

MOTHERS' EXPERIENCE OF INVOLVEMENT IN THEIR CHILD'S POSTOPERATIVE PAIN RELIEF

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by

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Abstract

Background:

Children often experience moderate to severe pain at hospital postoperatively. Unrelieved pain has undesirable psychological and physical consequences. Parental involvement can assist health professionals in reaching a desirable level of postoperative pain management for children. Indeed, adequate interactions between parents and paediatric health professionals can reduce the child's experience of pain.

Aims:

The research aimed to explore mothers' involvement in their child's postoperative pain management, in hospital and following discharge, and to identify ways in which their participation in pain management activities can be strengthened.

Methods:

This was a qualitative single case study. Data were collected through participant observations with 20 mother/child dyads and semi-structured interviews with those mothers, as well as semi-structured interviews with 21 nurses, and a review of documents in the paediatric surgical department (hospital policies and forms). Thematic analysis was carried out with NVivo software.

Findings:

The following themes and sub-themes were generated from the study data: 1) acquisition and provision of information (expected type, frequency, and duration of pain after surgery, pain intensity score and pain relief medication, and non-pharmacological pain management methods), 2) communication deficiency (communication between mothers and health professionals, language barrier, and nurses' attitudes), 3) emotional and physical support (family company, mothers' concerns, comfortable environment and food and sleep requirements), 4) social and cultural influences (patriarchal society, cultural beliefs, and work status), 5) hospital facilities (entertainments, follow-up programs, pain management courses for nurses, and materials). Overall, mothers needed more information about their child's pain after surgery. More communication was required between mothers, nurses, and surgeon and other health professionals. Mothers needed more emotional support and physical support from family and health professionals. Mothers required that their social and cultural background be understood and acted upon by health professionals. Mothers wanted increased hospital facilities and services to improve their participation.

Conclusion:

This study has helped to raise awareness about the extent of mothers' involvement in their child's postoperative pain management in Saudi Arabia hospitals, and has identified ways to improve the current situation. Health professionals and hospital systems must improve information provided to mothers, increase interaction between mothers and health professionals, strengthen mother support, pay greater attention to the cultural background of mothers, and improve hospital facilities to adequately involve mothers.

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Table of Contents

Abstract.....	I
Acknowledgements	II
Abbreviations list	VIII
CHAPTER 1 : INTRODUCTION	1
1.1 My interest in this research.....	1
1.2 Statement of the research problem	4
1.3 Saudi cultural background and its influence on pain management.....	6
1.4 Structure of thesis	8
CHAPTER 2 : LITERATURE REVIEW	10
2.1 Introduction.....	10
2.2 Search Strategy	10
2.3 Synthesising literature	15
2.4 Nurses’ perceptions of postoperative pain assessment in children	18
2.5 Nurses’ perceptions of pharmacological methods of postoperative pain management in children	22
2.6 Nurses’ perceptions of non-pharmacological postoperative pain management in children	28
2.7 Nurses’ perceptions of parental involvement	30
2.8 Documentation of children’s postoperative pain management	32
2.9 Factors related to nurses’ practice in children’s pain management	33
2.10 Education programs of pain management for paediatric nurses.....	37
2.11 Parents’ perceptions of their participation and needs.....	42
2.12 Sufficient provision and complete information.....	42
2.13 Communication with health professionals	56

2.14	Parents’ preferences and roles in their child’s pain care.....	58
2.15	Barriers for nurses in managing children’s pain	59
2.16	Conclusion	64
CHAPTER 3 : METHODOLOGY		85
3.1	Introduction.....	85
3.2	Research aims and objectives	85
3.3	Choosing a qualitative approach	86
3.4	Rationale for adopting a case study design	88
3.5	Types of case study design.....	93
3.6	The case and its unit of analysis	97
3.6.1	Defining the ‘case’	97
3.6.2	Units of analysis.....	99
3.6.3	Theoretical framework.....	100
3.7	Conducting the case study.....	106
3.7.1	Justifications for choosing the study setting	106
3.7.2	The research setting	107
3.7.3	Sampling (for interview and observation)	111
3.7.4	The inclusion and exclusion criteria for mothers interviews and observations .	112
3.7.5	The inclusion and exclusion criteria for nurses interviews and observations....	114
3.8	Data collection methods.....	114
3.8.1	Observation collection method	115
3.8.1.1	Pilot work of observation methods	118
3.8.1.2	Access and sampling.....	120
3.8.1.3	The strategy of observation methods	121
3.8.1.4	Observation data management.....	124

