*. 4th ed. New Jersey: Press.

Malhotra, N.K., Nunan, D. and Birks, D.F. 2017. *Marketing research: an applied approach*. [Online]. 5th ed. the UK: Pearson Education Limited.

Malterud, K., Siersma, V.D. and Guassora, A.D. 2016. Sample Size in Qualitative Interview Studies: Guided by Information Power. *Qual Health Res*. **26**(13), pp.1753-1760.

Maltoni, M. 2008. *Opioids, pain, and fear*. Oxford University Press.

Manal Al-Zadjali, Anna Brown, Warda Al Amri, Amal JAI Balushi, Thamra Al Ghafri and Hasani, N.A. 2022. Reflections on Middle Eastern Cultural Perspectives in Cancer Care In: Michael Silbermann and Berger, A. eds. *Global Perspectives in Cancer Care: Religion, Spirituality, and Cultural Diversity in Health and Healing* [Online]. London: Oxford University Press. Available from: <https://doi.org/10.1093/med/9780197551349.003.0035>

Manalo, M.F.C. 2008. Knowledge toward cancer pain and the use of opioid analgesics among medical students in their integrated clinical clerkship. *Palliative Care: Research and Treatment*. **2**, pPCRT. S924.

Manderson, L., Bennett, E. and Andajani-Sutjahjo, S. 2006. The social dynamics of the interview: Age, class, and gender. *Qualitative health research*. **16**(10), pp.1317-1334.

Mann, E. and Carr, E. 2006. *Pain Management*. 1st ed. Oxford: Blackwell Publishing Ltd.

Marshall, M.N. 1996. Sampling for qualitative research. *Family practice*. **13**(6), pp.522-526.

Martín-Martín, J., López-García, M., Medina-Abellán, M.D., Beltrán-Aroca, C.M., Martín-de-las-Heras, S., Rubio, L. and Pérez-Cárceles, M.D. 2021. Physicians' and Nurses' Knowledge in Palliative Care: Multidimensional Regression Models. *International Journal of Environmental Research and Public Health*. **18**(9), p5031.

Mason, J. 2006. Mixing methods in a qualitatively driven way. *Qualitative Research*. **6**(1), pp.9-25.

Matejicic, M., Gunter, M.J. and Ferrari, P. 2017. Alcohol metabolism and oesophageal cancer: a systematic review of the evidence. *Carcinogenesis*. **38**(9), pp.859-872.

Matthews, B. and Ross, L. 2010. *Research methods: a practical guide for the social sciences*. New York, USA: Longman/Pearson Education.

Mays, N. and Pope, C. 2000. Quality in qualitative health research. In: Pope, C. and Mays, N. eds. *Qualitative research in health care*. London: Br Med J Publishing Group.

McCaffery, M. and Ferrell, B.R. 1995. Nurse's knowledge about cancer pain: A survey of five countries. *Journal of Pain and Symptom Management*. **10**(5), pp.356-369.

McCaffrey, M. and Ferrell, B.R. 1997. Nurses' knowledge of pain assessment and management: How much progress have we made? *Journal of Pain and Symptom Management*. **14**(3), pp.175-188.

McCracken, K. 2015. James Logan Prize Essay. The challenges of cancer pain assessment. *The Ulster medical journal*. **84**(1), pp.55-57.

McCready, J.S. 2010. Jamesian pragmatism: a framework for working towards unified diversity in nursing knowledge development. *Nurs Philos*. **11**(3), pp.191-203.

McGann, K. 2007. The anatomy and physiology of pain: What is pain? . In: McGann, K. ed. *Fundamental aspects of pain assessment and management*. England MA Healthcare Limited, pp.1-9.

McGregor, A. 1998. WHO reviews health-care privatisation in developing countries. *The Lancet*. **351**(9101), p508.

McMillan, S.C., Tittle, M., Hagan, S.J. and Small, B.J. 2005. Training pain resource nurses: changes in their knowledge and attitudes. *Oncol Nurs Forum*. **32**(4), pp.835-842.

McPherson, C.J., Wilson, K.G., Lobchuk, M.M. and Brajtman, S. 2008. Family caregivers' assessment of symptoms in patients with advanced cancer: concordance with patients and factors affecting accuracy. *J Pain Symptom Manage.* **35**(1), pp.70-82.

Mędrzycka-Dąbrowska, W., Dąbrowski, S. and Basiński, A. 2015. Problems and Barriers in Ensuring Effective Acute and Post-Operative Pain Management--an International Perspective. *Adv Clin Exp Med.* **24**(5), pp.905-910.

Meeker, M.A. 2004. Family surrogate decision making at the end of life: Seeing them through with care and respect. *Qualitative Health Research.* **14**(2), pp.204-225.

Meeker, M.A., Finnell, D. and Othman, A.K. 2011. Family Caregivers and Cancer Pain Management: A Review. *Journal of Family Nursing.* **17**(1), pp.29-60.

Mendieta, M. and Buckingham, R.W. 2017. A Review of Palliative and Hospice Care in the Context of Islam: Dying with Faith and Family. *J Palliat Med.* **20**(11), pp.1284-1290.

Meraviglia, M. 2006. Effects of spirituality in breast cancer survivors. *Oncol Nurs Forum.* **33**(1), pp.E1-7.

Merriam, S.B.M., S. B. . 1998. *Qualitative research and case study applications in education.* San Francisco: Jossey-Bass.

Meuser, T., Pietruck, C., Radbruch, L., Stute, P., Lehmann, K.A. and Grond, S. 2001. Symptoms during cancer pain treatment following WHO-guidelines: a longitudinal follow-up study of symptom prevalence, severity and etiology. *Pain.* **93**(3), pp.247-257.

Miller, F.G. and Kaptchuk, T.J. 2008. The power of context: reconceptualizing the placebo effect. *J R Soc Med.* **101**(5), pp.222-225.

Mohapatra, S. and Al Shekteria, A. 2009. Patients Perception of and Satisfaction with Health Care Services Quality in 7th October Hospital, Benghazi, Libya. *The Egyptian Journal of Community Medicine.* **27**(2), pp.67-73.

Mohd Azaman, F.N. 2021. PALLIATIVE CARE AND HOSPICE CARE FROM THE PERSPECTIVE OF THE MAQASID SHARĪ'AH. **5**, pp.167-185.

Moher, D., Fortin, P., Jadad, A.R., Jüni, P., Klassen, T., Le Lorier, J., Liberati, A., Linde, K. and Penna, A. 1996. Completeness of reporting of trials published in languages other than English: implications for conduct and reporting of systematic reviews. *Lancet.* **347**(8998), pp.363-366.

Moher, D., Liberati, A., Tetzlaff, J. and Altman, D.G. 2009. Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *PLoS medicine.* **6**(7), pe1000097.

Moher, D., Shamseer, L., Clarke, M., Ghersi, D., Liberati, A., Petticrew, M., Shekelle, P. and Stewart, L.A. 2015. Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015 statement. *Systematic reviews.* **4**(1), p1.

- Mons, U., Gredner, T., Behrens, G., Stock, C. and Brenner, H. 2018. Cancers Due to Smoking and High Alcohol Consumption. *Dtsch Arztebl Int.* **115**(35-36), pp.571-577.
- Moola, S., Munn, Z., Tufanaru, C., Aromataris, E., Sears, K., Sfetcu, R., Currie, M., Qureshi, R., Mattis, P., Lisy, K. and Mu, P.-F. 2017. Systematic reviews of etiology and risk. In: Aromataris E. and Munn Z. eds. *Joanna Briggs Institute Reviewer's Manual*. [Online]. The Joanna Briggs Institute. [Accessed 4th September 2018]. Available from: <https://reviewersmanual.joannabriggs.org/>
- Moran, D. 2002. *Introduction to phenomenology*. 2nd ed. London: Routledge.
- Morgan, D.L. 2007. Paradigms Lost and Pragmatism Regained:Methodological Implications of Combining Qualitative and Quantitative Methods. *Journal of Mixed Methods Research.* **1**(1), pp.48-76.
- Morgan, D.L. 2014. Pragmatism as a Paradigm for Social Research. *Qualitative Inquiry.* **20**(8), pp.1045-1053.
- Mori, M., Elsayem, A., Reddy, S.K., Bruera, E. and Fadul, N.A. 2012. Unrelieved pain and suffering in patients with advanced cancer. *Am J Hosp Palliat Care.* **29**(3), pp.236-240.
- Morris, C. 2011. *Quantitative Approaches in Business Studies*. 8th ed. United Kingdom: Financial Times.
- Morse, J.M. 1991a. *Qualitative nursing research: a contemporary dialogue*. London: Sage.
- Morse, J.M. 1991b. *Strategies for sampling*. London: Sage Publications.
- Morse, J.M., Barrett, M., Mayan, M., Olson, K. and Spiers, J. 2002. Verification Strategies for Establishing Reliability and Validity in Qualitative Research. *International Journal of Qualitative Methods.* **1**(2), pp.13-22.
- Moser, R.P., Arndt, J., Han, P.K., Waters, E.A., Amsellem, M. and Hesse, B.W. 2014. Perceptions of cancer as a death sentence: prevalence and consequences. *J Health Psychol.* **19**(12), pp.1518-1524.
- Mosich, V., Sellner-Pogány, T. and Wallner, J. 2017. [PKT - Palliative competence test for physicians : Design and validation of a questionnaire to assess knowledge and specific self-efficacy expectations of physicians in palliative care]. *Schmerz.* **31**(4), pp.375-382.
- Mullan, F. 1985. Seasons of survival: reflections of a physician with cancer. *N Engl J Med.* **313**(4), pp.270-273.
- Murillo, J.R., Pharmd and Bcop. 2017. Pain Assessment Practices in Patients with Cancer Admitted to the Oncology Floor. In.

Murnion, B.P., Gnjidic, D. and Hilmer, S.N. 2010. Prescription and administration of opioids to hospital in-patients, and barriers to effective use. *Pain Med.* **11**(1), pp.58-66.

Narayan, M.C. 2010. Culture's effects on pain assessment and management. *AJN The American Journal of Nursing.* **110**(4), pp.38-47.

Nasser, S.C., Nassif, J.G. and Saad, A.H. 2016. Physicians' Attitudes to Clinical Pain Management and Education: Survey from a Middle Eastern Country. *Pain Research and Management.* **2016**, p1358593.

National Academies of Sciences, E., and Medicine. 2017. Pain management and the opioid epidemic: Balancing societal and individual benefits and risks of prescription opioid use. In: Phillips, J., et al. eds. *Health and Medicine Division; Board on Health Sciences Policy; Committee on Pain Management and Regulatory Strategies to Address Prescription Opioid Abuse.* . Washington, DC: The National Academies Press.

NCI. 2015. Risk Factors for Cancer.

Neergaard, M.A., Olesen, F., Andersen, R.S. and Sondergaard, J. 2009. Qualitative description – the poor cousin of health research? *BMC Medical Research Methodology.* **9**(1), p52.

Nersesyan, H. and Slavin, K.V. 2007. Current approach to cancer pain management: Availability and implications of different treatment options. *Therapeutics and clinical risk management.* **3**(3), pp.381-400.

Neuman, L. 2011. *Social research methods: qualitative and quantitative approaches.* 7th ed. London, UK: Pearson Education Limited.

Neuman, L. 2013. *Social research methods: qualitative and quantitative approaches.* 7th ed. London, UK: Pearson Education Limited.

Ngamkham, S., Vincent, C., Finnegan, L., Holden, J.E., Wang, Z.J. and Wilkie, D.J. 2012. The McGill Pain Questionnaire as a multidimensional measure in people with cancer: an integrative review. *Pain management nursing : official journal of the American Society of Pain Management Nurses.* **13**(1), pp.27-51.

Nguyen, A. and Fabrigar, L. 2018. Visual Analog Scales. In: Frey, B. ed. *The SAGE Encyclopedia of Educational Research, Measurement, and Evaluation* Thousand Oaks, California: SAGE Publications, Inc. .

NHS. 2020. *Side effects of Chemotherapy and Radiotherapy.* [Online]. [Accessed 30th April]. Available from: <https://www.nhs.uk/conditions/chemotherapy/side-effects/>

NICE. 2012. *Palliative cancer care - pain.* [Online]. [Accessed 20th April]. Available from: <https://www.nice.org.uk/guidance/cg140/chapter/Introduction>

- NICE. 2013. *Neuropathic pain in adults: pharmacological management in non-specialist settings*. [Online]. [Accessed 05th Septemebr]. Available from: <https://www.nice.org.uk/guidance/cg173>
- NICE. 2018. *Palliative cancer care - pain*. [Online]. [Accessed 13 December]. Available from: <https://cks.nice.org.uk/palliative-cancer-care-pain>
- Nimmaanrat, S., Prechawai, C. and Phungrassami, T. 2010. Cancer Pain and its Management: A Survey on Interns' Knowledge, Attitudes and Barriers. *Palliative Care: Research and Treatment*. **4**, p117822421000400001.
- Nolen-Hoeksema, S., Wisco, B.E. and Lyubomirsky, S. 2008. Rethinking Rumination. *Perspectives on Psychological Science*. **3**(5), pp.400-424.
- Nouh, F., Ibrahim Mekraz, E., Omar, M., Younis, M., and Younis, M. 2018. Diet of Benghazi Cancer Patients; Quality and Associated Factors. *Cancer and Tumor International*. **7**(1), pp.1-14.
- Nuffieldtrust. 2021. *Summary: International comparisons of healthcare quality*. [Online]. [Accessed 01 April]. Available from: <https://www.nuffieldtrust.org.uk/qualitywatch/summary-international-comparisons-of-healthcare-quality>
- Nyirigira Gaston, Mahoro Jean de Dieu, Rwamugema Elias, Bukuru John, Buteera M. Alex and Tuyishime Eugene. 2021. Knowledge and attitudes towards the management of chronic pain among healthcare providers in outpatient departments at the University Teaching Hospital of Butare (CHUB). *Journal of Anesthesia and Critical Care Open Access*. **13**(3), pp.110-115.
- O'Brien, S., Dalton, J.A., Konsler, G. and Carlson, J. 1996. The knowledge and attitudes of experience oncology nurses regarding the management of cancer-related pain. *Oncology nursing forum*. **23**(3), pp.515-521.
- Ohlsson-Nevo, E., Ahlgren, J. and Karlsson, J. 2020. Impact of health-related stigma on psychosocial functioning in cancer patients: Construct validity of the stigma-related social problems scale. *Eur J Cancer Care (Engl)*. **29**(6), pe13312.
- Oldenmenger, W.H., Geerling, J.I., Mostovaya, I., Vissers, K.C.P., de Graeff, A., Reyners, A.K.L. and van der Linden, Y.M. 2018. A systematic review of the effectiveness of patient-based educational interventions to improve cancer-related pain. *Cancer Treatment Reviews*. **63**, pp.96-103.
- Oldenmenger, W.H., Sillevis Smitt, P.A., van Dooren, S., Stoter, G. and van der Rijt, C.C. 2009a. A systematic review on barriers hindering adequate cancer pain management and interventions to reduce them: a critical appraisal. *Eur J Cancer*. **45**(8), pp.1370-1380.
- Oldenmenger, W.H., Sillevis Smitt, P.A.E., van Dooren, S., Stoter, G. and van der Rijt, C.C.D. 2009b. A systematic review on barriers hindering adequate cancer pain

management and interventions to reduce them: A critical appraisal. *European Journal of Cancer*. **45**(8), pp.1370-1380.

Oliveira, S.S.W., Vasconcelos, R.S., Amaral, V.R.S., Sousa, H., Dinis, M.A.P., Vidal, D.G. and Sá, K.N. 2021. Spirituality in Coping with Pain in Cancer Patients: A Cross-Sectional Study. *Healthcare (Basel)*. **9**(12).

Omran, S., Al Qadire, M., Ali, N.A. and Al Hayek, M.F. 2014. Knowledge and attitudes about pain management: a comparison of oncology and non-oncology Jordanian nurses. *Nursing and Health*. **2**(4), pp.73-80.

Onwuegbuzie, A. and Johnson, R. 2006. The Validity Issues in Mixed Research. *RESEARCH IN THE SCHOOLS Mid-South Educational Research Association RESEARCH IN THE SCHOOLS*. **13**, pp.48-63.

Onwuegbuzie, A.J., Bustamante, R.M. and Nelson, J.A. 2010. Mixed Research as a Tool for Developing Quantitative Instruments. *Journal of Mixed Methods Research*. **4**(1), pp.56-78.

Onwuegbuzie, A.J., Johnson, R.B. and Collins, K.M. 2009. Call for mixed analysis: A philosophical framework for combining qualitative and quantitative approaches. *International Journal of Multiple Research Approaches*. **3**(2), pp.114-139.

Orujlu, S., Hassankhani, H., Rahmani, A., Sanaat, Z., Dadashzadeh, A. and Allahbakhshian, A. 2021. Barriers to cancer pain management from the perspective of patients: A qualitative study. *Nursing Open*. **n/a**(n/a), pp.1-9.

Osborne, A.K. 2010. *Managing Health Care in a Libyan Public Hospital: A Case Study*. PhD thesis, Walden University.

Ostaszkiwicz, J. and O'Connell, B. 2007. Integrative reviews of quantitative and qualitative research: Habit retraining for urinary incontinence in adults. In: Webb, C. and Roe, B. eds. *Reviewing research evidence for nursing practice: Systematic reviews*. Oxford: Blackwell Publishing Ltd, pp.157- 175.

Östlund, U., Kidd, L., Wengström, Y. and Rowa-Dewar, N. 2011. Combining qualitative and quantitative research within mixed method research designs: a methodological review. *Int J Nurs Stud*. **48**(3), pp.369-383.

Otman, W. and Karlberg, E. 2007. *The Libyan economy: economic diversification and international repositioning*. Springer Science & Business Media.

Ou, H.T., Chung, W.P., Su, P.F., Lin, T.H., Lin, J.Y., Wen, Y.C. and Fang, W.T. 2019. Health-related quality of life associated with different cancer treatments in Chinese breast cancer survivors in Taiwan. *Eur J Cancer Care (Engl)*. **28**(4), pe13069.

Ou, M., Xu, X., Chen, Y., Yan, Y., Wang, K. and Zhou, L. 2021. Factors Related to Nurses' Knowledge and Attitudes Toward Pain in Hospitals in Low-Income Areas. *Pain Manag Nurs*. **22**(3), pp.386-393.

Pachankis, J.E., Hatzenbuehler, M.L., Wang, K., Burton, C.L., Crawford, F.W., Phelan, J.C. and Link, B.G. 2018. The Burden of Stigma on Health and Well-Being: A Taxonomy of Concealment, Course, Disruptiveness, Aesthetics, Origin, and Peril Across 93 Stigmas. *Pers Soc Psychol Bull.* **44**(4), pp.451-474.

Paice, J.A. 2018. Cancer pain management and the opioid crisis in America: How to preserve hard-earned gains in improving the quality of cancer pain management. *Cancer.* **124**(12), pp.2491-2497.

Paice, J.A. and Cohen, F.L. 1997. Validity of a verbally administered numeric rating scale to measure cancer pain intensity. *Cancer Nursing.* **20**(2), pp.88-93.

Paice, J.A., Portenoy, R., Lacchetti, C., Campbell, T., Chevillat, A., Citron, M., Constone, L.S., Cooper, A., Glare, P., Keefe, F., Koyyalagunta, L., Levy, M., Miaskowski, C., Otis-Green, S., Sloan, P. and Bruera, E. 2016. Management of Chronic Pain in Survivors of Adult Cancers: American Society of Clinical Oncology Clinical Practice Guideline. *J Clin Oncol.* **34**(27), pp.3325-3345.

Paley, J. 1997. Husserl, phenomenology and nursing. *Journal of Advanced Nursing.* **26**(1), pp.187-193.

Palinkas, L.A., Horwitz, S.M., Chamberlain, P., Hurlburt, M.S. and Landsverk, J. 2011. Mixed-methods designs in mental health services research: a review. *Psychiatr Serv.* **62**(3), pp.255-263.

Pansiri, J. 2005. Pragmatism: A methodological approach to researching strategic alliances in tourism. *Tourism and Hospitality Planning & Development.* **2**(3), pp.191-206.

Parsons, G. and Preece, W. 2010. *Principles and practice of managing pain: A guide for nurses and allied health professionals.* USA: Open University Press.

Pathmawathi, S., Beng, T.S., Li, L.M., Rosli, R., Sharwend, S., Kavitha, R.R. and Christopher, B.C. 2015. Satisfaction with and Perception of Pain Management among Palliative Patients with Breakthrough Pain: A Qualitative Study. *Pain Manag Nurs.* **16**(4), pp.552-560.

Patiraki, E.I., Papathanassoglou, E.D., Tafas, C., Akarepi, V., Katsaragakis, S.G., Kampitsi, A. and Lemonidou, C. 2006a. A randomized controlled trial of an educational intervention on Hellenic nursing staff's knowledge and attitudes on cancer pain management. *Eur J Oncol Nurs.* **10**(5), pp.337-352.

Patiraki, E.I., Papathanassoglou, E.D.E., Tafas, C., Akarepi, V., Katsaragakis, S.G., Kampitsi, A. and Lemonidou, C. 2006b. A randomized controlled trial of an educational intervention on Hellenic nursing staff's knowledge and attitudes on cancer pain management. *European Journal of Oncology Nursing.* **10**(5), pp.337-352.

Patrick, D.L., Ferketich, S.L., Frame, P.S., Harris, J.J., Hendricks, C.B., Levin, B., Link, M.P., Lustig, C., McLaughlin, J., Reid, L.D., Turrisi, A.T., 3rd, Unützer, J. and Vernon, S.W. 2004. National Institutes of Health State-of-the-Science Conference Statement:

Symptom management in cancer: pain, depression, and fatigue, July 15-17, 2002. *Journal of the National Cancer Institute. Monographs.* (32), pp.9-16.

Patton, M.Q. 2002. *Qualitative research and evaluation methods.* Thousand Oaks, Calif: Sage.

Pearson, A., Robertson-Malt S and Rittenmeyer L. 2011. *Synthesizing qualitative evidence.* [Online]. 2nd ed. Philadelphia: Lippincott-Joanna Briggs Institute. Available from: https://nursing.lsuhsoc.edu/JBI/docs/JBIBooks/Syn_Qual_Evidence.pdf

Peteet, J.R. and Balboni, M.J. 2013. Spirituality and religion in oncology. *CA Cancer J Clin.* **63**(4), pp.280-289.

Petropoulos, I.N., Javed, S., Azmi, S., Khan, A., Ponirakis, G. and Malik, R.A. 2016. Diabetic neuropathy and painful diabetic neuropathy in the Middle East and North Africa (MENA) region: Much work needs to be done. *Journal of Taibah University Medical Sciences.* **11**(4), pp.284-294.

Phelan, S.M., Griffin, J.M., Jackson, G.L., Zafar, S.Y., Hellerstedt, W., Stahre, M., Nelson, D., Zullig, L.L., Burgess, D.J. and van Ryn, M. 2013. Stigma, perceived blame, self-blame, and depressive symptoms in men with colorectal cancer. *Psychooncology.* **22**(1), pp.65-73.

Piderman, K.M., Kung, S., Jenkins, S.M., Euerle, T.T., Yoder, T.J., Kwete, G.M. and Lapid, M.I. 2015. Respecting the spiritual side of advanced cancer care: a systematic review. *Curr Oncol Rep.* **17**(2), p6.

Pisani, P. 2011. The cancer burden and cancer control in developing countries. *Environmental health : a global access science source.* **10 Suppl 1**(Suppl 1), pp.S2-S2.

Polgar, S. and Thomas, S. 2013. *Introduction to Research in the Health Sciences.* 6th ed. London: Elsevier Ltd.

Polgar, S. and Thomas, S.A. 1991. *Introduction to Research in Health Sciences.* London: Churchill Livingstone.

Polgar, S. and Thomas, S.A. 2000. *Introduction to research in the health sciences.* 4th ed. Philadelphia, USA: Elsevier Health Sciences.

Popay, J., Roberts, H.M., Sowden, A.J., Petticrew, M., Arai, L., Rodgers, M. and Britten, N. 2006. *Guidance on the conduct of narrative synthesis in systematic Reviews. A Product from the ESRC Methods Programme.* . [Online]. [Accessed 10th March]. Available from: <https://www.lancaster.ac.uk/media/lancaster-university/content-assets/documents/fhm/dhr/chir/NSsynthesisguidanceVersion1-April2006.pdf>

Pope, C. and Mays, N. 2006. *Qualitative research in health care.* 3rd ed. Oxford: UK: Blackwell.

Portenoy, R., Thaler, H., Kornblith, A., Lepore, J.M., Friedlander-Klar, H., Coyle, N., Smart-Curley, T., Kemeny, N., Norton, L. and Hoskins, W. 1994. Symptom prevalence,

characteristics and distress in a cancer population. *Quality of life research*. **3**(3), pp.183-189.

Porter, L.S., Keefe, F.J., Garst, J., McBride, C.M. and Baucom, D. 2008. Self-efficacy for managing pain, symptoms, and function in patients with lung cancer and their informal caregivers: associations with symptoms and distress. *Pain*. **137**(2), pp.306-315.

Portnow, J., Lim, C. and Grossman, S.A. 2003. Assessment of pain caused by invasive procedures in cancer patients. *J Natl Compr Canc Netw*. **1**(3), pp.435-439.

Poudel, P., Griffiths, R., Wong, V.W., Arora, A., Flack, J.R., Khoo, C.L. and George, A. 2018. Oral health knowledge, attitudes and care practices of people with diabetes: a systematic review. *BMC public health*. **18**(1), p577.

Prandi, C., Garrino, L., Mastromarino, P., Torino, F., Vellone, E., Peruselli, C. and Alvaro, R. 2015. Barriers in the management of cancer-related pain and strategies to overcome them: findings of a qualitative research involving physicians and nurses in Italy. *Ann Ist Super Sanita*. **51**(1), pp.71-78.

Prescott, P.A. and Soeken, K.L. 1989. The potential uses of pilot work. *Nurs Res*. **38**(1), pp.60-62.

Puchalski, C.M., King, S.D.W. and Ferrell, B.R. 2018. Spiritual Considerations. *Hematol Oncol Clin North Am*. **32**(3), pp.505-517.

Rages, S. 2014. *Perceptions of Patient Safety Culture amongst Health Care Workers in the Hospitals of Northeast Libya*. thesis, Liverpool John Moores University.

Rahnama, M., Khoshknab, M.F., Maddah, S.S. and Ahmadi, F. 2012. Iranian cancer patients' perception of spirituality: a qualitative content analysis study. *BMC Nurs*. **11**, p19.

Rajagopal, M.R., Mazza, D. and Lipman, A.G. 2003. *Pain and Palliative Care in the Developing World and Marginalized Populations: A Global Challenge*. New York: Haworth Press.

Rajeh Saifan, A., Bashayreh, I., Suhair, H., Al-Ghabeesh, S., Batiha, A.-M., Alrimawi, I., Al-Saraireh, M. and Al-Momani, M. 2019. ORIGINAL PAPER EXPLORING FACTORS AMONG HEALTHCARE PROFESSIONALS THAT INHIBIT EFFECTIVE PAIN MANAGEMENT IN CANCER PATIENTS.

Rana, M., Bullinger, M. and Rana, M. 2015. Coping with Stroke. *Journal of religion and health*.

Raphael, J., Ahmedzai, S., Hester, J., Urch, C., Barrie, J., Williams, J., Farquhar-Smith, P., Fallon, M., Hoskin, P., Robb, K., Bennett, M.I., Haines, R., Johnson, M., Bhaskar, A., Chong, S., Duarte, R. and Sparkes, E. 2010. Cancer Pain: Part 1: Pathophysiology; Oncological, Pharmacological, and Psychological Treatments: A Perspective from the British Pain Society Endorsed by the UK Association of Palliative Medicine and the Royal College of General Practitioners. *Pain Medicine*. **11**(5), pp.742-764.

Rauscher, L. and Greenfield, B.H. 2009. Advancements in contemporary physical therapy research: use of mixed methods designs. *Phys Ther.* **89**(1), pp.91-100.

Razali, N. and Wah, Y.s. 2011. Power Comparisons of Shapiro-Wilk, Kolmogorov-Smirnov, Lilliefors and Anderson-Darling tests. *Statistical Modeling and Analytics.* **2**(1), pp.21-33.

Reddy, A., Yennurajalingam, S. and Bruera, E. 2013. "Whatever My Mother Wants": Barriers to Adequate Pain Management. *Journal of Palliative Medicine.* **16**(6), pp.709-712.

Redmond, K. 1997. Organizational barriers in opioid use. *Support Care Cancer.* **5**(6), pp.451-456.

Reis-Pina, P., Lawlor, P.G. and Barbosa, A. 2015. Cancer-Related Pain Management and the Optimal Use of Opioids. *Acta Med Port.* **28**(3), pp.376-381.

Reis-Pina, P., Lawlor, P.G. and Barbosa, A. 2018. Moderate to Severe Cancer Pain: Are We Taking Serious Action? The Opioid Prescribing Scenario in Portugal. *Acta Med Port.* **31**(9), pp.451-453.

Reuters. 2018. *Libyan cancer clinic relies on donors to treat patients.* [Online]. [Accessed 28th April]. Available from: <https://www.reuters.com/article/us-libya-health-idUSKBN1KR1UE>

Rice, L. and Ezzy, D. 1999. *Qualitative Research Methods: A Health Focus.* South Melbourne: Oxford Press.

Riddell, A. and Fitch, M.I. 1997. Patients' knowledge of and attitudes toward the management of cancer pain. *Oncology nursing forum.* **24**(10), pp.1775-1784.

Riesenberg, L.A. and Justice, E.M. 2014. Conducting a successful systematic review of the literature, part 1. *Nursing2018.* **44**(4), pp.13-17.

Riley-Doucet, C. 2005. Beliefs About the Controllability of Pain: Congruence Between Older Adults With Cancer and Their Family Caregivers. *Journal of Family Nursing.* **11**(3), pp.225-241.

Robson, C. and McCartan, K. 2016. *Real world research.* 4th ed. Sussex, UK: John Wiley & Sons.

Roos, E.L. 2004. *Pain management: Hot topics.* 1st ed. USA: Philadelphia: Hanley & Belfus.

Rorty, R. 1999. *Philosophy and social hope.* Penguin UK.

Rowland, J. and Yabroff, K.R. 2019. Cancer Survivorship: The growing population of cancer survivors represents a global challenge for survivors and their families, employers, healthcare systems and governments. In: Jemal, A., et al. eds. *The Cancer*

Atlas. [Online]. Third ed. Atlanta, GA: American Cancer Society. Available from: https://canceratlas.cancer.org/wp-content/uploads/2019/10/ACS_CA3_Book.pdf

Rurup, M.L., Rhodius, C.A., Borgsteede, S.D., Boddaert, M.S.A., Keijser, A.G.M., Pasman, H.R.W. and Onwuteaka-Philipsen, B.D. 2010. The use of opioids at the end of life: the knowledge level of Dutch physicians as a potential barrier to effective pain management. *BMC Palliative Care*. **9**(1), p23.

Saifan, A., Bashayreh, I., Batiha, A.-M. and AbuRuz, M. 2015. Patient– and Family Caregiver–Related Barriers to Effective Cancer Pain Control. *Pain Management Nursing*. **16**(3), pp.400-410.

Saifan, A.R., Bashayreh, I.H., Al-Ghabeesh, S.H., Batiha, A.-M., Alrimawi, I., Al-Saraireh, M. and Al-Momani, M.M. 2019. Exploring factors among healthcare professionals that inhibit effective pain management in cancer patients. *Central European Journal of Nursing and Midwifery*. **10**(1), pp.967-976.

Saini, S. and Bhatnagar, S. 2016. Cancer Pain Management in Developing Countries. *Indian journal of palliative care*. **22**(4), pp.373-377.

Sakakibara, N., Komatsu, H., Takahashi, M., Yamauchi, H., Yamauchi, T. and Doorenbos, A.Z. 2020. Validation of the Japanese version of the barriers questionnaire II in cancer pain management: a cross-sectional study. *BMC Palliative Care*. **19**(1), p102.

Salam, A.A., Alshekteria, A.A., Abd Alhadi, H., Ahmed, M. and Mohammed, A. 2010. Patient satisfaction with quality of primary health care in Benghazi, Libya. *Libyan Journal of Medicine*. **5**(1), p4873.

Samara, A.M., Toba, H.A. and Zyoud, S.e.H. 2018. Physicians' knowledge, perceived barriers, and practices regarding cancer pain management: a cross-sectional study from Palestine. *Applied Cancer Research*. **38**(1), p15.

Sandelowski, M. 1995. Sample size in qualitative research. *Research in nursing & health*. **18**(2), pp.179-183.

Sandelowski, M. 2000. Whatever happened to qualitative description? *Research in Nursing & Health*. **23**(4), pp.334-340.

Sandelowski, M. 2010. What's in a name? Qualitative description revisited. *Res Nurs Health*. **33**(1), pp.77-84.

Sanderson, C.R. and Tieman, J. 2010. CareSearch Online palliative care information for GPs.

Saunders, M., Lewis, P. and Thornhill, A. 2012. *Research Methods for Business Students*. 6th ed. Pearson Education Limited.

Saunders, M., Lewis, P. and Thornhill, A. 2015a. *Research methods for business students*. 7th ed. London, UK: Pearson Education Limited.

Saunders, M., Lewis, P. and Thornhill, A. 2015b. *Research methods for business students*. 7th ed. London, UK: Pearson Education Limited.

Saunders, M., Lewis, P. and Thornhill, A. 2016. *Research methods for business students*. 7th ed. London, UK: Pearson Education Limited.

Saunders, M., Lewis, P., Thornhill, A. and Wilson, J. 2009. *Business Research Methods*. Prentice Hall: London: Financial Times.

Scarborough, B.M. and Smith, C.B. 2018. Optimal pain management for patients with cancer in the modern era. *CA: a cancer journal for clinicians*. **68**(3), pp.182-196.

Schembri, E. 2019. Are Opioids Effective in Relieving Neuropathic Pain? *SN Comprehensive Clinical Medicine*. **1**(1), pp.30-46.

Schenker, Y., Hamm, M., Bulls, H.W., Merlin, J.S., Wasilko, R., Dawdani, A., Kenkre, B., Belin, S. and Sabik, L.M. 2021a. This Is a Different Patient Population: Opioid Prescribing Challenges for Patients With Cancer-Related Pain. *JCO Oncology Practice*. **17**(7), pp.e1030-e1037.

Schenker, Y., Hamm, M., Bulls, H.W., Merlin, J.S., Wasilko, R., Dawdani, A., Kenkre, B., Belin, S. and Sabik, L.M. 2021b. This Is a Different Patient Population: Opioid Prescribing Challenges for Patients With Cancer-Related Pain. *JCO Oncol Pract*. **17**(7), pp.e1030-e1037.

Scher, C., Petti, E., Meador, L., Van Cleave, J.H., Liang, E. and Reid, M.C. 2020. Multidimensional Pain Assessment Tools for Ambulatory and Inpatient Nursing Practice. *Pain Management Nursing*. **21**(5), pp.416-422.

Scholz, J., Finnerup, N.B., Attal, N., Aziz, Q., Baron, R., Bennett, M.I., Benoliel, R., Cohen, M., Cruccu, G., Davis, K.D., Evers, S., First, M., Giamberardino, M.A., Hansson, P., Kaasa, S., Korwisi, B., Kosek, E., Lavand'homme, P., Nicholas, M., Nurmikko, T., Perrot, S., Raja, S.N., Rice, A.S.C., Rowbotham, M.C., Schug, S., Simpson, D.M., Smith, B.H., Svensson, P., Vlaeyen, J.W.S., Wang, S.-J., Barke, A., Rief, W., Treede, R.-D. and Group, C.C.o.t.N.P.S.I. 2019. The IASP classification of chronic pain for ICD-11: chronic neuropathic pain. *PAIN*. **160**(1), pp.53-59.

Schwab, K. 2010. *The Global Competitiveness Report 2010–2011*. Geneva: World Economic Forum.

Sedeghy, A., Mohamadian, R., Rahmani, A., Fizollah-zadeh, H., Jabarzadeh, F., Azadi, A. and Rostami, H. 2016. Nurse Attitude-Related Barriers to Effective Control of Cancer Pain among Iranian Nurses. *Asian Pacific Journal of Cancer Prevention*. **17**(4), pp.2141-2144.

Sela, R.A., Bruera, E., Conner-spady, B., Cumming, C. and Walker, C. 2002. Sensory and affective dimensions of advanced cancer pain. *Psycho-Oncology: Journal of the Psychological, Social and Behavioral Dimensions of Cancer*. **11**(1), pp.23-34.

- Sepúlveda, C., Marlin, A., Yoshida, T. and Ullrich, A. 2002. Palliative care: the World Health Organization's global perspective. *Journal of pain and symptom management*. **24**(2), pp.91-96.
- Seretny, M., Currie, G.L., Sena, E.S., Ramnarine, S., Grant, R., MacLeod, M.R., Colvin, L.A. and Fallon, M. 2014. Incidence, prevalence, and predictors of chemotherapy-induced peripheral neuropathy: A systematic review and meta-analysis. *Pain*. **155**(12), pp.2461-2470.
- Shahnazi, H., Saryazdi, H., Sharifirad, G., Hasanzadeh, A., Charkazi, A. and Moodi, M. 2012. The survey of nurse's knowledge and attitude toward cancer pain management: Application of Health Belief Model. *Journal of education and health promotion*. **1**, pp.15-15.
- Shahriary, S., Shiryazdi, S.M., Shiryazdi, S.A., Arjomandi, A., Haghighi, F., Vakili, F.M. and Mostafaie, N. 2015. Oncology nurses knowledge and attitudes regarding cancer pain management. *Asian Pac J Cancer prev*. **16**(17), pp.7501-7506.
- Shamieh, O. and Jazieh, A.-R. 2010a. Modification and Implementation of NCCN Guidelines™ on Palliative Care in the Middle East and North Africa Region. *Journal of the National Comprehensive Cancer Network*. **8**(Suppl 3), pp.S-41-S-47.
- Shamieh, O. and Jazieh, A.R. 2010b. Modification and implementation of NCCN Guidelines on palliative care in the Middle East and North Africa region. *J Natl Compr Canc Netw*. **8 Suppl 3**, pp.S41-47.
- Shapiro, S.S. and Wilk, M.B. 1965. An Analysis of Variance Test for Normality (Complete Samples). *Biometrika*. **52**(3/4), pp.591-611.
- Sharpe, N., De Veaux, R. and Velleman, P. 2015. *Business statistics*. 3rd ed ed. Boston, USA: Pearson Education.
- Sheikh, A. 1998. Death and dying--a Muslim perspective. *R Soc Med*. **91**(3), pp.138-140.
- Shenton, A.K. 2004. Strategies for ensuring trustworthiness in qualitative research projects. *Education for Information*. **22**, pp.63-75.
- Sheppard, M. 2004. *Apprsising and using social research in the human services: An itroduction for social work and health professionals*. London: the UK: Jessica Kingsley.
- Shukri, R. 2005. Status of nursing in the Arab world. *Ethnicity & disease*. **15**(1 Suppl 1), pp.S1-88.
- Siegel, R.L., Miller, K.D. and Jemal, A. 2015. Cancer statistics, 2015. *CA: A Cancer Journal for Clinicians*. **65**(1), pp.5-29.
- Silbermann, M. 2011. Current Trends in Opioid Consumption Globally and in Middle Eastern Countries. *Journal of Pediatric Hematology/Oncology*. **33**, pp.S1-S5.

Silbermann, M., Fink, R.M., Min, S.-J., Mancuso, M.P., Brant, J., Hajjar, R., Al-Alfi, N., Baider, L., Turker, I., ElShamy, K., Ghayeb, I., Al-Jadiry, M., Khader, K., Kav, S., Charalambous, H., Uslu, R., Kebudi, R., Barsela, G., Kuruku, N., Mutafoğlu, K., Ozalp-Senel, G., Oberman, A., Kisleş, L., Khleif, M., Keoppi, N., Nestoros, S., Abdalla, R.F., Rassouli, M., Morag, A., Sabar, R., Nimri, O., Al-Qadire, M., Al-Khalaileh, M., Tayyem, M., Doumit, M., Punjwani, R., Rasheed, O., Fallatah, F., Can, G., Ahmed, J. and Strode, D. 2014. Evaluating Palliative Care Needs in Middle Eastern Countries. *Journal of Palliative Medicine*. **18**(1), pp.18-25.

Silbermann, M. and Hassan, E.A. 2011. Cultural Perspectives in Cancer Care: Impact of Islamic Traditions and Practices in Middle Eastern Countries. *Journal of Pediatric Hematology/Oncology*. **33**, pp.S81-S86.

Sim, J., Saunders, B., Waterfield, J. and Kingstone, T. 2018. Can sample size in qualitative research be determined a priori? *International Journal of Social Research Methodology*. **21**(5), pp.619-634.

Size, M., Soyannwo, O. and Justins, D. 2007. Pain management in developing countries. *Anaesthesia*. **62**(s1), pp.38-43.

Smith, J. and Firth, J. 2011. Qualitative data analysis: the framework approach. *Nurse Res*. **18**(2), pp.52-62.

Smith, J.A., Flowers, P. and Larkin, M. 2009. *Interpretative phenomenological analysis: Theory, method and research*. London: SAGE.

Smith, J.A. and Shinebourne, P. 2012. Interpretative phenomenological analysis. *APA handbook of research methods in psychology, Vol 2: Research designs: Quantitative, qualitative, neuropsychological, and biological*. Washington, DC, US: American Psychological Association, pp.73-82.

Sollgruber, A., Bornemann-Cimenti, H., Szilagyi, I.-S. and Sandner-Kiesling, A. 2018. Spirituality in pain medicine: A randomized experiment of pain perception, heart rate and religious spiritual well-being by using a single session meditation methodology. *PloS one*. **13**(9), pp.e0203336-e0203336.

Sprick, P.J., Tata, B., Kelly, B. and Fitchett, G. 2020. Religious/spiritual concerns of patients with brain cancer and their caregivers. *Annals of Palliative Medicine*. **10**(1), pp.964-969.

Srisawang, P., Harun-Or-Rashid, M., Hiroşawa, T. and Sakamoto, J. 2013. Knowledge, attitudes and barriers of physicians, policy makers/regulators regarding use of opioids for cancer pain management in Thailand. *Nagoya journal of medical science*. **75**(3-4), pp.201-212.

St John, R.B. ed. 2006. *Historical Dictionary of Libya*. 4th ed. the United States of America: The Scarecrow Press, Inc.

Stannard, C. and Booth, S. 2005. *Churchill's pocketbook of pain*. 2nd ed. Oxford: Sir Michael Sobell House.

- Stern, C., Jordan, Z. and McArthur, A. 2014. Developing the review question and inclusion criteria. *AJN The American Journal of Nursing*. **114**(4), pp.53-56.
- Stevens, L. 2007. The management of chronic non-malignant pain. In: McGANN, K. ed. *Fundamental aspects of pain assessment and management*. The USA: MA Healthcare Limited, pp.63- 75.
- Stewart, J. 2014. The challenges of cancer pain assessment. *The Ulster medical journal*. **83**(1), pp.44-46.
- Strasser, F., Walker, P. and Bruera, E. 2005. Palliative pain management: when both pain and suffering hurt. *Journal of palliative care*. **21**(2), p69.
- Su, M., Lao, J., Zhang, N., Wang, J., Anderson, R.T., Sun, X. and Yao, N. 2020. Financial hardship in Chinese cancer survivors. *Cancer*. **126**(14), pp.3312-3321.
- Sulaiman, S.O.Y., Bhugra, D. and de Silva, P. 2001. Perceptions of Depression in a Community Sample in Dubai. *Transcultural Psychiatry*. **38**(2), pp.201-218.
- Sun, V., Borneman, T., Piper, B., Koczywas, M. and Ferrell, B. 2008. Barriers to pain assessment and management in cancer survivorship. *Journal of Cancer Survivorship*. **2**(1), pp.65-71.
- Sun, V.C.-Y., Borneman, T., Ferrell, B., Piper, B., Koczywas, M. and Choi, K. 2007. Overcoming Barriers to Cancer Pain Management: An Institutional Change Model. *Journal of Pain and Symptom Management*. **34**(4), pp.359-369.
- Swihart, D.L. and Martin, R.L. 2020. *Cultural Religious Competence in Clinical Practice*. [Online]. StatPearls Publishing. [Accessed 18/05/2020]. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK493216/>
- Szpytma, D., Nowak, P., Obuchowska, A., Rząca, M.S. and Węgorowski, P. 2019. Acceptance of suffering and death due to cancer in the religions of the world. *Journal of Education, Health and Sport*. **9**(12), pp.75-81.
- Tang, P.-L., Mayer, D.K., Chou, F.-H. and Hsiao, K.-Y. 2016. The Experience of Cancer Stigma in Taiwan: A Qualitative Study of Female Cancer Patients. *Archives of Psychiatric Nursing*. **30**(2), pp.204-209.
- Tangka, F.K., Trogdon, J.G., Richardson, L.C., Howard, D., Sabatino, S.A. and Finkelstein, E.A. 2010. Cancer treatment cost in the United States: has the burden shifted over time? *Cancer*. **116**(14), pp.3477-3484.
- Tarakeshwar, N., Vanderwerker, L.C., Paulk, E., Pearce, M.J., Kasl, S.V. and Prigerson, H.G. 2006. Religious coping is associated with the quality of life of patients with advanced cancer. *J Palliat Med*. **9**(3), pp.646-657.
- Teddlie, C. and Tashakkori, A. 2011. Mixed Methods Research: Contemporary Issues in an Emerging Field. In: Denzin, N.K. and Lincoln, Y.S. eds. *The SAGE Handbook of Qualitative Research*. 4th ed. Thousand Oaks, CA: Sage.

Teherani, A., Martimianakis, T., Stenfors-Hayes, T., Wadhwa, A. and Varpio, L. 2015. Choosing a Qualitative Research Approach. *Journal of graduate medical education*. **7**(4), pp.669-670.

the Registered Nurses' Association of Ontario. 2013. *Assessment and Management of Pain*. [Online]. Available from: http://rnao.ca/sites/rnao-ca/files/AssessAndManagementOfPain_15_WEB-FINAL_DEC_2.pdf

The WHO. 2018. *WHO's cancer pain ladder for adults*. [Online]. [Accessed 3rd November]. Available from: <http://www.who.int/cancer/palliative/painladder/en/>

Thin, D.H.Q., Sriraj, W., Mansor, M., Tan, K.H., Irawan, C., Kurnianda, J., Nguyen, Y.P., Ong-Cornel, A., Hadjiat, Y., Moon, H. and Javier, F.O. 2018. Patient and Physician Satisfaction with Analgesic Treatment: Findings from the Analgesic Treatment for Cancer Pain in Southeast Asia (ACE) Study. *Pain Research and Management*. **2018**, p8.

Toba, H.A., Samara, A.M. and Zyoud, S.e.H. 2019. Nurses' knowledge, perceived barriers, and practices regarding cancer pain management: a cross-sectional study from Palestine. *BMC medical education*. **19**(1), pp.167-167.

Tobin, G.A. and Begley, C.M. 2004. Methodological rigour within a qualitative framework. *Journal of Advanced Nursing*. **48**(4), pp.388-396.

Toles, M. and Barroso, J. 2014. Introduction to Qualitative Research. In: LoBiondo-Wood, G. and Haber, J. eds. *Nursing Research: Methods and Critical Appraisal for Evidence-Based Practice*. Louis, Missouri: Mosby, an imprint of Elsevier Inc.

Tong, A., Sainsbury, P. and Craig, J. 2007. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *Int J Qual Health Care*. **19**(6), pp.349-357.

Tracey, I. 2010. Getting the pain you expect: mechanisms of placebo, nocebo and reappraisal effects in humans. *Nat Med*. **16**(11), pp.1277-1283.

Treede, R.-D. 2018. The International Association for the Study of Pain definition of pain: as valid in 2018 as in 1979, but in need of regularly updated footnotes. *Pain reports*. **3**(2), pp.e643-e643.

Treede, R.D., Jensen, T.S., Campbell, J.N., Cruccu, G., Dostrovsky, J.O., Griffin, J.W., Hansson, P., Hughes, R., Nurmikko, T. and Serra, J. 2008. Neuropathic pain: redefinition and a grading system for clinical and research purposes. *Neurology*. **70**(18), pp.1630-1635.

Trescot, A.M., Datta, S., Lee, M. and Hansen, H. 2008. Opioid pharmacology. *Pain physician*. **11**(2 Suppl), pp.S133-153.

Tufekci, F.G., Ozlu, Z.K., Arslan, S. and Gumus, K. 2013. Knowledge and attitudes regarding pain management of oncology and non-oncology nurses in Turkey. *Glob Adv Res J Nur Midwifery*. **2**(1), pp.1-8.