3.8.2	Semi-structured interview collection methods.....	124
3.8.2.1	Interview guide for mothers.....	125
3.8.2.2	Interview guide for nurses	127
3.8.2.3	The pilot study interviews.....	128
3.8.2.4	The main study procedure for mother interviews	130
3.8.2.5	The main study for nurse interviews.....	132
3.8.2.6	Recording and organising interview data	133
3.8.3	Contextual information: review documents.....	135
3.9	Data analysis.....	137
3.9.1	Phase one: analysing qualitative data	138
3.9.1.1	Observation analysis	138
3.9.1.2	Interview analysis	139
3.9.1.3	Documentary analysis.....	140
3.9.2	Phase two: analysis of the case data	140
3.9.3	Ethical considerations	141
3.10	The quality of empirical research design.....	146
3.11	Reflexivity of the study	149
3.12	Summary.....	151
CHAPTER 4 :	FINDINGS	153
4.1	Introduction.....	153
4.2	Demographic characteristics of participants.....	153
4.3	The backgrounds of mothers and nurses.....	154
4.4	A review of the hospital documents.....	161
4.5	Policies and procedures	161
4.6	Orientation and discharge checklist forms.....	162

4.7	Themes and subthemes.....	163
4.8	Theme 1: Acquisition and provision of information about pain	164
4.9	Theme 2: Communication deficiency.....	182
4.10	Theme 3: Emotional and physical influence.....	196
4.11	Theme 4: Social and cultural factors	220
4.12	Theme 5: Hospital facilities, provisions, and services	227
4.13	Model of the mother’s experience of involvement in her child’s postoperative pain relief.....	242
4.13.1	Environments	244
4.13.2	Mother’s personal capacity	250
4.13.3	Interaction between the mother and the three environments	253
4.14	Summary.....	256
CHAPTER 5 : DISCUSSION		258
5.1	Introduction.....	258
5.2	Theme 1: Acquisition and provision of information about pain	258
5.3	Theme 2: Communication deficiency.....	267
5.4	Theme 3: Emotional and physical influence.....	277
5.5	Theme 4: Social and cultural factors	286
5.6	Theme 5: Hospital facilities, provision, and services	293
5.7	Strengths and limitations of the study	301
5.8	Research implications and recommendations for practice	305
5.9	Suggestions for further research	310
5.10	Conclusion	312
References.....		314

Appendix A: Approval of the Research Ethics Committee of Cardiff University School of Healthcare Sciences (SOHCS).....	333
Appendix B: Approval of the Hospital Ethical Committee	334
Appendix C: Approval of the Gate Keeper	335
Appendix D: Participant Information Sheet (Nurse)	336
Appendix E: Participant Information Sheet (Mother).....	341
Appendix F: Consent Form	348
Appendix G: Interview Guide (Mother).....	352
Appendix H: Participant Demographic Sheet (Mother)	354
Appendix I: Interview Guide (Nurse)	356
Appendix J: Participant Demographic Sheet (Nurse).....	358
Appendix K: Confidentiality and Agreement	359
Appendix L: Interview Schedule	360
Appendix M: Example of Reflexive Journal	361
Appendix N: Example for Initial Data Analysis to Determine the Data Saturation	363
Appendix O: Example from the Field Notes	367

Abbreviations list

- 3CM Conceptual Content Cognitive Map
- CCC Child-Centre Care
- CI Confidence Interval
- CRs Cognitive Representations
- CSHCN Children with Special Healthcare Needs
- FCC Family-Centre Care
- FCR Family-Centred Rounds
- IQR Interquartile Range
- MDs Medical Doctors
- NKAS Nurses' Knowledge and Attitudes Survey
- NKASRP Nurses' Knowledge and Attitudes Survey Regarding Pain
- NRS Numeric Rate Scale
- PEP Pain Education Program
- PMKA Pain Management Knowledge and Attitudes
- PNKAS Paediatric Nurses' Knowledge and Attitude Survey
- PRN Pro Re Nata is an abbreviation for the Latin term which loosely translates to "as needed"
- PUPRS Parents' Use of Pain Management Relief Strategies
- SD Standard Deviation
- TENS Transcutaneous Electrical Nerve Stimulation

List of tables

Table 2-1 The search strategy in the four databases	11
Table 2-2 Inclusion and exclusion criteria	13
Table 2-3 Identified studies in the literature review	66
Table 4-1 Background of mothers and nurses	156
Table 4-2 Themes and sub-themes of data analysis.....	164

List of figures

Figure 2-1 Process of identifying relevant articles for the literature review	15
Figure 3-1 Casey's (1988) model of paediatric nursing	104
Figure 3-2 Photos of study context of paediatric surgical department	109
Figure 3-3 Photos of recovery unit	110
Figure 3-4 Flow diagram of the study design	152
Figure 4-1 Model of mother's experience of involvement in her child's postoperative pain management	242
Figure 4-2 The three environments in the model of mother's experience of her child's postoperative pain management.....	244
Figure 4-3The mother's personal capacity in the model of mother's experience of her child's postoperative pain management.....	250
Figure 4-4 The three elements of interaction between the mother and the three environments in the model of mother's experience of her child's postoperative pain management.....	253