- Tuli, F. 2010. The basis of distinction between qualitative and quantitative research in social science: reflection on ontological, epistemological and methodological perspectives. *Ethiopian Journal of Education and Sciences*. **6**(1), pp.97-108.
- Twinn, S. 1997. An exploratory study examining the influence of translation on the validity and reliability of qualitative data in nursing research. *J Adv Nurs*. **26**(2), pp.418-423.
- Tzeng, J.I., Chang, C.-C., Chang, H.-J. and Lin, C.-C. 2008. Assessing analgesic regimen adherence with the Morisky Medication Adherence Measure for Taiwanese patients with cancer pain. *Journal of pain and symptom management*. **36**(2), pp.157-166.
- Global education digest 2005: Comparing Education Statistics Across the World 2005*. Montreal, Canada.: UNESCO Institute for Statistics.
- Ung, A., Salamonson, Y., Hu, W. and Gallego, G. 2016. Assessing knowledge, perceptions and attitudes to pain management among medical and nursing students: a review of the literature. *British journal of pain*. **10**(1), pp.8-21.
- Utne, I., Småstuen, M.C. and Nyblin, U. 2018. Pain Knowledge and Attitudes Among Nurses in Cancer Care in Norway. *Journal of Cancer Education*.
- Utne, I., Småstuen, M.C. and Nyblin, U. 2019. Pain Knowledge and Attitudes Among Nurses in Cancer Care in Norway. *Journal of Cancer Education*. **34**(4), pp.677-684.
- Vaajoki, A. 2013. We have to take Pain Definition, Pain Management, and the Results of Non-pharmacological Studies Seriously. *Alternative & Integrative Medicine*. **2013**.
- Vaismoradi, M., Turunen, H. and Bondas, T. 2013. Content analysis and thematic analysis: Implications for conducting a qualitative descriptive study. *Nursing & Health Sciences*. **15**(3), pp.398-405.
- Valentine, J.C., Wilson, S.J., Rindskopf, D., Lau, T.S., Tanner-Smith, E.E., Yeide, M., LaSota, R. and Foster, L. 2017. Synthesizing Evidence in Public Policy Contexts: The Challenge of Synthesis When There Are Only a Few Studies. *Evaluation Review*. **41**(1), pp.3-26.
- Vallerand, A.H., Collins-Bohler, D., Templin, T. and Hasenau, S.M. 2007a. Knowledge of and barriers to pain management in caregivers of cancer patients receiving homecare. *Cancer Nurs*. **30**(1), pp.31-37.
- Vallerand, A.H., Collins-Bohler, D., Templin, T. and Hasenau, S.M. 2007b. Knowledge of and Barriers to Pain Management in Caregivers of Cancer Patients Receiving Homecare. *Cancer Nursing*. **30**(1), pp.31-37.
- van den Beuken-van Everdingen, M., Hochstenbach, L., Joosten, E., Tjan-Heijnen, V. and Janssen, D. 2016a. Update on Prevalence of Pain in Patients With Cancer: Systematic Review and Meta-Analysis. *J Pain Symptom Manage*. **51**(6), pp.1070-1090 e1079.

van den Beuken-van Everdingen, M.H., de Rijke, J.M., Kessels, A.G., Schouten, H.C., van Kleef, M. and Patijn, J. 2007a. Prevalence of pain in patients with cancer: a systematic review of the past 40 years. *Ann Oncol.* **18**(9), pp.1437-1449.

van den Beuken-van Everdingen, M.H.J., de Rijke, J.M., Kessels, A.G., Schouten, H.C., van Kleef, M. and Patijn, J. 2007b. Prevalence of pain in patients with cancer: a systematic review of the past 40 years. *Annals of Oncology.* **18**(9), pp.1437-1449.

Van den Beuken-van Everdingen, M.H.J., Hochstenbach, L.M.J., Joosten, E.A.J., Tjan-Heijnen, V.C.G. and Janssen, D.J.A. 2016b. Update on Prevalence of Pain in Patients With Cancer: Systematic Review and Meta-Analysis. *Journal of Pain and Symptom Management.* **51**(6), pp.1070-1090.e1079.

van Hecke, O., Austin, S.K., Khan, R.A., Smith, B.H. and Torrance, N. 2014. Neuropathic pain in the general population: a systematic review of epidemiological studies. *Pain.* **155**(4), pp.654-662.

Ventafriidda, V., De Conno, F., Ripamonti, C., Gamba, A. and Tamburini, M. 1990. Quality-of-life assessment during a palliative care programme. *Annals of oncology.* **1**(6), pp.415-420.

Videbeck, S. 2011. *Psychiatric mental health nursing.* 5th ed. Philadelphia: Lippincott Williams and Wilkins.

Von Roenn, J.H., Cleeland, C.S., Gonin, R., Hatfield, A.K. and Pandya, K.J. 1993. Physician attitudes and practice in cancer pain management: A survey from the eastern cooperative oncology group. *Annals of Internal Medicine.* **119**(2), pp.121-126.

Voscopoulos, C. and Lema, M. 2010. When does acute pain become chronic? *Br J Anaesth.* **105 Suppl 1**, pp.i69-85.

Vranken, M.J., Linge-Dahl, L., Mantel-Teeuwisse, A.K., Radbruch, L., Schutjens, M.-H.D., Scholten, W., Payne, S. and Jünger, S. 2020. The perception of barriers concerning opioid medicines: A survey examining differences between policy makers, healthcare professionals and other stakeholders. *Palliative Medicine.* **34**(4), pp.493-503.

Waldhoer, M., Bartlett, S.E. and Whistler, J.L. 2004. Opioid receptors. *Annu Rev Biochem.* **73**, pp.953-990.

Ward, S.E., Goldberg, N., Miller-McCauley, V., Mueller, C., Nolan, A., Pawlik-Plank, D., Robbins, A., Stormoen, D. and Weissman, D.E. 1993. Patient-related barriers to management of cancer pain. *Pain.* **52**(3), pp.319-324.

Watson, J.C. and Sandroni, P. 2016. Central Neuropathic Pain Syndromes. *Mayo Clin Proc.* **91**(3), pp.372-385.

Watson, M., O'Reilly, K. and Simon, C. 2010. *Pain and Palliation.* 1 ed. Oxford: Oxford University Press.

WBG. 2020. *Population; total*. [Online]. [Accessed 31st August]. Available from: <https://data.worldbank.org/indicator/SP.POP.TOTL?end=2018&start=1960>

Weaver, K.E., Rowland, J.H., Bellizzi, K.M. and Aziz, N.M. 2010. Forgoing medical care because of cost: assessing disparities in healthcare access among cancer survivors living in the United States. *Cancer*. **116**(14), pp.3493-3504.

Weiss, G. and Wodak, R. 2007. *Critical discourse analysis*. London: Springer.

Weiss, J., Yang, H., Weiss, S., Rigney, M., Copeland, A., King, J.C. and Deal, A.M. 2017. Stigma, self-blame, and satisfaction with care among patients with lung cancer. *J Psychosoc Oncol*. **35**(2), pp.166-179.

Wells, M., Dryden, H., Guild, P., Levack, P., Farrer, K. and Mowat, P. 2001. The knowledge and attitudes of surgical staff towards the use of opioids in cancer pain management: can the Hospital Palliative Care Team make a difference? *European Journal of Cancer Care*. **10**(3), pp.201-211.

Wells, M., Dryden, H., Guild, P., Levack, P., Farrer, K. and Mowat, P. 2002. The knowledge and attitudes of surgical staff towards the use of opioids in cancer pain management: can the Hospital Palliative Care Team make a difference? *European Journal of Cancer Care*. **10**(3), pp.201-211.

Wells, N. 2000. Pain intensity and pain interference in hospitalized patients with cancer. *Oncol Nurs Forum*. **27**(6), pp.985-991.

WHA. 2014. *Strengthening of palliative care as a component of comprehensive care throughout the life course*. [Online]. [Accessed 19 September]. Available from: https://apps.who.int/gb/ebwha/pdf_files/WHA67/A67_R19-en.pdf?ua=1

WHO. 2000. *Narcotic and psychotropic drugs : achieving balance in national opioids control policy : guidelines for assessment*. [Online]. [Accessed 28th May]. Available from: <http://www.who.int/iris/handle/10665/66496>

WHO. 2003. *Adherence to long-term therapies evidence for action*. [Online]. [Accessed 16 December]. Available from: https://www.who.int/chp/knowledge/publications/adherence_full_report.pdf

WHO. 2007a. *Health System Profile: Libya*. [Online]. [Accessed 11th June]. Available from: <http://apps.who.int/medicinedocs/documents/s17302e/s17302e.pdf>

WHO. 2007b. *Health System Profile: Libya. Eastern Mediterranean Regional Health Systems Observatory*. **2018**.

WHO. 2010a. *Country cooperation strategy for WHO and Libya: 2010–2015. Regional Office for the Eastern Mediterranean*. **2018**.

WHO. 2010b. *Country cooperation strategy for WHO and Libya: 2010–2015*. [Online]. [Accessed 14th June]. Available from: http://apps.who.int/iris/bitstream/handle/10665/113220/CCS_Libya_2010_EN_14484.pdf?sequence=1&isAllowed=y

WHO. 2011. *Country Cooperation Strategy for WHO and the Libyan Arab Jamahiriya 2010–2015*. Cairo.

WHO. 2012. *Rebuilding the Libyan health system, post-revolution*. [Online]. [Accessed 27th June]. Available from: http://www.who.int/features/2012/libya_health_system/en/

WHO. 2014. *Strengthening of palliative care as a component of integrated treatment within the continuum of care: Draft resolution proposed by Australia, Chile, Colombia, Ghana, Libya, Malaysia, Panama, South Africa, Spain, Switzerland, Turkey and United States of America*. [Online]. [Accessed 30th October]. Available from: <http://www.who.int/iris/handle/10665/172993>

WHO. 2018a. *Cancer: Key facts*. [Online]. [Accessed 7th May]. Available from: <http://www.who.int/en/news-room/fact-sheets/detail/cancer>

WHO. 2018b. *Palliative Care: Key facts*. [Online]. [Accessed 27th July]. Available from: <https://www.who.int/news-room/fact-sheets/detail/palliative-care>

WHO. 2018c. *WHO's cancer pain ladder for adults*. [Online]. [Accessed 3rd November]. Available from: <http://www.who.int/cancer/palliative/painladder/en/>

WHO. 2019. *WHO Guidelines for the pharmacological and radiotherapeutic management of cancer pain in adults and adolescents*. [Online]. Available from: <https://www.who.int/ncds/management/palliative-care/cancer-pain-guidelines/en/>

WHO. 2020a. *Cancer: Key facts*. [Online]. [Accessed 21st July]. Available from: <https://www.who.int/news-room/fact-sheets/detail/cancer>

WHO. 2020b. *Palliative Care*. [Online]. [Accessed 07th October]. Available from: <https://www.who.int/news-room/fact-sheets/detail/palliative-care>

WHO. 2020c. *Palliative Care: Key facts*. [Online]. [Accessed 03rd April]. Available from: <https://www.who.int/news-room/fact-sheets/detail/palliative-care>

WHO. 2020d. *WHO's cancer pain ladder for adults*. [Online]. [Accessed 20th April]. Available from: <https://www.who.int/cancer/palliative/painladder/en/>

WHO. 2021. *Cancer: Key facts*. [Online]. [Accessed 03 April]. Available from: <https://www.who.int/news-room/fact-sheets/detail/cancer>

WHO and IARC. 2019a. *Algeria: Globocan 2018*. [Online]. [Accessed 31st August]. Available from: <https://gco.iarc.fr/today/data/factsheets/populations/12-algeria-fact-sheets.pdf>

WHO and IARC. 2019b. *Egypt: Globocan 2018*. [Online]. [Accessed 31st August]. Available from: <https://gco.iarc.fr/today/data/factsheets/populations/818-egypt-fact-sheets.pdf>

WHO and IARC. 2019c. *Libya: Estimated age-standardized incidence rates (World) in 2018, all cancers, both sexes, all ages. Cancer Today. 2019.*

WHO and IARC. 2019d. *Libya: Globocan 2018*. [Online]. [Accessed 04.10]. Available from: <http://gco.iarc.fr/today/data/factsheets/populations/434-libya-fact-sheets.pdf>

WHO and IARC. 2019e. *Morocco: Globocan 2018*. [Online]. [Accessed 31st August]. Available from: <https://gco.iarc.fr/today/data/factsheets/populations/504-morocco-fact-sheets.pdf>

WHO and IARC. 2019f. *Tunisia: Globocan 2018*. [Online]. [Accessed 31st August]. Available from: <https://gco.iarc.fr/today/data/factsheets/populations/788-tunisia-fact-sheets.pdf>

WHO and IARC. 2019g. *United Kingdom: Globocan 2018*. [Online]. [Accessed 03ed September]. Available from: <https://gco.iarc.fr/today/data/factsheets/populations/826-united-kingdom-fact-sheets.pdf>

WHO and IARC. 2019h. *World: Globocan 2018*. [Online]. [Accessed 2nd September]. Available from: <https://gco.iarc.fr/today/data/factsheets/populations/900-world-fact-sheets.pdf>

Wiffen, P.J., Wee, B. and Moore, R.A. 2016. Oral morphine for cancer pain. *Cochrane Database of Systematic Reviews*. (4).

Willems, A., Kudrashou, A.F., Theunissen, M., Hoeben, A. and Van den Beuken-Van Everdingen, M.H.J. 2021. Measuring pain in oncology outpatients: Numeric Rating Scale versus acceptable/non acceptable pain. A prospective single center study. *Pain Pract.* **21**(8), pp.871-876.

Willig, C. 2013. *Introducing qualitative research in psychology*. 3rd ed. Maidenhead: England: Open University Press.

Wilson, S. and MacLean, R. 2011. *Research methods and data analysis for psychology*. New York, USA: McGraw-Hill Education.

Wittenberg-Lyles, E., Demiris, G., Oliver, D.P. and Burt, S. 2011. Reciprocal suffering: caregiver concerns during hospice care. *J Pain Symptom Manage.* **41**(2), pp.383-393.

Worldatlas. 2018a. *Where is Libya?* [Online]. [Accessed 31st May]. Available from: <https://www.worldatlas.com/af/ly/where-is-libya.html>

Worldatlas. 2018b. *World Map: Libya*. [Online]. [Accessed 7th June]. Available from: <https://www.worldatlas.com/webimage/countrys/africa/ly.htm>

Xhixha, A., Rama, R. and Radbruch, L. 2013. Reducing the barriers to pain management in Albania: results from an educational seminar with family doctors. *J Palliat Med.* **16**(7), pp.758-761.

Xue, Y., Schulman-Green, D., Czaplinski, C., Harris, D. and McCorkle, R. 2007. Pain attitudes and knowledge among RNs, pharmacists, and physicians on an inpatient oncology service. *Clin J Oncol Nurs.* **11**(5), pp.687-695.

Yabroff, K.R., Dowling, E.C., Guy, G.P., Jr., Banegas, M.P., Davidoff, A., Han, X., Virgo, K.S., McNeel, T.S., Chawla, N., Blanch-Hartigan, D., Kent, E.E., Li, C., Rodriguez, J.L., de Moor, J.S., Zheng, Z., Jemal, A. and Ekwueme, D.U. 2016. Financial Hardship Associated With Cancer in the United States: Findings From a Population-Based Sample of Adult Cancer Survivors. *J Clin Oncol.* **34**(3), pp.259-267.

Yabroff, K.R. and Kim, Y. 2009. Time costs associated with informal caregiving for cancer survivors. *Cancer.* **115**(18 Suppl), pp.4362-4373.

Yamagishi, A., Morita, T., Miyashita, M., Igarashi, A., Akiyama, M., Akizuki, N., Shirahige, Y. and Eguchi, K. 2012a. Pain intensity, quality of life, quality of palliative care, and satisfaction in outpatients with metastatic or recurrent cancer: a Japanese, nationwide, region-based, multicenter survey. *Journal of pain and symptom management.* **43**(3), pp.503-514.

Yamagishi, A., Morita, T., Miyashita, M., Igarashi, A., Akiyama, M., Akizuki, N., Shirahige, Y. and Eguchi, K. 2012b. Pain intensity, quality of life, quality of palliative care, and satisfaction in outpatients with metastatic or recurrent cancer: a Japanese, nationwide, region-based, multicenter survey. *J Pain Symptom Manage.* **43**(3), pp.503-514.

Yang, Y.P., Ma, Y.X., Huang, Y., Zhao, Y.Y., Xu, F., Tian, Y., Zou, B.Y., Gao, R.Z. and Zhang, L. 2014. The good pain management (GPM) ward program in China and its impact on Chinese cancer patients: the SYSUCC experience. *Chin J Cancer.* **33**(7), pp.323-329.

YanJun, S., Changli, W., Ling, W., Woo, J.C., Sabrina, K., Chang, L. and Lei, Z. 2010a. A survey on physician knowledge and attitudes towards clinical use of morphine for cancer pain treatment in China. *Support Care Cancer.* **18**(11), pp.1455-1460.

YanJun, S., Changli, W., Ling, W., Woo, J.C.A.-I., Sabrina, K., Chang, L. and Lei, Z. 2010b. A survey on physician knowledge and attitudes towards clinical use of morphine for cancer pain treatment in China. *Supportive Care in Cancer.* **18**(11), pp.1455-1460.

Yates, J.S., Mustian, K.M., Morrow, G.R., Gillies, L.J., Padmanaban, D., Atkins, J.N., Issell, B., Kirshner, J.J. and Colman, L.K. 2005. Prevalence of complementary and alternative medicine use in cancer patients during treatment. *Support Care Cancer.* **13**(10), pp.806-811.

Yates, P., Aranda, S., Edwards, H. and Nash, R. 2004a. Family caregivers' experiences and involvement with cancer pain management. *Journal of Palliative Care.* **20**(4), p287.

Yates, P., Aranda, S., Edwards, H., Nash, R., Skerman, H. and McCarthy, A. 2004b. Family Caregivers' Experiences and Involvement with Cancer Pain Management. *Journal of Palliative Care.* **20**(4), pp.287-296.

Yates, P.M., Edwards, H.E., Nash, R.E., Walsh, A.M., Fentiman, B.J., Skerman, H.M. and Najman, J.M. 2002. Barriers to effective cancer pain management: a survey of hospitalized cancer patients in Australia. *Journal of Pain and Symptom Management.* **23**(5), pp.393-405.

- Yildirim, Y.K., Cicek, F. and Uyar, M. 2008. Knowledge and Attitudes of Turkish Oncology Nurses About Cancer Pain Management. *Pain Management Nursing*. **9**(1), pp.17-25.
- Yousif, H.M., Goujon, A. and Lutz, W. 1996. Future population and education trends in the countries of North Africa.
- Youssef, S. 2006. *Total Quality Management Framework for Libyan Process and Manufacturing Industries*. PhD thesis, Cranfield University.
- Yvonne Feilzer, M. 2010. Doing Mixed Methods Research Pragmatically: Implications for the Rediscovery of Pragmatism as a Research Paradigm. *Journal of Mixed Methods Research*. **4**(1), pp.6-16.
- Zafar, S.Y., Peppercorn, J.M., Schrag, D., Taylor, D.H., Goetzinger, A.M., Zhong, X. and Abernethy, A.P. 2013. The financial toxicity of cancer treatment: a pilot study assessing out-of-pocket expenses and the insured cancer patient's experience. *Oncologist*. **18**(4), pp.381-390.
- Zech, D.F.J., Grond, S., Lynch, J., Hertel, D. and Lehmann, K.A. 1995. Validation of World Health Organization Guidelines for cancer pain relief: a 10-year prospective study. *Pain*. **63**(1), pp.65-76.
- Zeppetella, G. and Davies, A.N. 2013. Opioids for the management of breakthrough pain in cancer patients. *Cochrane Database of Systematic Reviews*. (10).
- Zhang, Q., Yu, C., Feng, S., Yao, W., Shi, H., Zhao, Y. and Wang, Y. 2015. Physicians' Practice, Attitudes Toward, and Knowledge of Cancer Pain Management in China. *Pain Medicine*. **16**(11), pp.2195-2203.
- Zhang, Y., Hueser, H.C. and Hernandez, I. 2017. Comparing the Approval and Coverage Decisions of New Oncology Drugs in the United States and Other Selected Countries. *J Manag Care Spec Pharm*. **23**(2), pp.247-254.
- Zikmund, W.G., Babin, B.J., Carr, J.C. and Griffin, M. 2013. *Business research methods*. 9th ed. New York, USA: Cengage Learning.
- Zuccaro, S.M., Vellucci, R., Sarzi-Puttini, P., Cherubino, P., Labianca, R. and Fornasari, D. 2012. Barriers to pain management : focus on opioid therapy. *Clin Drug Investig*. **32 Suppl 1**, pp.11-19.

Appendix 1

Search strategy for six databases



CINAHL search screen strategy

Search ID #	Search Terms	Results
S17	(adult*) AND (S3 AND S7 AND S10 AND S15 AND S16)	243
S16	adult*	688,224
S15	(morphine* OR opium* OR opioid* OR opiate* OR buprenorphine* OR codeine* OR diamorphine* OR dihydrocodeine* OR alfentanil* OR fentanyl* OR oxycodone* OR hydromorphone*) AND (S11 OR S12 OR S13 OR S14)	25,776
S14	morphine* OR opium* OR opioid* OR opiate* OR buprenorphine* OR codeine* OR diamorphine* OR dihydrocodeine* OR alfentanil* OR fentanyl* OR oxycodone* OR hydromorphone*	25,776
S13	(MH "Narcotics+")	21,162
S12	(MH "Morphine+")	8,891
S11	(MH "Analgesics+")	27,283
S10	(cancer* OR tumor* OR carcinoma* OR leuk?emia* OR metasta* OR lymphoma* OR melanoma* OR oncolog*) AND (S8 OR S9)	270,901
S9	cancer* OR tumor* OR carcinoma* OR leuk?emia* OR metasta* OR lymphoma* OR melanoma* OR oncolog*	270,901
S8	(MH "Neoplasms+")	246,112
S7	(pain*) AND (S4 OR S5 OR S6)	173,267
S6	pain*	173,267
S5	(MM "Pain Management")	1,101
S4	(MH "Pain+")	119,800
S3	(standpoint* OR expectation* OR preference* OR need* OR satisfaction* OR interaction*) AND (S1 OR S2)	496,987
S2	standpoint* OR expectation* OR preference* OR need* OR satisfaction* OR interaction*	496,987
S1	view* OR opinion* OR attitude* OR concern* OR belief* OR feeling* OR idea* OR perception* OR perspective* OR experience* OR knowledge* OR perceive*	715,761

PsycINFO Search Strategy

1-	adult .*.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures]	462957
2-	(view * or opinion* or attitude* or concern* or belief* or feeling* or idea* or perception* or perspective* or experience* or knowledge* or perceive* or standpoint* or expectation* or preference* or need* or satisfaction* or interaction*).sf.	3153834
3-	exp PAIN/	53046
4-	exp Pain Management/	8721
5-	pain .*.mp. [mp=title, abstract, heading word, table of contents, key concepts, original title, tests & measures]	107982
6-	3 or 4 or 5	118006
7-	exp NEOPLASMS/	47152
8-	(cancer * or tumor * or carcinoma* or leuk?emia * or metasta * or lymphoma* or melanoma* or oncolog *).sf.	249091
9-	7 or 8	249742
10-	exp ANALGESIC DRUGS/	18265
11-	exp MORPHINE/	6650
12-	exp NARCOTIC DRUGS/	27313
13-	(morphine * or opium* or opioid* or opiate* or buprenorphine* or codeine* or diamorphine* or dihydrocodeine * or alfentanil * or fentanyl* or oxycodone* or hydromorphine *).sf.	94933
14-	10 or 11 or 12 or 13	103192
15-	1 and 2 and 6 and 9 and 14	647

EMBASE search strategy

1-	(view * or opinion* or attitude* or concern* or belief* or feeling* or des * or perception* or perspective* or experience* or knowledge* or perceive* or standpoint* or expectation* or preference* or need* or satisfaction* or interaction*).af.	7062565	Ac
2-	exp.pain/	1012089	
3-	pain *.mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword, floating subheading word, candidate term word]	1015525	
4-	2 or 3	1254670	
5-	exp.neoplasm/	3087277	
6-	(cancer * or tumor * or carcinoma* or leuk?emia* or metasta * or lymphoma* or melanoma* or oncolog *).af.	4280648	
7-	5 or 6	4482350	
8-	exp.analgesic agent/	598302	
9-	exp.morphine/	60583	
10-	exp.narcotic agent/	172089	
11-	(morphine * or opium* or opioid* or opiate* or buprenorphine* or codeine* or diamorphine* or dihydrocodeine * or alfentanil * or fentanyl* or oxycodone* or hydromorphine *).af.	218527	
12-	8 or 9 or 10 or 11	639968	
13-	adult *.mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword, floating subheading word, candidate term word]	5322545	
14-	1 and 4 and 7 and 12 and 13	7241	
15-	limit 14 to (human and male and female and english language and embase and english , and article and journal and adult <18 to 64 years>)	2947	

Cochrane Search Strategy

ID	Search Teams	Results
#1	view* or opinion* or attitude* or concern* or belief* or feeling* or idea* or perception* or perspective* or experience* or knowledge* or perceive* or standpoint* or expectation* or preference* or need* or satisfaction* or interaction*	359578
#2	pain*	139399
#3	MeSH descriptor: [Pain] explode all trees	45245
#4	MeSH descriptor: [Pain Management] explode all trees	2999
#5	#2 or #3 or #4	145313
#6	MeSH descriptor: [Neoplasms] explode all trees	78711
#7	cancer* or tumor* or carcinoma* or leuk?emia* or metasta* or lymphoma* or melanoma* or oncolog*	183110
#8	#6 or #7	191862
#9	MeSH descriptor: [Analgesics] explode all trees	20074
#10	MeSH descriptor: [Morphine] explode all trees	4599
#11	MeSH descriptor: [Narcotics] explode all trees	7750
#12	morphine* or opium* or opioid* or opiate* or buprenorphine* or codeine* or diamorphine* or dihydrocodeine* or alfentanil* or fentanyl* or oxycodone* or hydromorphine*	37382
#13	#9 or #10 or #11 or #12	48210
#14	adult*	532482
#15	#1 and #5 and #8 and #13 and #14	1090

MEDLINE Search strategy

Search terms	Results
1- (view * or opinion * or attitude * or concern * or belief * or feeling * or idea * or perception * or perspective * or experience * or knowledge * or perceive * or standpoint * or expectation * or preference * or need * or satisfaction * or interaction *) .af (4960401)	
2- exp PAIN/	(360610)
3- exp pain management/	(28230)
4- pain*	(608567)
5- 2 or 3 or 4	(683477)
6- Exp neoplasms/	(3061130)
7- (cancer * or tumor * or carcinoma * or leuk?emia * or metasta * or lymphoma * or melanoma * or oncolog *) .af (3309961)	
8- 6 or 7	(3925212)
9- exp Analgesics/	(495873)
10- exp morphine/	(36852)
11- exp narcotics/	(112857)
12- (morphine * or opium * or opioid * or opiate * or buprenorphine * or codeine * or diamorphine * or dihydrocodeine * or alfentanil * or fentanyl * or oxycodone * or hydromorphine *) .af (149692)	
13- 9 or 10 or 11 or 12	(544246)
14-adult*	(5229241)
15- 1 and 5 and 8 and 13 and 14	(1864)

Web of Science Search strategy

Search History					
Set	Results	Save History / Create Alert / Open Saved History	Edit Sets	Combine Sets	Delete Sets
			<input type="checkbox"/>	AND <input type="checkbox"/> OR <input type="checkbox"/>	Select All Delete
# 40	2,598	#39 AND #29 AND #26 AND #12 AND #5 <i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI</i> <i>Timespan=All years</i>	Edit	<input type="checkbox"/>	<input type="checkbox"/>
# 39	3,690,512	#38 OR #37 OR #36 OR #35 OR #34 OR #33 OR #32 OR #31 OR #30 <i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI</i> <i>Timespan=All years</i>	Edit	<input type="checkbox"/>	<input type="checkbox"/>
# 38	164,157	TOPIC: (oncolog*) <i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI</i> <i>Timespan=All years</i>	Edit	<input type="checkbox"/>	<input type="checkbox"/>
# 37	148,960	TOPIC: (melanoma*) <i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI</i> <i>Timespan=All years</i>	Edit	<input type="checkbox"/>	<input type="checkbox"/>
# 36	208,282	TOPIC: (lymphoma*) <i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI</i> <i>Timespan=All years</i>	Edit	<input type="checkbox"/>	<input type="checkbox"/>
# 35	498,998	TOPIC: (malignan*) <i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI</i> <i>Timespan=All years</i>	Edit	<input type="checkbox"/>	<input type="checkbox"/>
# 34	528,796	TOPIC: (metasta*) <i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI</i> <i>Timespan=All years</i>	Edit	<input type="checkbox"/>	<input type="checkbox"/>
# 33	29,097	TOPIC: (leukemia*) <i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI</i> <i>Timespan=All years</i>	Edit	<input type="checkbox"/>	<input type="checkbox"/>
# 32	841,643	TOPIC: (carcinoma*) <i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI</i> <i>Timespan=All years</i>	Edit	<input type="checkbox"/>	<input type="checkbox"/>

<i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI</i> <i>Timespan=All years</i>			
# 31 1,600,248 TOPIC: (lung*) <i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI</i> <i>Timespan=All years</i>	Edit	<input type="checkbox"/>	<input type="checkbox"/>
# 30 2,150,502 TOPIC: (Cancer*) <i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI</i> <i>Timespan=All years</i>	Edit	<input type="checkbox"/>	<input type="checkbox"/>
# 29 658,408 #28 OR #27 <i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI</i> <i>Timespan=All years</i>	Edit	<input type="checkbox"/>	<input type="checkbox"/>
# 28 92,793 TOPIC: (pain management*) <i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI</i> <i>Timespan=All years</i>	Edit	<input type="checkbox"/>	<input type="checkbox"/>
# 27 658,408 TOPIC: (pain*) <i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI</i> <i>Timespan=All years</i>	Edit	<input type="checkbox"/>	<input type="checkbox"/>
# 26 6,073,162 #25 OR #24 OR #23 OR #22 OR #21 OR #20 OR #19 OR #18 OR #17 OR #16 OR #15 OR #14 OR #13 <i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI</i> <i>Timespan=All years</i>	Edit	<input type="checkbox"/>	<input type="checkbox"/>
# 25 24,716 TOPIC: (standpoint*) <i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI</i> <i>Timespan=All years</i>	Edit	<input type="checkbox"/>	<input type="checkbox"/>
# 24 319,377 TOPIC: (perceive*) <i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI</i> <i>Timespan=All years</i>	Edit	<input type="checkbox"/>	<input type="checkbox"/>
# 23 1,172,275 TOPIC: (knowledge*) <i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI</i> <i>Timespan=All years</i>	Edit	<input type="checkbox"/>	<input type="checkbox"/>
# 22 1,481,238 TOPIC: (experience*) <i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI</i> <i>Timespan=All years</i>	Edit	<input type="checkbox"/>	<input type="checkbox"/>
# 21 752,315 TOPIC: (perspective*) <i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI</i> <i>Timespan=All years</i>	Edit	<input type="checkbox"/>	<input type="checkbox"/>

<i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI</i>			
<i>Timespan=All years</i>			
# 20	496,299	TOPIC: (perception*)	Edit <input type="checkbox"/> <input type="checkbox"/>
<i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI</i>			
<i>Timespan=All years</i>			
# 19	759,535	TOPIC: (idea*)	Edit <input type="checkbox"/> <input type="checkbox"/>
<i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI</i>			
<i>Timespan=All years</i>			
# 18	78,344	TOPIC: (feeling*)	Edit <input type="checkbox"/> <input type="checkbox"/>
<i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI</i>			
<i>Timespan=All years</i>			
# 17	170,183	TOPIC: (belief*)	Edit <input type="checkbox"/> <input type="checkbox"/>
<i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI</i>			
<i>Timespan=All years</i>			
# 16	977,886	TOPIC: (concern*)	Edit <input type="checkbox"/> <input type="checkbox"/>
<i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI</i>			
<i>Timespan=All years</i>			
# 15	314,379	TOPIC: (attitude*)	Edit <input type="checkbox"/> <input type="checkbox"/>
<i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI</i>			
<i>Timespan=All years</i>			
# 14	147,361	TOPIC: (opinion*)	Edit <input type="checkbox"/> <input type="checkbox"/>
<i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI</i>			
<i>Timespan=All years</i>			
# 13	985,752	TOPIC: (View*)	Edit <input type="checkbox"/> <input type="checkbox"/>
<i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI</i>			
<i>Timespan=All years</i>			
# 12	152,087	#11 OR #10 OR #9 OR #8 OR #7 OR #6	Edit <input type="checkbox"/> <input type="checkbox"/>
<i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI</i>			
<i>Timespan=All years</i>			
# 11	27,343	TOPIC: (opiate*)	Edit <input type="checkbox"/> <input type="checkbox"/>
<i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI</i>			
<i>Timespan=All years</i>			
# 10	1	TOPIC: (pauim*)	Edit <input type="checkbox"/> <input type="checkbox"/>

<i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI</i>			
<i>Timespan=All years</i>			
# 9	60,482	TOPIC: (morphine*)	Edit <input type="checkbox"/> <input type="checkbox"/>
<i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI</i>			
<i>Timespan=All years</i>			
# 8	60,482	TOPIC: (morphine*)	Edit <input type="checkbox"/> <input type="checkbox"/>
<i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI</i>			
<i>Timespan=All years</i>			
# 7	86,329	TOPIC: (opioid*)	Edit <input type="checkbox"/> <input type="checkbox"/>
<i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI</i>			
<i>Timespan=All years</i>			
# 6	24,522	TOPIC: (Analgesics*)	Edit <input type="checkbox"/> <input type="checkbox"/>
<i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI</i>			
<i>Timespan=All years</i>			
# 5	7,178,014	#4 OR #3 OR #2 OR #1	Edit <input type="checkbox"/> <input type="checkbox"/>
<i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI</i>			
<i>Timespan=All years</i>			
# 4	1,352,463	TOPIC: (old*)	Edit <input type="checkbox"/> <input type="checkbox"/>
<i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI</i>			
<i>Timespan=All years</i>			
# 3	287,873	TOPIC: (elder*)	Edit <input type="checkbox"/> <input type="checkbox"/>
<i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI</i>			
<i>Timespan=All years</i>			
# 2	1,383,663	TOPIC: (Adult*)	Edit <input type="checkbox"/> <input type="checkbox"/>
<i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI</i>			
<i>Timespan=All years</i>			
# 1	5,315,469	TOPIC: (Patient*)	Edit <input type="checkbox"/> <input type="checkbox"/>
<i>Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI</i>			
<i>Timespan=All years</i>			

Appendix 2

Data Extraction Form

Data extraction form		
<u>General information</u>	<u>Extracted data</u>	<u>Comments</u>
First author		
Article title		
Year of study		
Country		
Type of publication		
<u>Study characteristics</u>		
Study design	<input checked="" type="checkbox"/> Cross-sectional <input type="checkbox"/> Cohort <input type="checkbox"/> Case-Control <input type="checkbox"/> Qualitative <input type="checkbox"/> mixed methods	
Study aim		
Study setting		
Inclusion criteria		
Exclusion criteria		
Type of sample	Professionals or cancer patients or caregivers, or the general public.	
Measurements		
<u>Participant characteristics</u>		
Number of participants		
Type of conditions		
Mean age		
Range of age		
Gender		
<u>Study outcomes</u>		
Attitudes	Attitudes and knowledge towards cancer pain management Professionals, patients with cancer, caregivers, general public	
Knowledge	Professionals, patients with cancer, caregivers, general public	
<u>Other relevant findings</u>		

Appendix 3

The JBI-ACSSA tool

The Joanna Briggs Institute Analytical Cross-Sectional Studies Assessment (JBI-ACSSA) tool.

JBI Critical Appraisal Checklist for Analytical Cross Sectional Studies

Reviewer..... Date.....

AuthorYear..... Record Number.....

	Yes	No	Unclear	Not <u>applicable</u>
1. Were the criteria for inclusion in the sample clearly defined?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Were the study subjects and the setting described in detail?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Was the exposure measured in a valid and reliable way?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Were objective, standard criteria used for measurement of <u>the condition?</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. <u>Were</u> confounding factors identified?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Were strategies to deal with confounding factors stated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Were the outcomes measured in a valid and reliable way?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Was appropriate statistical analysis used?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overall appraisal:	Include <input type="checkbox"/>	Exclude <input type="checkbox"/>	Seek further info <input type="checkbox"/>	
Comments (Including reason for exclusion)				
<hr/>				

Appendix 4
Appraisal quality of 36 included
studies

	Methodological items based on JBI-ACSSA tool								Score
	1	2	3	4	5	6	7	8	
Author (s), year, and Country	Inclusion Criteria defined?	Subjects and setting described in detail?	Exposure measured reliable/valid ?	Measurement of condition Standard?	Confounding factors identified?	Confounding factors addressed?	Outcomes Measured in a valid way?	Statistical analyses appropriate?	
Bernardi et al., (2007) . Italy.	+	+	N/A	+	+	+	-	+	6/7
Breuer et al., (2011) . New York, the US.	+	+	N/A	+	-	-	-	+	6/7
Cohen et al., (2005) . Israel.	+	+	N/A	+	+	+	+	+	7/7
Colak et al., (2014) . Turkey.	+	+	N/A	+	+	+	-	+	6/7
Darawad et al., (2017) . Jordan.	+	+	N/A	+	-	-	+	+	5/7
Eftekhar et al., (2007) . Iran.	+	+	N/A	+	-	-	-	+	4/7
Elliott et al., (1996) . The US.	+	+	N/A	+	-	-	-	+	6/7
Elliott et al., (1992) . State of Minnesota, the US.	+	+	N/A	+	+	+	+	+	7/7
Elliott et al., (1995) . The US.	+	+	N/A	+	-	-	+	+	7/7
Furstenberg et al., (1998) . State of new Hampshire, the US.	+	+	N/A	+	+	+	-	+	6/7
Gallagher et al., (2004) . British Columbia.	+	+	N/A	+	+	+	-	+	6/7
Ger et al., (2000) . Taiwan	+	+	N/A	+	+	+	-	+	6/7
Hollen et al., (2000) . South Central State. The US.	+	+	N/A	+	-	-	+	+	5/7
Jeon et al., (2007) . Korea.	+	+	N/A	+	+	+	-	+	6/7
Jho et al., (2014) . Korea.	+	+	N/A	+	+	+	-	+	6/7
Kaki, (2011) . Saudi Arabia.	+	+	N/A	+	-	-	-	+	4/7
Kassa and Kassa, (2014) . Ethiopia.	+	+	N/A	+	+	-	+	+	6/7
Kim et al., (2011) . South Korea.	+	+	N/A	+	+	+	+	+	7/7
Kuzeyli Yildirim et al., (2008) . Turkey.	+	+	N/A	+	-	-	+	+	7/7

Larue et al., (1995). France.	+	+	N/A	+	-	-	-	+	4/7
Larue et al., (1999). France.	+	+	N/A	+	+	+	-	+	6/7
Levin et al., (1985). Wisconsin, the US.	+	+	N/A	+	-	-	-	+	4/7
Lin et al., (2000). Taiwan.	+	+	N/A	+	+	+	+	+	7/7
Lou and Shang, (2017). China.	+	+	N/A	+	+	+	+	+	7/7
McCaffery and Ferrell, (1995). Australia, Canada, Japan, Spain, and the US.	+	+	N/A	+	-	-	-	-	3/7
O'Brien et al., (1996). North Carolina, the US.	+	+	N/A	+	-	-	+	+	7/7
Riddell and Fitch, (1997). Canada.	+	+	N/A	+	-	-	+	+	5/7
Shahnazi et al., (2012). Iran.	+	+	N/A	+	+	+	-	+	6/7
Shahriary et al., (2015). Iran.	+	+	N/A	+	-	-	+	+	5/7
Srisawang et al., (2013). Thailand.	+	+	N/A	+	+	+	-	+	6/7
Utne et al., (2018). Norway.	+	+	N/A	+	+	+	+	+	7/7
Vallerand et al., (2007). Detroit.	+	+	N/A	+	+	+	+	+	7/7
Von Roenn et al., (1993). The US.	+	+	N/A	+	+	+	+	+	7/7
Wells et al., (2001). Scotland, the UK.	+	+	N/A	+	-	-	-	+	4/7
Yanjuan et al., (2010). China.	+	+	N/A	+	+	+	-	+	6/7
Zhang et al., (2015). China.	+	+	N/A	+	-	-	-	+	4/7

Note: + indicates satisfies criteria, - indicated does not satisfy criteria, N/A = Data Not Available.

Source: Adapted from (Poudel et al. 2018).

POUDEL, P., R. GRIFFITHS, V. W. WONG, A. ARORA, J. R. FLACK, C. L. KHOO and A. GEORGE. 2018. Oral health knowledge, attitudes and care practices of people with diabetes: a systematic review. *BMC public health*, 18(1), p577.

Appendix 5

List of excluded studies with reasons

Appendix (D): List of excluded studies with reasons

Not related to attitudes or knowledge: n= 42

- ALSIRAFY, S. A., R. N. SALEH, R. FAWZY, A. A. ALNAGAR, A. M. HAMMAD, W. EL-SHERIEF, D. E. FARAG and R. H. RADWAN. 2015. The fear of using tramadol for pain control (tramadolophobia) among Egyptian patients with cancer. *Journal of Opioid Management*, 11(6), pp.474-80.
- ARANDA, S., P. YATES, H. EDWARDS, R. NASH, H. SKERMAN and A. MCCARTHY. 2004. Barriers to effective cancer pain management: a survey of Australian family caregivers. *European Journal of Cancer Care*, 13(4), pp.336-343.
- BERRY, P. E. and S. E. WARD. 1995. Barriers to pain management in hospice: a study of family caregivers. *Hospice Journal - Physical, Psychosocial, & Pastoral Care of the Dying*, 10(4), pp.19-33.
- BERTRAM, L., S. STIEL, F. ELSNER, L. RADBRUCH, A. DAVIES, F. NAUCK and B. ALTEPPING. 2010. [Experiences of cancer patients with breakthrough pain and pharmacological treatments]. *Der Schmerz*, 24(6), pp.605-12.
- BUCHER, J. A., G. B. TROSTLE and M. MOORE. 1999. Family reports of cancer pain, pain relief, and prescription access. *Cancer Practice*, 7(2), pp.71-7.
- CHOI, Y. S., S. H. KIM, J. S. KIM, J. LEE, J. H. KANG, S. Y. KIM, C. S. KIM, H. S. SONG, H. Y. LIM, C. Y. YIM, I. J. CHUNG, G. J. CHO, M. A. LEE, J. PARK and C. H. YEOM. 2006. - Change in Patients' Satisfaction with Pain Control After Using the Korean Cancer Pain Assessment Tool in Korea. *Journal of Pain and Symptom Management*, 31(6), pp.553-562.
- DAYER, L., H. S and M. B. 2018. - A Palliative Care Clinic's Experience with Medication Adherence to Neuropathic Pain Medications. *Journal of Palliative Medicine*, 21(2), pp.245-248.
- HODGE, F., K. NANDY, M. CADOGAN, T. ITTY, U. WARDA, F. MARTINEZ and A. QUAN. 2016. Predictors of pain management among American Indian cancer survivors. *Journal of Health Care for the Poor and Underserved*, 27(2), pp.636-643.
- HOJSTED, J., O. EKHOLM, G. P. KURITA, K. JUEL and P. SJØGREN. 2013. Addictive behaviors related to opioid use for chronic pain: a population-based study. *Pain* [online], 154(12), pp.2677-2683. Available from: <http://cochranelibrary-wiley.com/ocochrane/central/articles/248/CN-01122248/frame.html>.
- HOVI, S. L. and S. LAURI. 1999. Patients' and nurses' assessment of cancer pain. *European Journal of Cancer Care*, 8(4), pp.213-9.
- HOVIND, I. L., I. S. BREDAL and A. DIHLE. 2013. Women's experience of acute and chronic pain following breast cancer surgery. *Journal of Clinical Nursing*, 22(7-8), pp.1044-52.
- FITCH, M. I., A. MCANDREW and S. BURLEIN-HALL. 2013. A Canadian online survey of oncology nurses' perspectives on the management of breakthrough pain in cancer (BTPc). *Canadian Oncology Nursing Journal*, 23(1), pp.28-43.
- JACOBSEN, R., J. SAMSANAVICIENE, Z. LIUBARSKIENE and A. SCIUPOKAS. 2010. Barriers to pain management among Lithuanian cancer patients. *Pain Practice*, 10(2), pp.145-57.
- JACOBSEN, R., J. SAMSANAVICIENE, Z. LIUBARSKIENE, P. SJØGREN, C. MOLDRUP, L. CHRISTRUP, A. SCIUPOKAS and O. B. HANSEN. 2014. Barriers to cancer pain management in Danish and Lithuanian patients treated in pain and palliative care units. *Pain Management Nursing*, 15(1), pp.51-8.
- KIM, B. S. and H. C. CHUNG. 1991. Experience with a controlled-release oral morphine for cancer pain management. *Postgraduate Medical Journal*, 67 Suppl 2, pp.S82-6.
- KINOSHITA, S., M. MIYASHITA, T. MORITA, K. SATO, T. MIYAZAKI, A. SHOJI, Y. CHIBA, S. TSUNETO and Y. SHIMA. 2016. Changes in Perceptions of Opioids Before and After Admission to Palliative Care Units in Japan: Results of a Nationwide Bereaved Family Member Survey. *American Journal of Hospice & Palliative Medicine*, 33(5), pp.431-8.
- KOLLER, A., C. MIASKOWSKI, S. GEEST, O. OPITZ and E. SPICHIGER. 2012. Patients' and family caregivers' experiences with a self-management intervention for cancer pain. *Palliative medicine*. [online], 26(4), pp.456-457. Available from: <http://cochranelibrary-wiley.com/ocochrane/central/articles/295/CN-01025295/frame.html>.
- KWON, J. H., H. D. C. G. and B. E. 2013a. - Predictors of long-term opioid treatment among patients who receive chemoradiation for head and neck cancer. *Oncologist*, 18(6), pp.768-774.
- KWON, J. H., H. D. C. G., H. W.T, N. L. and B. E. 2013b. - Experience of barriers to pain management in patients receiving outpatient palliative care. *Journal of Palliative Medicine*, 16(8), pp.908-914.
- LEBARON, V., BECK, S. L., MAURER, M., BLACK, F. & PALAT, G. 2014. An Ethnographic Study of Barriers to Cancer Pain Management and Opioid Availability in India. *Oncologist*, 19, 515-522.
- LIN, C. C. & WARD, S. E. 1995. Patient-related barriers to cancer pain management in Taiwan. *Cancer Nursing*, 18, 16-22.
- LETIZIA, M., CREECH, S., NORTON, E., SHANAHAN, M. & L., H. 2004. - Barriers to caregiver administration of pain medication in hospice care. *Journal of Pain and Symptom Management*, 27, 114-124.
- MEEKER, M. A., D. FINNELL and A. K. OTHMAN. 2011. Family caregivers and cancer pain management: a review. *Journal of Family Nursing*, 17(1), pp.29-60.
- MEGHANI, S. H. and G. J. KNAFL. 2017. Salient concerns in using analgesia for cancer pain among outpatients: A cluster analysis study. *World Journal of Clinical Oncology*, 8(1), pp.75-85.
- MONTESANO, T., S. GIACOMOBONO, G. ACQUALAGNA, M. COLANDREA, A. DI NICOLA, L. TRAVASCIO, M. GIANCAMERLA, R. D'APOLLO, M. TOTEDA, F. UGOLINI, M. FILESI and G. RONGA. 2009. Our experience on pain palliation of bone metastasis with Sr-89 or Sm-153 in cancer patients resistant to a conventional analgesic therapy. A retrospective study. *Clinica Terapeutica*, 180(3), pp.193-9.