CHAPTER 1 : INTRODUCTION

This research explores mothers' involvement in their child's postoperative pain management. A number of studies in healthcare have examined parental participation in the care of their children in hospital with regards to pain management. There is a general consensus that the presence of parents in hospital with their children is advantageous for both parents and children because emotional stress is reduced and the child can feel more secure (e.g., Coyne 1995; Melo et al. 2014). However, while parents desire to support their child, their participative role can be unclear (Connell and Bradley 2000; Coyne 1995; Lime et al. 2011). Examining mothers' involvement in their child's postoperative pain care provides an opportunity to explore how mothers manage pain at hospital and following discharge, including how this is facilitated and the barriers to effective involvement. A further focus of this study was to show how mothers' involvement in their child's postoperative pain care can be improved in the paediatric surgical ward and following discharge. In this introductory chapter, my interest in this topic is outlined, and the research problems are explained.

1.1 My interest in this research

I graduated with a bachelor's degree in health science in nursing from King Abdulaziz University (KAU) in Jeddah, Saudi Arabia, and took my internship at KAU hospital. During my studies as an undergraduate student I trained in the paediatric ward as part of my degree requirements and practiced as a nurse at KAU hospital.

During this period, I often observed children in pain and discussed with mothers and children about their situation, including their experience of pain and their concerns about pain management. I often found that mothers, rather than consulting with the medical

team or nurses about their child's healthcare, which would have been more appropriate, often asked other adults in their vicinity, such as mothers, students, or even cleaners, about their issues. This seemed particularly problematic to me, because mothers should have at least sufficient information to be properly involved in managing their child's healthcare. This led me to focus more carefully on mothers' healthcare needs, such as how they acquired information for childcare during their child's stay at hospital and whether this information was sufficient, appropriate, and communicated appropriately. Through my educational and nursing experience I arrived at the view that Saudi Arabian patients and their families were often ineffectively taking part in their child's healthcare. I suspected that there may have been a number of reasons for this, possibly specific and non-specific to the cultural milieu of Saudi Arabia, such as language barriers, lack of specific knowledge, lack of time, and poor management. I felt these issues required further investigation since they had not been sufficiently explored.

My motivations were further strengthened through my employment at King Fahad General Hospital (KFGH) in Jeddah as a surgical theatre nurse. While many of the theatre rooms I worked in were specifically for adult patients, I could see how patients and families often needed to have increased and more specific information about surgery, pain, and the recovery process, and was concerned to see that these needs were generally not met. The concept for the PhD research crystallised when I subsequently studied for my master's degree on cancer and palliative care, which I undertook at Melbourne University, Australia. One of my assignments was on parental involvement in childcare in paediatric departments. I discussed the assignment topic and my interest in parental involvement with a Saudi Arabian healthcare professional that was working as a paediatric nurse and that had intuitively reached similar conclusions to myself about the limitations of parental involvement in Saudi Arabian healthcare settings. I realised that it

could be important to fully explore this topic in the hope of overcoming some of the problems I had found in the Saudi Arabian context. During this period, I read extensively on the topic, looking broadly at various avenues of health science while also focusing on parental involvement in their child's healthcare, and gradually set out to pursue formal research on this topic.

My understanding of the limitations underlying parental involvement and pain management in children was broadened during my lecturing position on pain management and family education for hospital staff nurses and nursing students, when I resumed work at the Nursing Education Department in KFGH. This provided the necessary fuel for my interest, and I decided that I would commence a PhD program. I explored the relevant current studies on parental participation in their child's care at hospital and my interest became more focused on postoperative pain management; this seemed to be a specifically problematic area in the Saudi Arabian healthcare system. By contrast, successful parental participation in their child's pain care at hospital is more common in Western culture. My knowledge on the topic increased incrementally through becoming more familiar with relevant studies in the area, and I realised early on that there was a gap in knowledge and understanding of parental involvement in paediatric settings, not simply in general but especially in the Saudi Arabian context. In addition to this, the problem is also acute in Saudi Arabia hospitals because paediatric health professionals are seemingly unaware of the importance of mother participation in their child's pain care after surgery. I thus felt compelled to consider children's postoperative pain management and examine how health professionals could help mothers in managing their child's pain after surgery.