- NERON, S., S. PEREZ, R. BENC, A. BELLMAN, Z. ROSBERGER and T. VUONG. 2014. - The experience of pain and anxiety in rectal cancer patients during high-dose-rate brachytherapy. *Current Oncology*, 21(1), pp.e89-e95.
- OGASAWARA, C., Y. KUME and M. ANDOU. 2003. Family satisfaction with perception of and barriers to terminal care in Japan. *Oncology Nursing Forum*, 30, pp.E100-5.
- OLIVER, D. P., W.-L. E. D. G. W. K. P. D and D. M. 2008. Barriers to Pain Management: Caregiver Perceptions and Pain Talk by Hospice Interdisciplinary Teams. *Journal of Pain and Symptom Management*, 36(4), pp.374-382.
- OSIPOVA, N. A., G. A. NOVIKOV, M. S. VETSHEVA, B. M. PROKHOROV, V. A. BERESNEV, N. A. LOSEVA, S. ZEMSKAIA and T. A. SMOLINA. 1994. [First experience in the use of a new Russian narcotic analgesic: *prosidol* in oncology]. *Anesteziologija i Reanimatologija*, (4), pp.53-7.
- PAICE, J. A., T. C and S. S. 1998. - Barriers to cancer pain relief: Fear of tolerance and addiction. *Journal of Pain and Symptom Management*, 16(1), pp.1-9.
- PANTELI, V. and E. PATISTEA. 2007. Assessing patients' satisfaction and intensity of pain as outcomes in the management of cancer-related pain. *European Journal of Oncology Nursing*, 11(5), pp.424-33.
- PAYNE, R., S. D. MATHIAS, D. J. PASTA, L. A. WANKE, R. WILLIAMS, R. MAHMOUD, R. PAYNE, S. D. MATHIAS, D. J. PASTA, L. A. WANKE, R. WILLIAMS and R. MAHMOUD. 1998. Quality of life and cancer pain: satisfaction and side effects with transdermal fentanyl versus oral morphine. *Journal of Clinical Oncology*, 16(4), pp.1588-1593.
- PERETTI-WATEL, P., M. K. BENDIANE, A. GALINIER, J. M. LAPIANA, R. FAVRE, H. PEGLIASCO, Y. OBADIA and G. SOUTH-EASTERN FRANCE PALLIATIVE CARE. 2004. Opinions toward pain management and palliative care: comparison between HIV specialists and oncologists. *AIDS Care*, 16(5), pp.619-27.
- POTTER, V. T., C. E. WISEMAN, S. M. DUNN and F. M. BOYLE. 2003. Patient barriers to optimal cancer pain control. *Psycho-Oncology*, 12(2), pp.153-60.
- RANKIN, M. A. and B. SNIDER. 1984. Nurses' perceptions of cancer patients' pain. *Cancer Nursing*, 7(2), pp.149-55.
- RAUCK, R., N. PARIKH, L. DILLAHA, J. BARKER and L. STEARNS. 2015. Patient Satisfaction with Fentanyl Sublingual Spray in Opioid-Tolerant Patients with Breakthrough Cancer Pain. *Pain Practice*, 15(6), pp.554-63.
- SILVONIEMI, M., T. VASANKARI, T. VAHLBERG, E. VUORINEN, K. E. CLEMENS and E. SALMINEN. 2012. Physicians' self-assessment of cancer pain treatment skills—more training required. *Supportive Care in Cancer*, 20(11), pp.2747-53.
- TORRENT, J. C., C. J. SÁNCHEZ, J. S. ORTIZ, N. B. LÓPEZ, C. C. HERRERO, J. C. ESPINOSA, J. L. GINER, J. M. SALCEDO, K. F. WARNER, M. G. MONTOYA and E. D.-R. GARCÍA. 2007. Oncologists' perceptions of cancer pain management in Spain: The real and the ideal. *European Journal of Pain*, 11(3), pp.352-359.
- THINH, D. H. Q., W. SRIRAJ, M. MANSOR, K. H. TAN, C. IRAWAN, J. KURNIANDA, Y. P. NGUYEN, A. ONG-CORNEL, Y. HADJIAT, H. MOON and F. O. JAVIER. 2018. Patient and Physician Satisfaction with Analgesic Treatment: Findings from the Analgesic Treatment for Cancer Pain in Southeast Asia (ACE) Study. *Pain Research and Management*, 2018, p8.
- Not related to cancer pain or opioid: n= 35**
- AL-EASSA, A. A., A. M. AL-FADEL, M. A. AL-AJMI, A. A. AL-NAJJAR, G. M. MAKBOUL and M. ELSHAZLY. 2012. - Knowledge and attitude of primary care doctors towards management of postmenopausal symptoms. *Alexandria Journal of Medicine*, 48(2), pp.167-173.
- ALLEN, M. J. M., M. M. A., P. C. M., A. D. F. & O., T. 2013. - Self-reported practices in opioid management of chronic noncancer pain: A survey of Canadian family physicians. *Pain Research and Management*, 18, 177-184.
- ARDINER, C., M. GOTT, C. INGLETON, P. HUGHES, M. WINSLOW and M. I. BENNETT. 2012. Attitudes of health care professionals to opioid prescribing in end-of-life care: a qualitative focus group study. *Journal of Pain & Symptom Management*, 44(2), pp.206-14.
- BIRO, E. 2013. Attitudes of Hungarian adults toward use of opioids in pain management. *Orvosi Hetilap*, 154(12), pp.455-463.
- BLAKE, S., B. RUEL, C. SEAMARK and D. SEAMARK. 2007. - Experiences of patients requiring strong opioid drugs for chronic non-cancer pain: A patient-initiated study. *British Journal of General Practice*, 57(535), pp.101-109.
- BUDKAEW, J. and B. CHUMWORATHAYI. 2013. Knowledge and attitudes toward palliative terminal cancer care among Thai generalists. *Asian Pacific Journal of Cancer Prevention: Apjco*, 14(10), pp.6173-80.
- CRANER, J. R., R. R. SKIPPER, W. P. GILLIAM, E. J. MORRISON and J. A. SPERRY. 2016. Patients' perceptions of a chronic pain rehabilitation program: changing the conversation. *Current Medical Research and Opinion*, 32(5), pp.879-883.
- EMANUEL, E. J., D. FAIRCLOUGH, B. C. CLARRIDGE, D. BLUM, E. BRUERA, W. C. PENLEY, L. E. SCHNIPPER and R. J. MAYER. 2000. - Attitudes and practices of U.S. oncologists regarding euthanasia and physician-assisted suicide. *Annals of Internal Medicine*, 133(7), pp.527-532.
- KARANGES, E. A., A. SURAEV, N. ELIAS, A. R. MANOCH and I. S. MCGREGOR. 2018. Knowledge and attitudes of Australian general practitioners towards medicinal cannabis: A cross-sectional survey. *BMJ Open*, 8(7).
- GALLAGHER, R., B. J. A. F. G. H. P. and Y. W. 2003. - Attitudes and beliefs about the use of Cannabis for symptom control in a palliative population. *Journal of Cannabis Therapeutics*, 3(2), pp.41-50.

- GUNNARSDDOTTIR, S., H. S. DONOVAN, R. C. SERLIN, C. VOGUE and S. WARD. 2002. Patient-related barriers to pain management: the Barriers Questionnaire II (BQ-II). *Pain*, 99(3), pp.385-96.
- HANSEN, A. B., S. SKURTVEIT, P. C. BORCHGREVINK, O. DALE, P. R. ROMUNDSTAD, M. MAHIC and O. M. FREDHEIM. 2015. Consumption of and satisfaction with health care among opioid users with chronic non-malignant pain. *Acta Anaesthesiologica Scandinavica*, 59(10), pp.1355-66.
- HUTCHINSON, K., A. M. MORELAND, C. W. A. C. DE, J. WEINMAN and R. HORNE. 2007. Exploring beliefs and practice of opioid prescribing for persistent non-cancer pain by general practitioners. *European Journal of Pain*, 11(1), pp.93-8.
- JORANSON, D. E. and A. M. GILSON. 2001. Pharmacists' knowledge of and attitudes toward opioid pain medications in relation to federal and state policies. *Journal of the American Pharmaceutical Association*, 41(2), pp.213-20.
- KARANGES, E. A., A. SURAEV, N. ELIAS, A. R. MANOCH and I. S. MCGREGOR. 2018. - Knowledge and attitudes of Australian general practitioners towards medicinal cannabis: A cross-sectional survey. *BMJ Open*, 8(7).
- MORITA, T., M. MIYASHITA, M. SHIBAGAKI, K. HIRAI, T. ASHIYA, T. ISHIHARA, T. MATSUBARA, I. MIYOSHI, T. NAKAHO, N. NAKASHIMA, H. ONISHI, T. OZAWA, K. SUENAGA, T. TAJIMA, T. AKECHI and Y. UCHITOMI. 2006. Knowledge and beliefs about end-of-life care and the effects of specialized palliative care: a population-based survey in Japan. *Journal of Pain & Symptom Management*, 31(4), pp.306-16.
- MYSTAKIDOU, K., E. TSILIKA, E. PARPA, P. GOGOU, P. THEODORAKIS and L. VLAHOS. 2010. Self-efficacy beliefs and levels of anxiety in advanced cancer patients. *European Journal of Cancer Care*, 19(2), pp.205-11.
- NIEMI-MUROLA, L., N. J.T, K. E and P. R. 2007. - Medical undergraduate students' beliefs and attitudes toward pain - How do they mature? *European Journal of Pain*, 11(6), pp.700-706.
- NUSEIR, K., M. KASSAB and B. ALMOMANI. 2016. Healthcare Providers' Knowledge and Current Practice of Pain Assessment and Management: How Much Progress Have We Made? *Pain Research and Management*, 2016, pp1-7.
- NUSEIR, K., K. M and A. B. 2016. - Healthcare providers' knowledge and current practice of pain assessment and management: How much progress have we made? *Pain Research and Management*, (pagination).
- OLIVER, D. P., W.-L. E, W. K, K. R.L, A. D.L, B. P.K, B. A and D. G. 2013. - Hospice caregivers' Experiences with pain management: "I'm not a doctor, and i don't know if i helped her go faster or slower". *Journal of Pain and Symptom Management*, 46(6), pp.846-858.
- PALOS, G. R., T. R. MENDOZA, S. B. CANTOR, L. A. ADAY and C. S. CLEELAND. 2004. Perceptions of analgesic use and side effects: what the public values in pain management. *Journal of Pain & Symptom Management*, 28(5), pp.460-73.
- PATEL, T., F. CHANG, H. T. MOHAMMED, L. RAMAN-WILMS, J. JURCIC, A. KHAN and B. SPROULE. 2016. - Knowledge, perceptions and attitudes toward chronic pain and its management: A cross-sectional survey of frontline pharmacists in Ontario, Canada. *PLoS ONE*, 11(6).
- PUNTILLO, K. A., C. WHITE, A. B. MORRIS, S. T. PERDUE, J. STANIK-HUTT, C. L. THOMPSON and L. R. WILD. 2001. Patients' perceptions and responses to procedural pain: Results from Thunder Project II. *American Journal of Critical Care*, 10(4), pp.238-251.
- ROBINSON, J. P., E. J. DANSIE, H. D. WILSON, S. RAPP and D. C. TURK. 2015. - Attitudes and Beliefs of Working and Work-Disabled People with Chronic Pain Prescribed Long-Term Opioids. *Pain Medicine*, 16(7), pp.1311-1324.
- SHAW, S. and A. LEE. 2010. Student nurses' misconceptions of adults with chronic nonmalignant pain. *Pain Management Nursing*, 11(1), pp.2-14.
- TALMI, Y. P., A. WALLER, M. BERCOVICI, Z. HOROWITZ, M. R. PFEFFER, A. ADUNSKI and J. KRONENBERG. 1997. - Pain experienced by patients with terminal head and neck carcinoma. *Cancer*, 80(6), pp.1117-1123.
- VRANKEN, M. J. M., A. K. MANTEL-TEEUWISSE, S. JÜNGER, L. RADBRUCH, W. SCHOLTEN, J. A. LISMAN, M. SUBATAITE and M. H. D. B. SCHUTJENS. 2017. Barriers to access to opioid medicines for patients with opioid dependence: a review of legislation and regulations in eleven central and eastern European countries. *Addiction*, 112(6), pp.1069-1076.
- WEINSTEIN, S. M., L. F. LAUX, T. J.I, R. J. LORIMOR, J. C. S. HILL, D. M. THORPE and J. M. MERRILL. 2000. - Physicians' attitudes toward pain and the use of opioid analgesics: Results of a survey from the Texas cancer pain initiative. *Southern Medical Journal*, 93(5), pp.479-487.
- WELSH, J., A. REID, J. GRAHAM, J. CURTO, K. MACLEOD and C. O'NEILL. 2005. Physicians' knowledge of transdermal fentanyl. *Palliative Medicine*, 19(1), pp.9-16.
- YAMAMOTO, R., Y. KIZAWA, Y. NAKAZAWA and T. MORITA. 2013. The palliative care knowledge questionnaire for PEACE: reliability and validity of an instrument to measure palliative care knowledge among physicians. *Journal of Palliative Medicine*, 16(11), pp.1423-8.
- ZEINAH, G. F., S. G. AL-KINDI and A. A. HASSAN. 2013. Attitudes of medical oncologists in Qatar toward palliative care. *American Journal of Hospice & Palliative Medicine*, 30(6), pp.548-551.

Not published in English: n= 6

- GONG, S. W., J. Y. BANG, M. S. SEO, S. S. HYUN, H. J. KIM, M. LEE, H. H. YOU, J. K. HER, E. KIM and K. S. PARK. 2004. Knowledge and attitudes of oncology nurses toward cancer pain managements. *Journal of Korean Academy of Adult Nursing*, 16(1), pp.5-16.
- 2 KADA, O., R. LIKAR, W. PIPAM, M. MIKLAUTZ and H. JANIG. 2007. [Cancer pain from the nurses' perspective--findings from Austria]. *Pflege Zeitschrift*, 60(11).
- SALVADÓ-HERNÁNDEZ, C., C. FUENTELESZ-GALLEGO, C. ARCAY-VEIRA, C. LÓPEZ-MELÉNDEZ, T. VILLAR-ARNAL, N. CASAS-SEGALA and F. P. EN REPRESENTACIÓN DEL GRUPO DE INVESTIGACIÓN DEL PROYECTO. 2009. [Knowledge and attitudes on pain management by nurses in surgery and oncology in level III hospitals]. *Enfermería clínica*, 19(6), pp.322-329.
- SATO, Y. 2007. [An attitude survey on the medical use of narcotics for cancer pain relief]. *Gan to kagaku ryoho*. Cancer & chemotherapy, 34(13), pp.2267-2270.
- TZEITLIN, T. and P. SHVARTZMAN. 2000. [Knowledge, attitudes and skills of family physicians in Israel with regard to chronic pain management in cancer]. *Harefuah*, 139(7-8), pp.252-5, 328.
- WU, H.-B., M.-C. LEE, K.-H. LAI, S.-T. HO, W.-Z. SUN, J. O.-N. WONG and L.-P. GER. 2006. Physicians' knowledge about pharmacological management of cancer pain--with special reference on their prescribing responses to simulated patients with cancer pain. *Acta anaesthesiologica Taiwanica*: official journal of the Taiwan Society of Anesthesiologists. 44(2), pp.61-71.

Not include adults: n= 5

- DE FREITAS, G. R., C. G. DE CASTRO, JR., S. M. CASTRO and I. HEINECK. 2014. Degree of knowledge of health care professionals about pain management and use of opioids in paediatrics. *Pain Medicine*, 15(5), pp.807-19.
- FORWARD, S. P., T. L. BROWN and P. J. MCGRATH. 1996. Mothers' attitudes and behavior toward medicating children's pain. *Pain*, 67(2-3), pp.469-474.
- FORTIER, M. A., WAH, A., MAURER, E. L., TAN, E. T., SENDER, L. S. & KAIN, Z. N. 2012. - Attitudes regarding analgesic use and pain expression in parents of children with cancer. *Journal of Pediatric Hematology/Oncology*, 34, 257-262.
- MANWORREN, R. C. 2000. *Pediatric* nurses' knowledge and attitudes survey regarding pain. *Pediatric Nursing*, 26, 610-4.
- ROTH, M., D. DAVIES, S. FRIEBERT, D. WANG, M. KIM and S. ZELCER. 2013. Attitudes and Practices of *Pediatric* Oncologists Regarding Methadone Use in the Treatment of Cancer-related Pain: Results of a North American Survey. *Journal of Pediatric Hematology/Oncology*, 35(2), pp.103-107.

Not cross-sectional design: n= 5

- DE SILVA, B. S. S. and C. ROLLS. 2011. Attitudes, beliefs, and practices of Sri Lankan nurses toward cancer pain management: An ethnographic study. *Nursing & Health Sciences*, 13(4), pp.419-424.
- HOWELL, D., L. BUTLER, L. VINCENT, J. WATT-WATSON and N. STEARNS. 2000. Influencing Nurses' Knowledge, Attitudes, and Practice in Cancer Pain Management. *Cancer Nursing*, 23(1), pp.55-63.
- LOPEZ, L. R., H. C. CAMPS, P. KHOSRAVI-SHAHI, P. V. GUILLEM, M. A. CARRATO, J. GARCIA-FONCILLAS, H. J. J. CRUZ, V. P. GASCON, T. A. ANTON, E. DIAZ-RUBIO, M. FEYJOO SAUS and A. E. ARANDA. 2018. - Oncologist's knowledge and implementation of guidelines for breakthrough cancer pain in Spain: CONOCE study. *Clinical and Translational Oncology*, 20(5), pp.613-618.
- LOPEZ DE MATURANA, A., MORAGO, V., SAN EMETERIO, E., GOROSTIZA, J. & ARRATE, A. O. 1993. Attitudes of general practitioners in Bizkaia, Spain, towards the terminally ill patient. *Palliative Medicine*, 7, 39-45.
- PAICE, J. A., T. C. and S. S. 1998. - Barriers to cancer pain relief: Fear of tolerance and addiction. *Journal of Pain and Symptom Management*, 16(1), pp.1-9.

Same data were used in another study: n= 2

- ALNAJAR, M. K., M. W. DARAWAD, S. S. ALSHAHWAN and O. A. SAMARKANDI. 2017. Knowledge and Attitudes toward Cancer Pain Management among Nurses at Oncology Units. *Journal of Cancer Education*.
- 2 SALIM, N., N. AL-ATTYAT and M. TUFFAHA. 2017. Knowledge and Attitude of Oncology Nurses toward Cancer Pain Management: A Review. *Arch Med*, 9, p2.

Full-text article not found: n= 1

- JUBELIRER, S. J., C. S. WARREN, R. RECTOR, G. KUHN, S. WALTON and C. ZINN. 1998. Attitudes about cancer pain: a survey of 727 health care professionals in West Virginia. *The West Virginia medical journal*, 94(4), pp.192-194.

"Letter to the editor" (not enough information were stated): n= 1

- LAMBERT, K., S. OXBERRY, C. W. HULME, K. SAHARIA, A. S. RIGBY and M. J. JOHNSON. 2007. Knowledge and attitudes to opioids in palliative care patients. *Palliative Medicine*, 21(8), pp.721-722.

Appendix 6
Permission letter for Libyan
Consulate (for recruiting Libyan
patients and caregivers)

To Libyan Consulate of Alexandria

Dear Sir/Madam:

27/06/2019

Warmest greetings!

I would like to ask your permission to allow me to conduct interviews with Libyan cancer patients and their family caregivers who are seeking oncology medication at SUN oncology centre in Alexandria, Egypt. This is in view of my thesis, entitled, "Professionals, patients, and caregivers' views surrounding cancer pain and its management in Libya." I am conducting interviews with about 24 participants from the SUN oncology centre in Alexandria.

The interview would last only about 30 to 45 minutes and would be arranged at a time convenient to participants' schedules (e.g., during the break). Participation in this research study is entirely voluntary, and there are no known or anticipated physical risks to participating in this study. All information provided will be kept in utmost confidentiality and would be used only for academic purposes. The names of participants and the name of the hospital will not appear in any thesis or publications resulting from this study unless agreed to.

If you agree, kindly write a letter acknowledging your consent and permission for me to conduct this study at SUN oncology centre and send it by email to my email: umsmam@leeds.ac.uk

Your approval to conduct this study will be greatly appreciated. Thank you in advance for your interest and assistance with this research. Please see further attached documents including an information sheet about this study.

Sincerely,

Salim M. Makhoulf

Note by:

Professor Mike Bennett

A Ph.D. candidate in cancer pain

Room 10.31, Level 10 Worsley Building

Academic Unit of Palliative Care
Care,

School of Medicine
Sciences

University of Leeds

☎ + 44 (0) 1133436354

E-mail: umsmam@leeds.ac.uk

Director, Academic Unit of Palliative

Leeds Institute of Health

School of Medicine

University of Leeds

Appendix 7
Permission letter for data
collection to SUN (for recruiting
Libyan patients and caregivers)

To Specialized Universal Network (SUN) of Oncology, Egypt.

Dear Sir/Madam:

24/06/2019

Warmest greetings!

I would like to ask your permission to allow me to conduct interviews with Libyan cancer patients and their family caregivers who are seeking oncology medication at your centre. This is in view of my thesis, entitled, "Professionals, patients, and caregivers' views surrounding cancer pain and its management in Libya." I am conducting interviews with about 24 participants from your oncology centre in Alexandria. The interview would last only about 30 to 45 minutes and would be arranged at a time convenient to participants' schedules (e.g., during the break). Participation in this research study is entirely voluntary, and there are no known or anticipated physical risks to participating in this study. All information provided will be kept in utmost confidentiality and would be used only for academic purposes. The names of participants and the name of your hospital will not appear in any thesis or publications resulting from this study unless agreed to.

If you agree, kindly write a letter acknowledging your consent and permission for me to conduct this study at your oncology medical centre and send it by email to my email: umsmam@leeds.ac.uk
Your approval to conduct this study will be greatly appreciated. Thank you in advance for your interest and assistance with this research. Please see further attached documents including an information sheet about this study.

Sincerely,
Salim M. Makhoulf

Note by:
Professor Mike Bennett

A Ph.D. candidate in cancer pain
Room 10.31, Level 10 Worsley Building
Academic Unit of Palliative Care
Care,
School of Medicine
University of Leeds
☎ + 44 (0) 1133436354
E-mail: umsmam@leeds.ac.uk

Director, Academic Unit of Palliative
Leeds Institute of Health Sciences
School of Medicine
University of Leeds

Appendix 8
Permission letter for data
collection to SUN (for recruiting
Libyan HCPs)

To Specialized Universal Network of Oncology, Egypt.

Dear Sir/Madam:

06/08/2019

Warmest greetings!

I would like to ask your permission allow me to conduct interviews with Libyan professionals (oncology nurses and doctors) who are doing a training course at your oncology centre. This is in view of my thesis, entitled, "Professionals, patients, and caregivers' views surrounding cancer pain and its management in Libya." I am conducting interviews with about 12 Libyan participants from the SUN oncology centre in Alexandria.

The interview would last only about 30 to 45 minutes and would be arranged at a time convenient to participants' schedules (e.g., during the break). Participation in this research study is entirely voluntary, and there are no known or anticipated physical risks to participating in this study. All information provided will be kept in utmost confidentiality and would be used only for academic purposes. The names of participants and the name of the hospital will not appear in any thesis or publications resulting from this study unless agreed to.

If you agree, kindly write a letter acknowledging your consent and permission for me to conduct this study at SUN oncology centre and send it by email to my email: umsmam@leeds.ac.uk

Your approval to conduct this study will be greatly appreciated. Thank you in advance for your interest and assistance with this research. Please see further attached documents including an information sheet about this study.

Sincerely,

Salim M. Makhlouf

Note by
Professor Mike Bennett

A Ph.D. candidate in cancer pain

Room 10.31, Level 10 Worsley Building

Academic Unit of Palliative Care
Care,

School of Medicine
Sciences

University of Leeds

☎ + 44 (0) 1133436354

E-mail: umsmam@leeds.ac.uk

Director, Academic Unit of Palliative

Leeds Institute of Health

School of Medicine

University of Leeds

Appendix 9
Permission letter for data
collection to Libyan Consulate (for
recruiting Libyan HCPs)

To Libyan Consulate of Alexandria

Dear Sir/Madam:

14/08/2019

Warmest greetings!

I would like to ask your permission allow me to conduct interviews with Libyan professionals (oncology nurses and doctors) who are doing a training course at SUN oncology centre in Alexandria, Egypt. This is in view of my thesis, entitled, "Professionals, patients, and caregivers' views surrounding cancer pain and its management in Libya." I am conducting interviews with about 12 Libyan participants from the SUN oncology centre in Alexandria.

The interview would last only about 30 to 45 minutes and would be arranged at a time convenient to participants' schedules (e.g., during the break). Participation in this research study is entirely voluntary, and there are no known or anticipated physical risks to participating in this study. All information provided will be kept in utmost confidentiality and would be used only for academic purposes. The names of participants and the name of the hospital will not appear in any thesis or publications resulting from this study unless agreed to.

If you agree, kindly write a letter acknowledging your consent and permission for me to conduct this study at SUN oncology centre and send it by email to my email: umsmam@leeds.ac.uk

Your approval to conduct this study will be greatly appreciated. Thank you in advance for your interest and assistance with this research. Please see further attached documents including an information sheet about this study.

Sincerely,

Salim M. Makhoulf

Note by:

Professor Mike Bennett

A Ph.D. candidate in cancer pain

Room 10.31, Level 10 Worsley Building

Academic Unit of Palliative Care
Care,

School of Medicine
Sciences

University of Leeds

☎ + 44 (0) 1133436354

E-mail: umsmam@leeds.ac.uk

Director, Academic Unit of Palliative

Leeds Institute of Health

School of Medicine

University of Leeds

Appendix 10

An invitation letter

12/05/2019

This is a letter of invitation to participate in this research study entitled "Professionals, patients, and caregivers' views surrounding cancer pain and its management in Libya." Due to the current war in Libya, the data collection will be done in Egypt, which is phase one. The data will be collected via face-to-face interviews with Libyan cancer patients and their family caregivers who are seeking oncology medication in Egypt. In phase two, the data will be collated via face-to-face interviews with Libyan professionals who are doing training courses in Egypt.

Dear Sir/ Madam:

I am writing as a Ph.D. candidate from the School of Medicine at the University of Leeds in the UK to ask if you would be kind enough to take part in this research study. This will involve me asking you some questions through a face-to-face interview, aiming to explore and understand the attitudes of Libyan cancer patients and their family caregivers regarding cancer pain and its management. At the same time, a background information sheet for participants will be given to you, which will take between 5 and 10 minutes to complete. You will be asked to kindly provide answers to a series of questions related to cancer pain and its management. The interview will be recorded and will require about 30 to 45 minutes of your time. All information will be anonymised and securely stored once the interview is complete. It will not affect you in any way should you not wish to participate in this study. Thank you for taking the time to read this letter.

Kind regards,
Salim M. Makhoulouf
A Ph.D. candidate in cancer pain
Room 10.31, Level 10 Worsley Building
Academic Unit of Palliative Care
School of Medicine
University of Leeds
☎ + 44 (0) 1133436354
E-mail: umsmam@leeds.ac.uk

Appendix 11

Information sheet for Participants

Professionals, patients, and caregivers' views surrounding cancer pain and its management in Libya.

Due to the current war in Libya, the data collection will be done in Egypt. The data will be collected via face-to-face interviews with Libyan cancer patients and their family caregivers, who are seeking oncology medication in Egypt.

Salim M. Makhoulf, School of Medicine, University of Leeds.

You are kindly invited to take part in this research study. It is important that you understand why the research is being done and what it involves. Therefore, please take your time to carefully read the following information before you decide to continue. Please ask if there is anything that is not clear or understandable or if you would like further information. Take as much time as you would like to decide if you want to take part in this study or not.

1- What is the purpose of the study?

Recent reviews and studies reported a lack of knowledge and negative attitudes towards cancer pain management among professionals, cancer patients, and family caregivers as one of the most common barriers to effective cancer pain management. However, there is still no clear evidence to show what underpins people's attitudes, beliefs, and knowledge towards cancer pain and its management. Therefore, this study aims to explore professionals, patients, and family caregivers' views about cancer pain and its management in Libya. This aim will be achieved by accomplishing the following objectives: 1- To systematically review research on the nature and impact of attitudes and knowledge towards cancer pain management. 2- To determine the prevalence and management of cancer pain among patients with cancer in Libya.

2- Why do we need this information?

This information will help us understand the Libyan professional, patients, and family caregivers' views surrounding cancer pain and its management to guide the future development of relevant educational programs for healthcare professionals to assist cancer patients in managing their pain.

3- Who will be involved in the research, and where will the research occur?

The research will be undertaken in two phases: Phase one will be face-to-face interviews with up to a total of 18 Libyan cancer patients with advanced cancer and 6 Libyan family caregivers who are seeking oncology medication in Egypt. In stage two, data will be collected via face-to-face interviews with approximately 12 professionals (Libyan oncologists and oncology nurses) who are doing a training course in Egypt.

4- How will the research be carried out?

One-to-one semi-structured interviews with Libyan patients and their family caregivers, who are seeking oncology medications in Egypt, and Libyan professionals who are doing training courses in Egypt will be used to collect data. All interviews will take place in a private room for patients' privacy and confidentiality. This interview will take about 30 to 45 minutes in length. At the same time, the background information sheet for the participants will be distributed before the interview, which will take between 5 and 10 minutes to complete.

5- Do I have to take part in this study?

No, as you are a volunteer, you have the right to withdraw consent from the study at any time during the interview. Also, you can decline to answer any particular question without giving any reason. After the interview, you will be able to withdraw your data from the study during the first seven days only. After this time, the withdrawal will be no longer possible because your data will be anonymised and embedded within our data analysis.

6- What will happen to me if I take part in this study?

If you are willing to participate in the study, you will be asked to read this information sheet and ask any questions before signing a consent form. You will then participate in a face-to-face interview, which takes about 30 to 45 minutes.

7- Will the interview be recorded?

Yes, the interview will be recorded for the purpose of the study, but your name will not be linked with any research materials. Consent for using an encrypted audio recorder will be taken.

8- What circumstances and actions may be considered when interviewing sensitive subjects?

Cancer pain can be a sensitive issue for patients and their families to discuss. Furthermore, asking participants questions about their views, knowledge, attitudes, or life experiences may generate emotional responses that should be acknowledged by the researcher. Therefore, the researcher will make sure that the participants are okay by regularly asking if he/she is fine. Interviewees who appear to be distressed will be asked if they would prefer to end the interview, and the researcher will have tissues and water available at any time. Moreover, the chaperone (a female staff nurse from the oncology unit) will provide reassurance and emotional support for all participants during the interview.

9- Are there any risks or benefits involved in the study?

There will be no physical risks, as there will be no invasive procedures as a part of this study. You will not directly benefit from taking part, but the findings of the study may help to improve cancer pain management in the future.

10- What will happen to the research results?

The results collected from you will be securely and anonymously stored for use in this and future research.

11- Will my taking part in this study be kept confidential?

Yes, all data will be kept strictly confidential, and nobody will have access to data except the researcher and their supervisors. Any personal information obtained from participants will be stored for a period of five years following completion of the study, after which it will then be destroyed by electronic deletion and shredding as appropriate.

12- Does this research have sufficient ethical approvals?

Ethical approval has been sought from the School of Medicine Research Ethics Committee (in Leeds, UK) and includes the SoMREC application reference number (MREC 18-064). Furthermore, the Intuitional Review Board for ethics protocol approvals was sent to Oncology Centres in Egypt.

Thank you for taking the time to read this information sheet.

Researcher's contact details

I will always be happy to clarify any things which are not clear or give more information regarding this study. Thus, please do not hesitate to contact me with the following details:

Salim M. Makhoulf

School of Medicine, University of Leeds,
Worsley Building, Leeds, LS2 9JT
☎ + 44 (0) 1133436354
Email: umsmam@leeds.ac.uk

Noted by:

professor Mike Bennet
Director, Academic Unit of Palliative Care
School of Medicine, University of Leeds

Appendix 12

Background information for participants

Participant Number: -----

Date: -----

1. Gender: (1) Male (2) Female
2. Your Age: -----
3. Check the box for the highest educational qualifications:
(1) Uneducated (2) Elementary (3) Undergraduate (4) Postgraduate
4. What is your current marital status?
(1) Married (2) Widowed (3) Divorced (5) Not married
5. Are you currently in paid employment?
(1) Yes (2) No
6. Approximately what is your monthly income (convert to Pound Sterling)?
(LYD, convert to Pound Sterling will be done by the researcher)
(1) No income (2) less than £20,000 (3) £20,000~£39,999
(4) £40,000~£59,999 (5) £60,000~£79,999 (6) £80,000~£99,999
(7) £100,000~£149,999 (8) £150,000~£199,999 (9) 3 more than 200,000
7. Who is/are your major caregiver/s?
(1) None (2) Parent (3) Child/children (4) Spouse/partner (5) Friend
(6) Sibling (7) Nursing Aid (7) Other (specify): -----
8. What is the type of cancer? (1) Lung cancer (2) Colorectal cancer (3) Bladder cancer
(4) Breast cancer (5) Colon and Rectal Cancer (6) Kidney cancer (7) Leukaemia (8) Liver cancer
(9) Melanoma (10) Non-Hodgkin Lymphoma (11) Pancreatic cancer (12) Prostate cancer
(13) Thyroid cancer (14) Endometrial cancer (Uterine cancers)
9. What is the Stage of cancer? (1) Early-stage cancer (2) Stage II & III
(3) Stage IV
10. What current medications are used for cancer pain management?
(1) Non- Opioid: (a) Paracetamol (b) NSAIDs
(2) Weak opioid: (a) codeine or dihydro-codeine
(3) Strong opioid: (a) Morphine , (b) Alfentanil , (d) Diamorphine , (e) Fentanyl , (f) Oxycodone

Thank you for taking your time to complete this questionnaire

If you have any comments regarding this survey do not hesitate to contact me on the following contact details: Salim M. Makhoulouf, Phone No: 0044 (0) 11334326354, E-mail: umsmam@leeds.ac.uk

Appendix 13

Participant Consent Form

HCPs, patients, and caregivers' views surrounding cancer pain and its management in Libya

Salim M. Makhoulf, School of Medicine, University of Leeds

Please tick each box or leave blank space () or ()

1. I confirm that I have read and understood the information provided for the above study. I have had the opportunity to consider the information that was given in the information sheet, **version 5, dated 12/05/2019**. I have had the opportunity to ask questions and have had these answered satisfactorily.
2. I understand that my participation is voluntary and that I am free to withdraw at any time from the study without giving a reason and that this will not affect my legal rights. Should I not wish to answer any particular question or questions, I am free to decline. I also understand that interview participants will be able to withdraw their data from the study up to one week after the interview. After this period, the withdrawal will no longer be possible because my data will be anonymised and embedded within the data analysis.
3. I understand that any personal information collected during the study will be anonymized and remain confidential. I permit the researcher to have access to my anonymized responses and directly quote me.
4. I agree with my anonymized data being used in future related research.
5. I agree to take part in this study.
6. I agree with the interview being audio recorded on an encrypted device. Yes No
7. I agree that the researcher can directly quote me (anonymously) as part of any future publications. Yes No

Name of participant:

Date:

Signature:

Name of researcher:

Date:

Signature:

Appendix 14

Questions for the interview with caregivers

Semi-structured interview guidelines and questions for family caregivers

N.B. This is a guide and the questions will vary depending on individual responses, which are family caregivers.

This interview asks for your opinions and understanding of cancer pain and its management, and it will take about 30 to 45 minutes of duration.

Interview questions for family caregivers

Q1. Can you tell me about yourself?

Caregiver's understanding of cancer pain and its management.

Q2. Can you tell me about your cancer pain experience and how you have managed your family member's cancer pain?

Caregiver's perception of pain and opioids.

Q3. Can you tell me about your thought on cancer pain?

PROBES:

- a. Do you think cancer pain is part of disease progression?
- b. Do you think cancer pain can be relieved?

Q4. Can you tell me your opinion about opioids?

PROBES:

- a. Do you think pain medicine can effectively control cancer pain?
- b. Do you think there is a danger of the patient becoming addicted to pain medicine?
- c. Do you think opioid tolerance and/or addiction are the main reason the patient rejects opioids for his/her pain?
- d. Do you think opioid side effects are barriers to cancer pain management?

Caregiver's attitudes and knowledge towards cancer pain management.

Q5. Can you tell me what you usually do when your family member has cancer pain?

PROBES:

- a. Who do you talk to when the patient is having pain?
- b. How do you manage his/her pain?
- c. When does the patient last time asked for treatment for cancer pain? Why did he/she ask for it?
- d. What kind of medications has the patient used before and now for the cancer pain?

Caregiver's general views about cancer pain and its management.

Q6. How do you think your community perceives cancer pain management?

PROBES:

- a. Do you think people more generally believe cancer pain should be managed?
- b. Do you think religion and culture can influence in some way with cancer pain management?
- c. To what extent do these beliefs influence how you manage cancer pain?

Q7. Do you think doctors usually focus on treating the disease more than controlling pain?

Q8. Do you think doctors prefer not to talk about cancer pain? If so, why?

Q9. Do you think doctors might find it annoying to be told about pain?

Q10. Do you think nurses prefer not to talk about cancer pain? If so, why?

Q11. Do you think patients usually prefer not to talk about their pain? If so, why?

Q12. Do you think doctors are influenced by their culture and beliefs when interpreting or managing your cancer pain?

Q13. Do you think nurses are influenced by their culture and beliefs when interpreting or managing your cancer pain?

Q14. Do you think patients are influenced by their culture and beliefs when interpreting or using medications for cancer pain?

Q15. Can you tell me anything else about cancer pain and its management, which we did not cover during this interview?

Thank you for your participation in this interview

Appendix 15

Questions for the interview with patients

Semi-structured interview guidelines and questions for cancer patients

N.B. This is a guide, and the questions will vary depending on individual responses, which are cancer patients.

This interview asks for your opinions and understanding of cancer pain and its management, and it will take about 30 to 45 minutes of duration.

Interview questions for patients

Q1. Can you tell me about yourself?

Patient's understanding of cancer pain and its management.

Q2. Can you tell me about your cancer pain experience and how you have managed your cancer pain?

Patient's perception of pain and opioids.

Q3. Can you tell me about your thought on cancer pain?

PROBES:

- a. Do you think cancer pain is part of disease progression?
- b. Do you think cancer pain can be relieved?

Q4. Can you tell me your opinion about opioids?

PROBES:

- a. Do you think pain medicine can effectively control your cancer pain?
- b. Do you think there is a danger for you to becoming addicted to pain medicine?
- c. Do you think opioid tolerance and/or addiction are the main reason for you to reject opioids for your pain?
- d. Do you think opioid side effects are barriers to cancer pain management?

Patient's attitudes and knowledge towards cancer pain management.

Q5. Can you tell me what you usually do when you have cancer pain?

PROBES:

- a. Who do you talk to when you have pain?
- b. How do you manage your pain?
- c. When do you last time asked for treatment for cancer pain? Why did you ask for it?
- d. What kind of medications have you used before and now for cancer pain?

Patient's general views about cancer pain and its management.

Q6. How do you think your community perceives cancer pain management?

PROBES:

- a. Do you think people more generally believe cancer pain should be managed?
 - b. Do you think religion and culture can influence in some way with cancer pain management?
 - c. To what extent do these beliefs influence how you manage your cancer pain?
- Q7. Do you think doctors usually focus on treating the disease more than controlling pain?
- Q8. Do you think doctors usually prefer not to talk about cancer pain? If so, why?
- Q9. Do you think doctors might find it annoying to be told about pain?
- Q10. Do you think nurses usually prefer not to talk about cancer pain? If so, why?
- Q11. Do you think patients usually prefer not to talk about their pain? If so, why?
- Q12. Do you think doctors are influenced by their culture and beliefs when interpreting or managing your cancer pain?

Q13. Do you think nurses are influenced by their culture and beliefs when interpreting or managing your cancer pain?

Q14. Do you think family caregivers are influenced by their culture and beliefs when interpreting or using medications for your cancer pain?

Q15. Can you tell me anything else about cancer pain and its management, which we did not cover during this interview?

Thank you for your participation in this interview

Appendix 16

Questions for the interview with HCPs

Semi-structured interview guidelines for oncology (physicians and nurses)

N.B. This is a guide and the questions will vary depending on individual responses, which are oncologists and oncology nurses.

This interview asks for your opinions and understanding of cancer pain and its management, and it will take about 30 to 45 minutes of duration.

Interview questions for oncology physicians

Q1. Can you tell me about yourself?

Oncologist's understanding of cancer pain and its management.

Q2. Can you tell me your experience with cancer pain and how you have managed your patients' cancer pain?

Oncologist's perception of pain and opioids.

Q3. Can you tell me about your thought on cancer pain?

PROBES:

- a. Do you think cancer pain is part of disease progression?
- b. Do you think cancer pain can be relieved?

Q4. Can you tell me your opinion about opioids?

PROBES:

- a. Do you think pain medicine can effectively control cancer pain?
- b. Do you think there is a danger of the patient becoming addicted to pain medicine?
- c. Do you think opioid tolerance and/or addiction are the main reason the patient rejects opioids for his/her pain?
- d. Do you think opioid side effects are barriers to cancer pain management?

Oncologist's attitudes and knowledge towards cancer pain management.

Q5. Can you tell me what you usually do when a patient is having cancer pain?

PROBES:

- a. How do you control cancer pain?
- b. When does the patient last time asked for treatment for cancer pain? Why did he/she ask for it?
- c. Do patients and their caregivers usually request a specific kind of medication for cancer pain management?
- d. What kinds of medications have the patient used before and now for cancer pain?
- e. Do you prescribe morphine for cancer pain management? If not, why not?
- f. Do patients and their caregivers easily accept morphine for cancer pain management? If the answer is no, why not?

Oncologists' general views about cancer pain and its management.

Q6. How do you think your community perceives cancer pain management?

PROBES:

- a. Do you think people more generally believe cancer pain should be managed?
 - b. Do you think religion and culture can influence in some way with cancer pain management?
 - c. To what extent do these beliefs influence how you manage your patient's cancer pain?
- Q7. Do you think doctors usually focus on treating the disease more than controlling pain?
- Q8. Do you think doctors usually prefer not to talk about cancer pain? If so, why?
- Q9. Do you think doctors might find it annoying to be told about pain?
- Q10. Do you think nurses usually prefer not to talk about cancer pain? If so, why?
- Q11. Do you think patients usually prefer not to talk about their pain? If so, why?
- Q12. Do you think doctors are influenced by their culture and beliefs when interpreting or managing your cancer pain?
- Q13. Do you think nurses are influenced by their culture and beliefs when interpreting or managing your cancer pain?
- Q14. Do you think caregivers are influenced by their culture and beliefs when interpreting or using medications for cancer pain?
- Q15. Do you think patients are influenced by their culture and beliefs when interpreting or using medications for cancer pain?
16. Do you think patients and their caregivers hold some concerns about cancer pain management?
- Q17. Do you think patients' attitudes towards cancer pain management are influenced by their caregivers' attitudes and the patient's pain knowledge?

Training and experience in cancer pain management.

Q18. What training or experience do you have in cancer pain management?

Q19. From where do you learn about cancer pain and its management?

Q20. Can you tell me anything else about cancer pain and its management, which we did not cover during this interview?

Thank you for your participation in this interview

Appendix 17
Approval letter from University of
Leeds for study two

The Secretariat
University of Leeds
Leeds, LS2 9JT
Tel: 0113 3431642
Email: FMHUniEthics@leeds.ac.uk



UNIVERSITY OF LEEDS

Mr. Salim Makhoulf
Ph.D. Candidate
Academic Unit of Palliative Care
Leeds Institute of Health Sciences
School of Medicine
Faculty of Medicine and Health
University of Leeds
Room 10.46, Level 10 Worsley Building
Clarendon Way
LEEDS LS2 9NL

23 May 2019

Dear Salim

Ref no: MREC 18-064
Study Title: Professionals, patients, and caregivers' views surrounding cancer pain and its management in Libya

Thank you for submitting your documentation for the above project. Following review by the School of Medicine Research Ethics Committee (SoMREC), I can confirm a conditional favorable ethical opinion based on the documentation received at the date of this letter *and subject to the following conditions, which must be fulfilled before the study commencing:*

. Please submit a copy of the final version of the application form signed by one of your supervisors

The study documentation must be amended as required to meet the above conditions and submitted for file and possible future audit. Once you have addressed the conditions and submitted them for file/future audit, you may commence the study, and further confirmation of approval is not provided.

Please note failure to comply with the above conditions will be considered a breach of ethics approval and may result in disciplinary action.

<i>Document Received</i>	<i>Version</i>	<i>Date Received</i>
Ethical_Review_Form_ V5; 12.05.2019 .edited. Edited	5.0	15/05/2019
A research protocol for ethics. V5. 12.05.19.edited	5.0	15/05/2019
Semi-structured question for oncologists interview. v5. 12.05.19.edited	5.0	15/05/2019
Permission letter for Egyptian hospital.V5.12.05.2019.edited	5.0	15/05/2019
Permission letter for Libyan hospital.V5.12.05.2019.edited	5.0	15/05/2019
Participant Consent Form for Libya. V5; 12.05.2019 .edited	5.0	15/05/2019
Semi-structured questions for patients' interviews. V5; 12.05.2019_.edited	5.0	15/05/2019
Semi-structured questions for caregivers' interviews. V5; 12.05.2019.edited	5.0	15/05/2019
Participant Consent Form for Egypt. V5; 12.05.2019 .edited	5.0	15/05/2019
Information sheet for Participants (oncologists and oncology nurses in Libya). v5; 12.05.2019 .edited	5.0	15/05/2019
Information sheet for participants (Libyan patients and their family caregivers in Egyptian oncology centres). v5; 12.05.2.edited	5.0	15/05/2019
An invitation letter for Libya. V5; 12.05.2019 .edited	5.0	15/05/2019
An invitation letter for Egyptian Hospital.V5. 12.05.2019.edited	5.0	15/05/2019
Semi-structured question for nurses' interview. V5; 12.05.19.edited	5.0	15/05/2019
Semi-structured question for oncologists interview. v4. 05.12.19	4.0	16/04/2019
Background information from participants. Salim V3; 05.04.2019	3.0	16/04/2019
Fieldwork risk assessment (superseded)	2.0	22/05/2019

Please notify the committee if you intend to make any amendments to the original research as submitted at the 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 at 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 SoMREC takes no responsibility for you gaining access to staff, students, and/or premises prior to, during, or following your research activities.

You are expected to keep a record of all your approved documentation, as well as documents such as sample consent forms, risk assessments, and other documents relating to the study. This should be kept in your study file and may be subject to an audit inspection. If your project is to be audited, you will be given at least 2 weeks' notice.

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.

The committee wishes you every success with your project.

Yours sincerely



Dr. Naomi Quinton
Co-Chair, School of Medicine Research Ethics Committee

Appendix 18
Authorisation letter from the
Libyan Consulate of Alexandria (for
study two)

<p>State Of Libya Consulate General of Alexandria General Consul Office</p>		<p>دولة ليبيا القنصلية العامة بالإسكندرية مكتب القنصل العام</p>
<p>الرقم الإرشادي : 2399 / 2 / 1</p>		<p>التاريخ : 2019 / 7 / 14</p>
<p>السادة /</p> <p>مركز صن (sun) لعلاج الأورام بالإسكندرية</p>		
<p>بعد التحية..</p>		
<p>تهديكم القنصلية العامة الليبية بالإسكندرية أطيب تحيافا وتشرف بإفادتكم بأنه تقدم إلينا الدكتور / سليم ممتاح مخلوف - حامل جواز سفر ليبي رقم 913555 الباحث الأكاديمي في مجال العطب وعلاج الحالات المصاحبة للسرطان بطلب مفاده برغبته في إجراء دراسة ميدانية طرف مركزكم الموقر وذلك على حالات مرضي السرطان من الليبيين ومعرفة المشاكل التي تواجههم .</p> <p>عليه نأمل تفضلكم شاكرين بتسهيل مهمة المعني بالخصوص حيث لا مانع لدينا من استكمال المعني دراسته الميدانية على المرضى الليبيين طرفكم.. وتفضلوا بقبول وافر التقدير والاحترام ..</p> <p>والسلام عليكم ..</p>		
<p> الدكتور صالح خطاب الساعدي القائم بأعمال القنصلية العامة الليبية بالإسكندرية</p>		
<p></p>		
<p>مسودة للملف</p>		
<p>Tel.: 3930039 Fax : 4940877 شارع باتريس نوميا - الإسكندرية 4</p>		

Appendix 19
Approval from SUN for pts and
CGs (for study two)

An approval letter from SUN for Libyan patients and their caregivers

**Specialized Universal Network
of Oncology**



SUN

**المركز التخصصي العالمي
لعلاج الأورام**

Prof. Mike Bennett
 Director of Academic Unit of Palliative Care,
 Leeds Institute of Health Science,
 School of Medicine,
 University of Leeds, the UK

Dear Professor Bennett

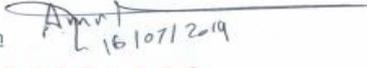
Thank you for your letter, dated in 12th of May 2019.

As you know with the recent troubles in Libya, many Libyan citizens have moved to the largest nearby city, which is Alexandria in Egypt. Therefore, we have a fair number of oncology patients, who have been treated at our Oncology Centre (Sun), which is one of the largest radiotherapies and oncology facility in Egypt.

It will be our pleasure to help and let Dr. Salim M. Makhoulf to conduct interviews with Libyan cancer patients at our Oncology Centre for his project over the next few days.

Dr. Amr Abdelmoneim Mahmoud
 Medical Director of the Sun Oncology Centre

Abdelmoneimamr1982@gmail.com



16/07/2019

www.suncure.net



الإعتماد الأوربي للعلاج الأورام



ESMO

سموحة : أمام كوبري ١٤ مايو ، ت : ٤٢٤٤٦٦٢ / ٧ - ٠٣ / ١٠٠٨٨٨٦٠١ / ٧

المجمي : شارع الهانوفيل الرئيسي ، برج درة الخليل ، ت : ٤٢٨١٩٢٠ / ٢

مواعيد العمل بالمركز : من ٦-٧ مساءً يومياً ماعدا الخميس والجمعة - الكشف والاستشارة بميعاد مسبق

في حالة حدوث أي طارئ طبي يُرجى الإتصال على : ٠٣ / ١٠٠٨٨٨٦٠٢

Appendix 20
Approval letter from SUN for HCPs
(for study two)

An approval letter from SUN for Libyan healthcare professionals

**Specialized Universal Network
of Oncology**



المركز التخصصي العالمى
لعلاج الأورام

To whom it may concern,.....

As usual, for the co-operation between us and the Libyan Consulate general of Alexandria (Libyan Embassy), therefore, we are happy to give permission to Dr Salim Makhlouf for conducting interviews with Libyan oncology physicians and nurses, who are doing training at our Specialized Universal Network of Oncology (SUN).

Best wishes,.....

Dr. Abdelsalam Attia Ismail

General Director of Specialised Universal Network of Oncology (SUN)



www.suncure.net



الإلتزام الأورامى
ESMO

سموحة : أمام كوبرى ١٤ مايو ، ت : ٤٢٤٤٦٦٢ / ٧ - ٠٢ / ٠١٠٠٨٨٨٦٠١ / ٢
 العجمى : شارع الهانوقيل الرئيسى ، برج درة الخليل ، ت : ٤٢٨١٩٢ / ٢
 مواعيد العمل بالمركز : من ٧-١ مساءً يومياً ماعدا الخميس والجمعة - الكشوف والإستشارة بميعاد مسبق
 فى حالة حدوث أي طارئ طبي يرجى الإتصال على : ٠٢ / ٠١٠٠٨٨٨٦٠٢

Appendix 21
Approval letter from NCCB to SUN
(for study two)

An approval letter from National Cancer Centre Benghazi (NCCB) for Libyan HCPs to SUN

وزارة الصحة
 المركز الوطني للأورام بنغازي
 National Cancer Center Benghazi



5/09/2019

TO WHOM IT MAY CONCERN

We are more than happy to help **Dr Salim Makhlouf** with his data collection using interviews with oncology nurses and physicians, who are working at our National Cancer Centre Benghazi (NCCB) and oncology department, Benghazi Medical Centre (BMC). That will be organized by Libyan Embassy at Alexandria, Egypt during the training. We have the largest oncology centre in Eastern of Libya.

Best wishes,,,,,

Dr. Ali M. Elzanati

Director of National Cancer Centre, Benghazi




061 2238351
 061 2238352
 061 2222100

Nccbenghazi@gmail.com

طريق الطويق - ساحة مستشفى الطويق العام

Appendix 22

Approval letter from NCCB (for study three)

 المركز الوطني للأورام بنغازي
 Necbenghazi@gmail.com
 061 2238351
061 2238352
061 2222400
 تطبيق الواتس اب
061 2238351
061 2238352
061 2222400

وزارة الصحة
المركز الوطني للأورام بنغازي
National Cancer Center Benghazi

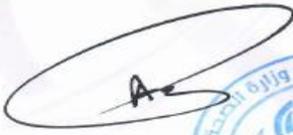


21.01.21

To Dr. Salim M. Makhoulf,
Academic Unit of Palliative Care,
School of Medicine, University of Leeds,
Te United Kingdom (UK),
T: 001133436354
E: umsmam@leeds.ac.uk

I am happy to grant full ethical approval for conducting this survey, entitled "Attitudes, knowledge, and perceived barriers towards cancer pain management among healthcare professionals in Libya: A national multicentre survey," at our National Cancer Centre (NCCB) and oncology department in Benghazi Medical Centre (BMC). This will include oncology physicians and nurses, who are working at our clinics.

Sincerely,




Prof.MD.DR. Ali M. Elzanati

Director of National Cancer Centre (NCCB) and Head of Oncology Department in Benghazi Medical Centre (BMC)

Appendix 23

Approval letter from NCIS (for study three)



حكومة الوفاق الوطني
وزارة الصحة
المعهد القومي لعلاج الأورام بصبراتة



التاريخ: 2020-9-30
الموافق: _____

الرقم الاحصائي: 2019/2020

Dr. Salim Makhlouf
A Ph.D. candidate in Cancer Pain Management (CPM)
Academic Unit of Palliative Care
School of Medicine
The University of Leeds, the UK
Level 10 Worsley Building
Clarendon Way
LEEDS LS2 9NL

We are pleased to inform you that we give you permission concerning your survey entitled "Attitudes, knowledge, perceived barriers towards cancer pain management among healthcare professionals in Libya: A national multicentre survey," to conduct it at our National Institute of Oncology- Sabratha (NCI). We wish you to gain essential information from our oncology physicians and nurses that may help in your survey.

We wish you all the best in your study.

Yours sincerely,



Dr. Abudgalia Abusaa
Head of Medical Services
National Cancer Institutue – Sabratha/Libya

بداية : 023.3620961 - هاتف وبريد مصور 023.3620960 - 023.3620962

Appendix 24

Approval letter from NCIM (for study three)



Appendix 25

Approval letter from TMC (for study three)


 دولة ليبيا
 وزارة الصحة
مركز طبرق الطبي
 صحي - تعليمي



التاريخ: 2020/09/10
 الرقم الإشاري:

Dr. Salim Makhlof
 A Ph.D. candidate in cancer pain management
 Academic Unit of Palliative Care
 School of Medicine
 The University of Leeds, the UK
 Level 10 Worsley Building
 Clarendon Way
 LEEDS LS2 9NL

Subject: permission for conducting a survey
 Dear Dr. Makhlof,
 I am pleased to inform you that I permit you with respect to your study under the title of "Attitudes, knowledge, perceived barriers towards cancer pain management among healthcare professionals in Libya: A national multicentre survey," to conduct your survey at our Tobruk Medical Centre (TMC). We wish our oncology physicians and nurses give you important information that may help in your study.
 We wish you all the best in your research.

Kind regards,

 Dr. Khaled El Mahdi
 Head of Oncology Department at TMC



مركز طبرق الطبي
 صحي - تعليمي

هاتف: 7628326 - 7628329 شاكس: 00218627628330 طارق - ليبيا
 الموقع الإلكتروني: www.tmc.med.ly البريد الإلكتروني: info@tmc.med.ly

Appendix 26

Approval letter from TMC (for study three)

<p>STATE OF LIBYA TRIPOLI UNIVERSITY HOSPITAL</p>		<p>دولة ليبيا المستشفى الجامعي طرابلس</p>		
		<p>Date : 20/1/11 التاريخ :</p>		
<p>Index : : الإشاري :</p>				
<p>To Whom It May Concern,</p>				
<p>I am happy to grant full ethical approval for conducting this survey, entitled "Attitudes, knowledge, and perceived barriers towards cancer pain management among healthcare professionals in Libya: A national multicentre survey," at our oncology department, Tripoli Medical Centre (TMC). It will be a short questionnaire, including oncology physicians and nurses, who are working at our clinic.</p>				
<p>Sincerely,</p>				
<p>Dr. Nagi Jornaz</p>				
<p>Head of Oncology Department at Tripoli Medical Centre (TMC)</p>				
				
<table border="0" style="width: 100%;"> <tr> <td style="width: 25%; vertical-align: top;"> <p>www.tuh.med.ly info@tuh.med.ly</p> </td> <td style="width: 75%; text-align: right; vertical-align: top;"> <p>طريق عين زارة الفراج - طرابلس / ليبيا 15 - +218 21 4623701 ☎ +218 21 4625615 📠 7425</p> </td> </tr> </table>			<p>www.tuh.med.ly info@tuh.med.ly</p>	<p>طريق عين زارة الفراج - طرابلس / ليبيا 15 - +218 21 4623701 ☎ +218 21 4625615 📠 7425</p>
<p>www.tuh.med.ly info@tuh.med.ly</p>	<p>طريق عين زارة الفراج - طرابلس / ليبيا 15 - +218 21 4623701 ☎ +218 21 4625615 📠 7425</p>			

Appendix 27

Information sheet for participants (for study three)

Academic Unit of Palliative Care
Leeds Institute of Health Sciences
School of Medicine
Level 10, Worsley Building, University of Leeds



UNIVERSITY OF LEEDS

Information sheet for Participants (Survey)

Research title: Attitudes, knowledge, and perceived barriers towards cancer pain management among healthcare professionals in Libya: A national multicentre survey

Salim M. Makhoulf, School of Medicine, University of Leeds.

You are kindly invited to take part in this research study; it is crucial that you understand why the research is being done and what it involves. Therefore, please take your time to read the following information carefully before you decide to continue. Please ask if there is anything that is not clear or understandable, or if you would like further information. Take as much time as you would like to decide if you want to take part in this study or not.

1- What is the purpose of the study?

Recent reviews and studies reported a lack of knowledge and negative attitudes towards cancer pain management (CPM) among Health care professionals (HCPs) (oncology nurses and physicians) as one of the most common barriers to effective CPM. However, there is still no published study about HCPs' attitudes, knowledge, and perceived barriers towards CPM in Libya. Therefore, this study evaluates HCPs' knowledge, attitudes, and potential barriers regarding CPM in Libya.

2- Why do we need this information?

This information will help us to recognise the potential attitudes, knowledge, and perceived barriers about CPM among HCPs in Libya. The findings of this survey will help us in the future, in order to establish palliative care services in Libya, as well as to guide the future development of relevant educational programs for HCPs to assist cancer patients in managing their pain.

3- Who will be involved in the research, and where will the research take place?

The survey will be undertaken at the five different cancer national institutes and centres in Libya. The participants will be the Libyan HCPs (oncology nurses and physicians).



4- How will the research be carried out?

After the approval from the University of Leeds information sheets is granted. The barriers questionnaire II (BQ-II) will be distributed by the survey co-ordinators (oncology doctors; not senior or manager) to all potential participants during their break-time. The BQ-II has included a 27-item self-report questionnaire that assesses concerns about cancer pain and using pain medication for CPM. All questionnaires will take place in 5 national oncology centres in Libya. This questionnaire will take about 10 minutes in length. Simultaneously, the background information sheet for participants will be distributed before the survey, which will take about 5 minutes to complete.

5- Do I have to take part in this study?

The participant is anonymised, and as the participants are a volunteer, so they do not have to take part in this survey. The questionnaires cannot be withdrawn once they have been returned to the co-ordinator as they are anonymous.

6- What will happen to me if I take part in this study?

If you are willing to participate in the survey, you will be asked to read this information sheet and ask any questions before you sign a consent form. You will then participate in filling the questionnaire, which takes about 10 minutes.

7- Are there any risks or benefits involved in the study?

There will be no physical risks, as there will be no invasive procedures as a part of this study. You will not directly benefit from taking part, but the findings of the study may help to improve CPM in the future.

8- What will happen to the research results?

The results collected in this survey will be used in the thesis and for future publication.

Academic Unit of Palliative Care
 Leeds Institute of Health Sciences
 School of Medicine
 Level 10, Worsley Building, University of Leeds



UNIVERSITY OF LEEDS

9- Will my taking part in this study be kept confidential?

Yes, all data will be kept strictly confidential, and nobody will have access to data except the researcher and their supervisors. Any personal information obtained from participants will be stored for a period of **three years** following completion of the study, after which it will then be destroyed by electronic deletion and shredding as appropriate.

10- Does this research have sufficient ethical approvals?

Ethical approval has been sought from the School of Medicine Research Ethics Committee (The SOMREC reference is MREC 20-005; in Leeds, the UK). Besides, approval letters have been received from three national cancer institutes and centres in Libya: Tobruk Medical Centre (TMC), National Cancer Institute of Misratah (NCIM), Sabha Oncology Centre (SOC).

Thank you for taking the time to read this information sheet.

Researcher's contact details

I will be always happy to clarify any things, which is not clear or giving more information regarding this study. Thus, please do not hesitate to contact me on the following details:

Salim M. Makhoulouf

S. Makhoulouf

School of Medicine, University of Leeds,
 Worsley Building, Leeds, LS2 9JT
 Tel: 00441 133438354
 Email: umsmam@leeds.ac.uk

Noted by:

professor Michael Bennett

Director, Academic Unit of Palliative Care
 School of Medicine, University of Leeds

Appendix 28

Background information for participants (for study three)

Academic Unit of Palliative Care
Leeds Institute of Health Sciences
School of Medicine
Level 10, Worsley Building, University of Leeds



UNIVERSITY OF LEEDS

Background information for participants (Survey)

Participant Number: -----

Date: -----

1. The participant is a: (1) Nurse (2) Physician

2. Gender: (1) Male (2) Female

3. Age in years: -----

3. Check the box of the highest educational qualifications:

(1) Secondary school (2) Intermediate Diplom (3) Undergraduate

(4) Postgraduate

4. What is your current marital status?

(1) Married (2) Widowed (3) Divorced (4) Not married (5) Engaged

5. Where do you live?

(1) City (2) Village (3) Camp

6. Approximately what is your monthly income (LYD, convert to Pound Sterling will be done by researcher)?

(1) No income (2) less than £20,000 (3) £20,000-£39,999

(4) £40,000-£59,999 (5) £60,000-£79,999 (6) £80,000-£99,999

(7) £100,000-£149,999 (8) £150,000-£199,999 (9) more than 200,000

Academic Unit of Palliative Care
 Leeds Institute of Health Sciences
 School of Medicine
 Level 10, Worsley Building, University of Leeds



UNIVERSITY OF LEEDS

7. Have you attended any training or education courses in CPM?

- (1) Yes (2) No

8. How long have you been in this job?

- (1) Six months (2) **Less than** one year (3) **Greater than** one year

9. Do you follow any specific guidelines for palliative care/ CPM?

- (1) Yes (2) No

(3) If the answer "yes," which one: (a) NICE's guidelines (b) WHO's guidelines

(4) If the answer "No," Why not

10. What are the current medications you prescribe/ give for CPM?

(1) Non- Opioid: (a) Paracetamol (b) NSAIDs

(2) Weak opioid: (a) codeine or dihydro-codeine (b) Tramadol

(3) Strong opioid: (a) Morphine , (b) Alfentanil , (d) Diamorphine ,

(e) Fentanyl , (f) Oxycodone

(4) Others:

Thank you for your time to complete this questionnaire

If you have any comments regarding this survey do not hesitate to contact me on the following contact details: Salim M. Makhoulouf, phone No: 0044 (0) 11334326354, E-mail: umsmam@leeds.ac.uk

Appendix 29

An invitation letter for study three

Academic Unit of Palliative Care
School of Medicine
Level 10, Worsley Building, University of Leeds



UNIVERSITY OF LEEDS

15/08/2020

An invitation letter

This is a letter of invitation to participate in this survey entitled "Attitudes, knowledge, and perceived barriers towards cancer pain management among healthcare professionals in Libya: A national multicentre survey."

Dear Sir/ Madam:

I am writing as a Ph.D. candidate from the School of Medicine at the University of Leeds in the UK to ask if you would be kind enough to take part in this study. This will involve a short questionnaire, which will take about 10 minutes of your time, aiming to evaluate healthcare professionals' (HCPs) knowledge, attitudes, and potential barriers regarding cancer pain management (CPM) in Libya. At the same time, a background information sheet for participants will be given to you, which will take about 5 minutes to complete. All information will be anonymised and securely stored once the questionnaire is complete.

Thank you for taking the time to read this letter

Kind regards,

Salim M. Makhoulouf
A Ph.D. candidate in cancer pain management
Room 10.31, Level 10 Worsley Building
Academic Unit of Palliative Care
School of Medicine
University of Leeds
☎ + 44 (0) 1133436354
E-mail: umsmam@leeds.ac.uk

Appendix 30

Approval letter from the University of Leeds for study three

Inbox - unsmam@leeds.ac.uk - Outlook

Continually Tell me what you want to do

Reply Reply All Forward IM

Rachel De Souza [Medicine] on behalf of Medicine and Health Univ Ethics Review Salim Makhoul, [Medicine and Health Univ Ethics Review]

RE: MREC 20-005 - Favourable Ethical Opinion

You replied to this message on 20/11/2020 11:02.

From: John Hardy <J.H.Hardy@leeds.ac.uk> **On Behalf Of** Medicine and Health Univ Ethics Review
Sent: 10 November 2020 17:06
To: Salim Makhoul <sunsmam@leeds.ac.uk>
Cc: Medicine and Health Univ Ethics Review <MHUETHICS@leeds.ac.uk>
Subject: MREC 20-005 - Favourable Ethical Opinion

Dear Salim

MREC 20-005 - Attitudes, knowledge, and perceived barriers towards cancer pain management among healthcare professionals in Libya: A national multicentre survey
NB: All approvals/comments are subject to compliance with current University of Leeds and UK Government advice regarding the Covid-19 pandemic.

I am pleased to inform you that the above research ethics application has been reviewed by the School of Medicine Research Ethics Committee and on behalf of the Chairs, I can con documentation received at date of this email.

Please retain this email as evidence of approval in your study file.

Please notify the committee if you intend to make any amendments to the original research as submitted and approved to date. This includes recruitment methodology, all changes as Please see <https://leeds365.sharepoint.com/sites/ResearchandInnovationService/SitePages/Amendments.aspx> or contact the Research Ethics Administrator for further information [E](#)

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 o 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, risk assessments and other documents relati 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 hope the study goes well.

Best wishes
 John Hardy
On behalf of SOMREC

John Hardy

Appendix 31

Barriers Questionnaire II (BQ-II) English version



Barriers Questionnaire II (BQ-II)

[English version]

We are interested in learning about your attitudes toward the treatment of pain. We want to know what you think. Some of the questions may seem similar to other ones, but please answer all of the questions. For each of the items below, please circle the number (0, 1, 2, 3, 4, or 5) that comes closest to how much you agree with that item.

- 1) Cancer pain can be relieved.
- | | | | | | |
|------------------------|---|---|---|---|--------------------|
| 0 | 1 | 2 | 3 | 4 | 5 |
| Do not agree
at all | | | | | Agree very
much |
- 2) There is a danger for patients to become addicted to pain medicine.
- | | | | | | |
|------------------------|---|---|---|---|--------------------|
| 0 | 1 | 2 | 3 | 4 | 5 |
| Do not agree
at all | | | | | Agree very
much |
- 3) Drowsiness from pain medicine is difficult to control.
- | | | | | | |
|------------------------|---|---|---|---|--------------------|
| 0 | 1 | 2 | 3 | 4 | 5 |
| Do not agree
at all | | | | | Agree very
much |
- 4) Pain medicine weakens the immune system.
- | | | | | | |
|------------------------|---|---|---|---|--------------------|
| 0 | 1 | 2 | 3 | 4 | 5 |
| Do not agree
at all | | | | | Agree very
much |

- 5) Confusion from pain medicine can not be controlled.
- 0 1 2 3 4 5
Do not agree at all Agree very much
- 6) When the patient uses pain medicine, his/her body becomes used to its effects, and pretty soon, it will not work anymore.
- 0 1 2 3 4 5
Do not agree at all Agree very much
- 7) Using pain medicine blocks the patient's ability to know if he/she has any new pain.
- 0 1 2 3 4 5
Do not agree at all Agree very much
- 8) Pain medicine can effectively control cancer pain.
- 0 1 2 3 4 5
Do not agree at all Agree very much
- 9) Many people with cancer get addicted to pain medicine.
- 0 1 2 3 4 5
Do not agree at all Agree very much
- 10) Nausea from pain medicine can not be relieved.
- 0 1 2 3 4 5
Do not agree at all Agree very much

- 11) It is important for the patient to be strong by not talking about his/her pain.
- | | | | | | |
|------------------------|---|---|---|---|--------------------|
| 0 | 1 | 2 | 3 | 4 | 5 |
| Do not agree
at all | | | | | Agree very
much |
- 12) It is important for the doctor to focus on curing illness, and not waste time controlling pain.
- | | | | | | |
|------------------------|---|---|---|---|--------------------|
| 0 | 1 | 2 | 3 | 4 | 5 |
| Do not agree
at all | | | | | Agree very
much |
- 13) Using pain medicine can harm patient's immune system.
- | | | | | | |
|------------------------|---|---|---|---|--------------------|
| 0 | 1 | 2 | 3 | 4 | 5 |
| Do not agree
at all | | | | | Agree very
much |
- 14) Pain medicine makes patients say or do embarrassing things.
- | | | | | | |
|------------------------|---|---|---|---|--------------------|
| 0 | 1 | 2 | 3 | 4 | 5 |
| Do not agree
at all | | | | | Agree very
much |
- 15) If a patient takes pain medicine when he/she has some pain, then it might not work as well if the pain becomes worse.
- | | | | | | |
|------------------------|---|---|---|---|--------------------|
| 0 | 1 | 2 | 3 | 4 | 5 |
| Do not agree
at all | | | | | Agree very
much |
- 16) Pain medicine can keep patients from knowing what is going on in their bodies.
- | | | | | | |
|------------------------|---|---|---|---|--------------------|
| 0 | 1 | 2 | 3 | 4 | 5 |
| Do not agree
at all | | | | | Agree very
much |

17) Constipation from pain medicine can not be relieved.

0	1	2	3	4	5
Do not agree at all					Agree very much

18) If doctors have to deal with the pain, they will not concentrate on curing the disease.

0	1	2	3	4	5
Do not agree at all					Agree very much

19) Pain medicine can hurt a patient's immune system.

0	1	2	3	4	5
Do not agree at all					Agree very much

20) It is easier for a patient to put up with pain than the side effects that come from pain medicine.

0	1	2	3	4	5
Do not agree at all					Agree very much

21) If the patient use pain medicine now, it will not work as well if he/she needs it later.

0	1	2	3	4	5
Do not agree at all					Agree very much

22) Pain medicine can mask changes in the patient's health.

0	1	2	3	4	5
Do not agree at all					Agree very much

23) Pain medicine is very addictive.

0	1	2	3	4	5
Do not agree at all					Agree very much

24) Medicine can relieve cancer pain.

0	1	2	3	4	5
Do not agree at all					Agree very much

25) Doctors might find it annoying to be told about pain.

0	1	2	3	4	5
Do not agree at all					Agree very much

26) Reports of pain could distract a doctor from curing cancer.

0	1	2	3	4	5
Do not agree at all					Agree very much

27) If the patient talks about pain, people will think he/she is a complainer.

0	1	2	3	4	5
Do not agree at all					Agree very much

Thank you for completing this survey

Appendix 32

Mean scores for Libyan nurses' and physicians' responses in the BQ-II

Subscale	Items	Mean (SD)
Physiological Effects	Drowsiness from pain medicine is difficult to control	2.7 (1.6)
	Confusion from pain medicine cannot be controlled	2.5 (1.5)
	When the patient uses pain medicine, his/her body becomes used to its effects, and pretty soon, it will not work anymore	3.7 (1.3)
	Using pain medicine blocks the patient's ability to know if he/she has any new pain	3.4 (1.7)
	Nausea from pain medicine cannot be relieved	1.8 (1.7)
	Pain medicine makes patients say or do embarrassing things	2.0 (1.7)
	If a patient takes pain medicine when he/she has some pain, then it might not work as well if the pain becomes worse	3.3 (1.5)
	Pain medicine can keep patients from knowing what is going on in their bodies	2.6 (1.7)
	Constipation from pain medicine cannot be relieved	1.8 (1.6)
	It is easier for a patient to put up with pain than the side effects that come from pain medicine	2.5 (1.8)
	If the patient use pain medicine now, it will not work as well if he/she needs it later	2.9 (1.7)
	Pain medicine can mask changes in the patient's health	2.8 (1.7)
Fatalism	Cancer pain can be relieved	1.2 (1.3)
	Pain medicine can effectively control cancer pain	1.5 (1.4)
	Medicine can relieve cancer pain	1.2 (1.3)
Communication	It is important for the patient to be strong by not talking about his/her pain	2.4 (1.9)
	It is important for the doctor to focus on curing illness, and not waste time controlling pain	2.4 (2.2)
	If doctors have to deal with the pain, they won't concentrate on curing the disease	1.5 (1.8)
	Doctors might find it annoying to be told about pain	1.4 (1.8)
	Reports of pain could distract a doctor from curing the cancer	1.5 (1.8)
	If the patient talks about pain, people will think he/she is a complainer	2.3 (2.0)
Harmful Effects	There is a danger for patients to become addicted to pain medicine	3.5 (1.5)
	Pain medicine weakens the immune system	2.3 (1.8)
	Many people with cancer get addicted to pain medicine	3.6 (1.5)
	Using pain medicine can harm patient's immune system	2.3 (1.9)
	Pain medicine can hurt a patient's immune system	2.3 (1.9)
	Pain medicine is very addictive	3.3 (1.5)

Appendix 33
Interpreting Alpha for Likert scale question

Cronbach's Alpha	Internal consistency
0.90 and above	Excellent
0.80 – 0.89	Good
0.70 – 0.79	Acceptable
0.60 – 0.69	questionable
0.50 – 0.59	Poor
Below 0.50	Unacceptable

Source: <https://www.statisticshowto.com/probability-and-statistics/statistics-definitions/cronbachs-alpha-spss/>

Appendix 34

Interval Scale

Likert-Scale	Interval	Difference	Description
0	0.00 – 0.99	0.99	Do not agree at all
1	1.00 – 1.79	0.79	Disagree
2	1.80 – 2.59	0.79	Neither agree nor disagree
3	2.60 – 3.39	0.79	Mostly agree
4	3.40 – 4.19	0.79	Agree
5	4.20 – 5.00	0.80	Agree very much

Appendix 35

Barriers Questionnaire II (BQ-II) Arabic version

فيم العلاج التلطيفي (علاج الألام المصاحبه للسرطان)
كلية الطب - جامعة ليدز - بريطانيا



Barriers Questionnaire (Arabic Version)

رقم المشاركة (5):

عزيزي المشارك \ المشاركة:

نحن مهتمين بمعرفة وجهة نظرك ورأيك تجاه بعض الامور المتعلقة بعلاج الألام المصاحبة للسرطان (الحواجز والمعوقات). ستلاحظ وجود اسئلة متشابهه نرجوا منك الاجابة عن جميع الاسئلة. نرجوا منك اختيار رقم من (5-0) والتي تتناسب مع مدى موافقتك على صحة كل جزء لكل من الاسئلة التالية.

0	1	2	3	4	5
لا أوافق أبداً				أوافق بشده	
1) من الممكن علاج الألم الناتج عن مرض السرطان					
0	1	2	3	4	5
لا أوافق أبداً				أوافق بشده	
2) هناك خطر على المرضى للإيمان على الأدوية المسكنه للألم					
0	1	2	3	4	5
لا أوافق أبداً				أوافق بشده	
3) يصعب السيطرة على الخمول الناتج عن أخذ الأدوية المسكنه للألم					
0	1	2	3	4	5
لا أوافق أبداً				أوافق بشده	
4) تضعف الأدوية المسكنه للألم جهاز المناعة					
0	1	2	3	4	5
لا أوافق أبداً				أوافق بشده	
5) يصعب السيطرة على حالة التنوش التي تنتج عن الأدوية المسكنه للألم					
0	1	2	3	4	5
لا أوافق أبداً				أوافق بشده	
6) عندما يستخدم المريض الادوية المسكنه للألم فإن جسمه يتعود عليها وتصبح غير فعالة بسرعة					
0	1	2	3	4	5
لا أوافق أبداً				أوافق بشده	
7) يمنع استخدام الأدوية المسكنه للألم قدرة المريض على معرفة إذا ما كان لديه ألم جديد ام لا					
0	1	2	3	4	5
لا أوافق أبداً				أوافق بشده	
8) تستطيع الأدوية المسكنه للألم علاج الألم الناتج عن مرض السرطان					
0	1	2	3	4	5
لا أوافق أبداً				أوافق بشده	
9) يتعرض العديد من مرضى السرطان للإدمان على الأدوية المسكنه للألم					
0	1	2	3	4	5
لا أوافق أبداً				أوافق بشده	
10) لا يمكن علاج الغثيان الذي تسببه الأدوية المسكنه للألم					
0	1	2	3	4	5
لا أوافق أبداً				أوافق بشده	
11) من المهم أن يكون المريض قويا وذلك بعدم التحدث عن ألمه					
0	1	2	3	4	5
لا أوافق أبداً				أوافق بشده	
12) من المهم أن يركز الأطباء على شفاء المرض نفسه وعدم اضعاف الوقت بعلاج الألام					
0	1	2	3	4	5
لا أوافق أبداً				أوافق بشده	
13) ان استخدام الادوية المسكنه للألم يضرب الجهاز المناعي للمريض					
0	1	2	3	4	5
لا أوافق أبداً				أوافق بشده	



14	ان الادوية المسكنة للألم تجعل المريض يقول ويقبل أشياء محرجه	0	1	2	3	4	5
لا أوافق أبداً							أوافق بشده
15	إذا تناول المريض الأدوية المسكنة للألم لعلاج ألم خفيف فإن قاطعتها تقل في حال الألم الشديد	0	1	2	3	4	5
لا أوافق أبداً							أوافق بشده
16	الأدوية المسكنة للألم تجعل المريض لا يعرف ما يجري داخل جسمه	0	1	2	3	4	5
لا أوافق أبداً							أوافق بشده
17	الإسكك الذي تسببه الأدوية المسكنة للألم لا يمكن تحقيقه	0	1	2	3	4	5
لا أوافق أبداً							أوافق بشده
18	إذا كان على الأطباء التعامل مع الألم فإنهم لن يركزوا على علاج المرض نفسه	0	1	2	3	4	5
لا أوافق أبداً							أوافق بشده
19	الأدوية المسكنة ممكن تنفذ الجهاز المناعي للمريض	0	1	2	3	4	5
لا أوافق أبداً							أوافق بشده
20	إنه من الأسهل للمرضى التعامل مع الألم بدل من التعامل مع الأعراض الجانبية للأدوية المسكنة للألم	0	1	2	3	4	5
لا أوافق أبداً							أوافق بشده
21	إذا المريض تناول الأدوية المسكنة للألم الان، فإنها لن تعمل بنفس الفاعليه فيما بعد	0	1	2	3	4	5
لا أوافق أبداً							أوافق بشده
22	يمكن للأدوية المسكنة للألم ان تخفي التغيرات في صحة المريض	0	1	2	3	4	5
لا أوافق أبداً							أوافق بشده
23	الأدوية المسكنة للألم إدمانيه (تسبب الإدمان)	0	1	2	3	4	5
لا أوافق أبداً							أوافق بشده
24	يمكن تخفيف الألم المصاحبة للسرطان باستخدام الأدوية المسكنة	0	1	2	3	4	5
لا أوافق أبداً							أوافق بشده
25	قد يجد الأطباء انه من المزعج أن يخبرهم المريض عن ألمه	0	1	2	3	4	5
لا أوافق أبداً							أوافق بشده
26	إخبار الأطباء عن الألم قد يشتمهم عن علاج المرض نفسه	0	1	2	3	4	5
لا أوافق أبداً							أوافق بشده
27	إذا تكلم المريض عن الألم، فإن الناس سيعتقدون انه كثير الشكوى	0	1	2	3	4	5
لا أوافق أبداً							أوافق بشده

شكراً لمشاركته

Appendix 36

Consolidated criteria for reporting qualitative studies (COREQ): a 32-item checklist

Table. Consolidated criteria for reporting qualitative studies (COREQ): 32-item checklist.

Developed from:

Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care*. 2007. Volume 19, Number 6: pp. 349 – 357

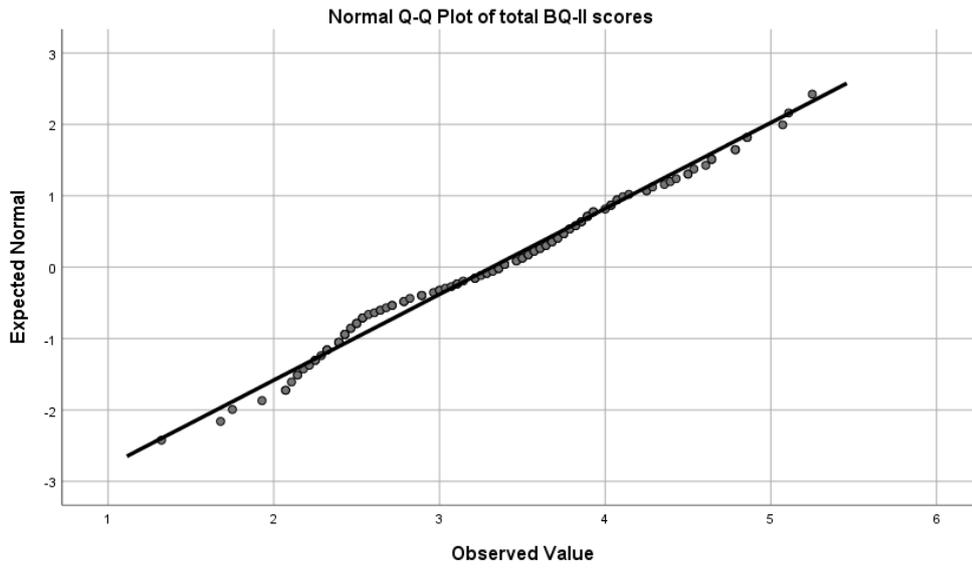
No. Item	Guide questions/description	Reported on Page #
Domain 1: Research team and reflexivity		
<i>Personal Characteristics</i>		
1. Inter viewer/facilitator	Which author/s conducted the interview or focus group?	Salim Makhoulf (SM; page 3).
2. Credentials	What were the researcher's credentials? E.g. PhD, MD	Salim M. Makhoulf, BSc, MSc, Ph.D. candidate.
3. Occupation	What was their occupation at the time of the study?	A Ph.D. candidate.
4. Gender	Was the researcher male or female?	Male (page 3).

5. Experience and training	What experience or training did the researcher have?	As researcher is a Ph.D. candidate, he has had many courses including qualitative research methods Data collection, e.g. interviews Data analysis, e.g. NVivo 12 Plus.
<i>Relationship with participants</i>		
6. Relationship established	Was a relationship established prior to study commencement?	No (page 3).
7. Participant knowledge of the interviewer	What did the participants know about the researcher? e.g. personal goals, reasons for doing the research	See included information sheet.
8. Interviewer characteristics	What characteristics were reported about the interviewer/facilitator? e.g. Bias, assumptions, reasons and interests in the research topic	Page 3.
Domain 2: study design		
<i>Theoretical framework</i>		
9. Methodological orientation and Theory	What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis	A pragmatic approach.
<i>Participant selection</i>		
10. Sampling	How were participants selected? e.g. purposive, convenience, consecutive, snowball	Purposive sampling.
11. Method of approach	How were participants approached? e.g. face-to-face, telephone, mail, email	See page 3.
12. Sample size	How many participants were in the study?	36 participants.
13. Non-participation	How many people refused to participate or dropped out? Reasons?	No one refused (page 3).
<i>Setting</i>		
14. Setting of data collection	Where was the data collected? e.g. home, clinic, workplace	Clinic (page 3).

	quotation identified? e.g. participant number	
30. Data and findings consistent	Was there consistency between the data presented and the findings?	Yes. See Discussion (pages 9-13)
31. Clarity of major themes	Were major themes clearly presented in the findings?	Yes. See Results (pages 5-8)
32. Clarity of minor themes	Is there a description of diverse cases or discussion of minor themes?	Yes. See Results (pages 5-8)

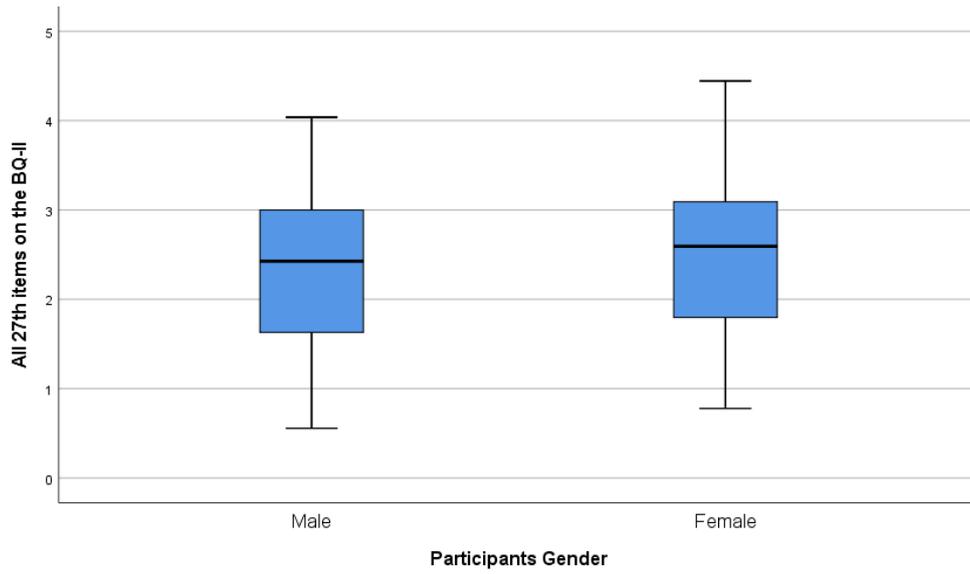
Appendix 37

Normal Q-Q Plot of all BQ-II scores for males and females



Appendix 38

Normal box plots for males and females



Appendix 39

Permission from Ward for using the BQ-II in this study

Search Tools Inbox - umsmam@leeds.ac.uk - Outlook

Grammarly Search Tell me what you want to do

Reply Reply All Forward IM

 SANDRA E WARD <sward@wisc.edu>  Salim Makhlof

Re: Request for adapting the BQ into my study

You replied to this message on 13/08/2020 13:38.

 BQ-ILDOC 36 KB	 BQscoring.doc 37 KB	 BQpapersRev.doc 30 KB
---	--	--

Hello Ms Makhlof,
You have permission to use the BQ in your research. I've attached a copy of the questionnaire, scoring instructions and a bibliography.

Best wishes in your work,
Sandy

Sandra Ward, PhD, RN, FAAN
Professor Emerita
UW-Madison

From: Salim Makhlof <umsmam@leeds.ac.uk>
Sent: Monday, August 10, 2020 9:44 AM
To: SANDRA E WARD <sward@wisc.edu>
Subject: Request for adapting the BQ into my study

Dear Dr. Ward

Hi, I am Salim Makhlof, a Ph.D. candidate at the School of Medicine, University of Leeds, the UK. I intend to do my research, titled "Healthcare professionals' attitudes, knowledge, and perceived international multicentre survey." I would like to ask you for permission to adapt the barriers questionnaire into my research. Also, could you please send me a copy of the barriers questionnaire if possible?

Thank you in advance,

Kind regards,

Salim Makhlof, PGD, MSc.

A Ph.D. candidate in Cancer Pain Management (CPM)
Academic Unit of Palliative Care
Leeds Institute of Health Sciences
School of Medicine
University of Leeds

Appendix 40

Permission for using the Arabic version of the BQ-II in this study

Search Tools Inbox - umsmam@leeds.ac.uk - Outlook

Grammarly Search Tell me what you want to do

Reply Reply All Forward IM

 **Mohammad Al Qadire** <mohammadqadire@gmail.com>  Salim Makhlof

Re: Request to adapt the barriers questioner, and knowledge and attitudes survey (Arabic versions)

 You forwarded this message on 18/08/2020 15:03.
Click here to download pictures. To help protect your privacy, Outlook prevented automatic download of some pictures in this message.

 Appendix H_Barrier Questionnaire arabic version.doc
58 KB

Dear Salim,

You have my permission to use the arabic version of the BQ and yes I have used it for Healthcare providers.
Wish you the best in your endeavor.

On Thu, 13 Aug 2020 at 18:56, Salim Makhlof <umsmam@leeds.ac.uk> wrote:

Dear Dr. **Al Qadire**,

Hi, I am Salim Makhlof, a Ph.D. candidate at the School of Medicine, University of Leeds, the UK. I intend to do my research, titled "Healthcare professionals' attitudes, knowledge, and perceived national multicentre survey." I would like to ask you for permission to adapt the barriers questioner, and knowledge and attitudes survey Arabic versions into my research. Also, could you please Knowledge and attitudes survey Arabic version if possible, Please. I still not know which one I should use. My supervisor wants me to use the BQ, as he thought the BQ had been used for HCPs and detailed. However, I believe the BQ just used for patients, not for HCPs. Please, I need your advice as well, if possible.

Thank you in advance,

Kind regards,

Salim Makhlof, PGD, MSc.

A Ph.D. candidate in Cancer Pain Management (CPM)

Appendix 41

Abstracts for poster presentations (Conferences)

**North-East Postgraduate Conference, Diversity; November 13/2020;
United Kingdom [Accepted]**

Managing pain in people with cancer—a systematic review of the attitudes and knowledge of professionals, patients, and caregivers

Salim M. Makhlof¹ & Simon Pini¹ & Shenaz Ahmed¹ & Michael I. Bennett¹

Academic Unit of Palliative Care, Leeds Institute of Health Sciences, School of Medicine, University of Leeds, Leeds, U.K.

Address correspondence and reprint requests to: Salim M. Makhlof, MSc, Academic Unit of Palliative Care, School of Medicine, LIHS, University of Leeds, Level 10 Worsley Building, Clarendon Way, Leeds LS2 9NL, U.K. Phone No: 0044 (0) 1133436354, E-mail: umsmam@leeds.ac.uk ORCID identifier is 0000-0002-1567-7757.

Introduction

- Cancer pain caused by the disease or its treatment¹.
- Morphine remains the recommended for CPM².
- Cancer pts still do not receive appropriate CPM, and under-treatment is common³.

Results

- 36 studies met the inclusion criteria.
- Finding was among HCPs, pts, and caregivers, similar attitudinal barriers to effective CPM^{4, 5, 6}.
- Most commonly cited barriers: fear of addiction, tolerance, and side effects of opioids.
- We found differences among HCPs^{4, 8} and different countries^{7, 9} based on their potential exposure to palliative care training and services.

Discussion

- Our findings consistent with those of recent studies^{10, 11, 7, 12}.
- CPM remains a significant problem worldwide, especially in countries within Europe, Africa, and Asia^{11, 12, 13, 14}.
- Still barriers to effective CPM, result in unrelieved CP,
- more educational programmes and training for HCPs and general awareness with an adequate level of knowledge for pts and caregivers in CPM needed.

Methods

- To systematically review research on the nature and impact of attitudes and knowledge towards CPM,
- a systematic literature search of 6 databases (the Cochrane Library, MEDLINE, PsycINFO, CINAHL, Web of Science, and EMBASE) in July 2018.
- Critically appraised by 2 researchers (the Joanna Briggs Institute Analytical Cross-Sectional Studies Assessment).



Source: <https://www.happidoc.com/clinical-research-news/>

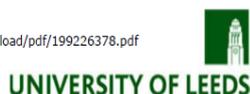
Acknowledgments

- Authors acknowledge the Ministry of Education in Libya for funding.

References

1. Keefe et al. (2005). *Annu Rev Psychol*, 56:601–630.
2. Wiffen et al. (2016). *Syst Rev* 4.
3. Thinh et al (2018). *Pain Res Manag* 2018:8– 8.
4. Darawad et al. (2017). *J Cancer Educ* 34:366–374.
5. Colak et al. (2014). *Asian Pac J Cancer Prev* 15(12):4983–4988.
6. Vallerand et al. (2007) *Cancer Nurs* 30(1):31–37.
7. Jacobsen, et al. (2007). *J Opioid Manag* 3(4):207–214.
8. Jho, et al (2014). *PLOS ONE* 9(8):e105900.
9. McCaffery M, Ferrell BR (1995). *J Pain Symptom Manag* 10(5): 356–369.
10. Bouya et al. (2018). *J Cancer Educ*.
11. Breivik et al. (2009). *Ann Oncol* 20(8):1420–1433.
12. den Beuken-van Everdingen et al. (2016). *J Pain Symptom Manag* 51(6):1070–1090.e1079.
13. Reis-Pinã et al. (2015). *Acta Medica Port* 28(3):376–381.
14. Saini S, Bhatnagar S (2016). *J Palliat Care* 22(4):373–377.

Details visit:
<https://core.ac.uk/download/pdf/199226378.pdf>



North-East Postgraduate Conference, Diversity; November 11-12/2021; United Kingdom [Accepted]

Libyan healthcare professionals', patients' and caregivers' perceptions about cancer pain and its management: A qualitative study

Salim M. Makhoul¹ & Shenaz Ahmed¹ & Michael I. Bennett¹

Academic Unit of Palliative Care, Leeds Institute of Health Sciences, School of Medicine, University of Leeds, Leeds, U.K. Address correspondence and reprint requests to: Salim M. Makhoul, MSc, Academic Unit of Palliative Care, School of Medicine, LIHS, University of Leeds, Level 10 Worsley Building, Clarendon Way, Leeds LS2 9NL, U.K. Phone No: 0044 (0) 1133436354, E-mail: umsmam@leeds.ac.uk
ORCID identifier is 0000-0002-1567-7757.



Source: <https://www.happidoc.com/clinical-research-news/>

Introduction

- Cancer pain (CP) remains major problem worldwide¹.
- CP presents in about 50% of cases².
- CP inadequately assessed & undertreated globally, ^{3,4} especially in developing countries⁵.
- HCPs, Pts, Cgs perceptions of CP & opioids barriers towards CPM globally^{6,7,8,9}.
- No Palliative care in Libya¹⁰.

Methods

- Ethical approval School of Medicine Research Ethics Committee.
- Qual. study aimed to explore Libyan HCPs', pts', and Cgs' views about CPM.
- Purposive sampling.
- Qual descriptive study; semi-structured interviews (36 parts: 18 Libyan cancer pts, 6 Cgs, and 12 HCPs).
- Interviews in Alexandria oncology; Egypt 06 & 09/2019.
- Data analysis (Thematic analysis).

Results

- Pts concerned about social stigma of opioids, drug addiction & unable to pay for medicines as financial difficulties.
- Pts & Cgs used religious & cultural beliefs for managing CP & used Qur'an & cauterizing coping strategies CPM.
- HCPs perceived lack of policies & guidelines, pain rating scales, & education & training as CPM barriers.

Discussion

- Similar earlier studies¹¹, pts & Cgs in this study believed Qur'an cure cancer & relieve pain.
- Pts & Cgs used religious beliefs as coping strategy tolerate pain; they refused opioids for CPM.
- As cauterizing¹², cancer management delayed & disease progress with CP.
- Medical & pain prescriptions delayed/avoided as economic issues¹³.
- WHO & NICE guidelines

Conclusion

- Our results: religious & cultural beliefs, lack knowledge & training HCPs affect CPM in Libya.
- Economic & healthcare system-related factors affect CPM in Libya.

Acknowledgments

- Authors acknowledge the Ministry of Education in Libya for funding.

References

1. Keefe et al. (2005). *Annu Rev Psychol*, 56:601-630.
2. van den Beuken-van Everdingen et al. (2016). *Pain Symptom Manage* 2016;51(6):1070-1090 e9.
3. Thinh et al (2018). *Pain Res Manag* 2018;8- 8.
4. Li Z et al. (2018). *Clinicoecon Outcomes Res*, 10:675-691.
5. Salini et al. (2016). *Indian J Palliat Care*, 22(4):373-377.
6. Makhoul et al. (2020) *J Cancer Educ*, 35(2):214-249.
7. Potter et al. (2003). *J Psycho-oncology*, 12(2):153-60.
8. Odenmenger et al (2009) *Eur J of cancer*, 45(8):1370-80.
9. Kwon (2014) *J of Clinical Oncology*, 32(16):1727-1733.
10. El Ansary et al (2014) *EUROPEAN J PC* 21(2), 98-100.
11. Hatampour et al. (2015) *Indian J of pall care* 21(1), 61-67.
12. Farid and El-Mansoury (2015) *Pan Afr Med J*, 22:98,6399.
13. Zafar et al (2013) *Oncologist* 18(4), 381-390.

 UNIVERSITY OF LEEDS



 NEPG 2021
North-East Postgraduate Conference

 PCRBIO SYSTEMS
Simplifying Research

 MRC
Medical Research Council