In terms of my own positionality in this research, while I am a nurse educator, I trained as a nurse and have worked as a theatre nurse. During these experiences I have closely interacted for a number of years with children and their families. I am also a female, and, typically for Saudi Arabian culture, I have worked predominantly with other females, supporting them in my roles. At the time I undertook data collection I was not yet a mother, but had worked in key positions with mothers to help them solve various issues in healthcare settings. Also, as an insider to Saudi Arabian culture, I have a shared understanding of many of the values of the women and mothers that I interviewed and observed. For example, I was familiar with some of their perspectives and issues regarding lifestyle, family commitments, cultural conservatism, language barriers, and religious behaviour. However, studying and travelling frequently to Western countries may have enabled me to position these cultural views into a broader frame. Before beginning the Ph.D. program, I read widely on pain management, aiming to understand the issues involved from as broad a perspective as possible. In this study, where possible, I aimed to be aware of my own self and cultural background when carrying out data collection and analysis.

1.2 Statement of the research problem

Children often experience moderate to severe pain following surgery during the hospitalisation period (Twycross and Finley 2013). Untreated pain can cause a number of undesirable physiological consequences that can affect a child at the time and later on, such as increased inflammatory response, hyperglycaemia, delayed healing, and psychological consequences, such as behavioural disorders, chronic pain syndrome, and attention deficit disorder (Brennan et al. 2007; Kennedy et al. 2008; Fortier et al. 2011). Parents promote the emotional welfare of their children and help them to cope with

difficult situations; thus, parents' participation is an essential element in managing their child's pain after surgery (Lime et al. 2011). Parents' participation may also have an impact on the child with respect to such factors as anxiety, pain, sleep, and postoperative outcomes (Kristensson-Hallstrom et.al. 1997). Also, parents' participation can assist health professionals in reaching a desirable level of postoperative pain management for children (Gimble-Berguland et al. 2008). However, there is an absence of studies about parents' involvement in their child's postoperative pain care in Saudi Arabia.

The limited guidance in Saudi Arabia on how parents can be involved in their child's postoperative care leads to confusion for nurses and parents about their respective roles (He at al. 2015). There is a lack of strategies in Saudi Arabia hospitals to support the participation of the mother in her child's postoperative pain management. Greater understanding is required about the current practice in Saudi Arabia hospitals regarding mothers' participation in their child's postoperative pain management. There is also a need to identify the barriers and facilitators to their involvement in the paediatric surgical department. Currently, there is a lack of evidence in Saudi Arabia in this area. By 2017, there had been only one study concerned with family-centred care in Saudi Arabia hospitals generally, and this was not focused on mother's participation only, but family-centred care in Saudi Arabia hospitals from the perspectives of paediatric nurses and families. This shows that the concept of family-centred care is becoming accepted by paediatric nurses in Saudi Arabia. However, full use of family-centred care strategies, in keeping with Western values, is likely not to be appropriate or successful in the Saudi Arabian context at present, because both nurses and families exist in a more conservative culture (Alabdulaziz et. al. 2017). This indicated a need for the exploration of the mothers' involvement in their child's postoperative pain management specifically in this context.

For effective communication between parents and health professionals, speaking the same language is preferable. Language can be a barrier for parents to be sufficiently involved in their child's pain care at hospital (Festini et al. 2009). Statistics of the Ministry of Health (MOH) shows that the total number of nurses in all healthcare sectors is approximately 101,298, only 29.1% of whom are Saudi nationals (AlMalki et al. 2011), and so the cultural and lingual differences may present issues of communication (Alamri et al. 2006). It has been reported that many factors contribute to inhibiting nurses' practice of family-centred care in Saudi Arabia hospitals, including language barriers, communication issues, cultural issues, and hospital policies (Alabdulaziz et. al. 2017). The present study therefore may provide crucial information about communication issues in mothers' involvement in their child's postoperative pain care.

1.3 Saudi cultural background and its influence on pain management

Lovering (2006) explored cultural beliefs and attitudes toward pain in a mixed nationality cohort in Saudi Arabia. The study recruited 10 participants of Saudi Arabian, Filipino, South African, Asian, South African (Tswana), and Irish cultural backgrounds. The findings showed that cultural beliefs about pain and the causes of pain ranged between religious, superstitious, and supernatural explanations. For example, Asian, Filipino, and Saudi Arabian people sometimes believed in concepts such as the evil eye and witchcraft, where there is a superstition that there is an intentional or supernatural cause of pain. Irish and Tswana people generally did not believe in these particular notions, although the 'power of ancestors' for causing pain was a strong belief in the Tswana people, and thus traditional curing and religious remedies and practices were common in their culture.

Saudi Arabian people often believe in religious healing through faith healers, which is commonly practised. Likewise, Irish, Filipino, and Asian cultures use faith healers. It can be concluded that various cultural beliefs and religious practices can have an effect on the behaviour and expectations of patients in pain, and, consequently, healthcare professionals must understand patients' perspectives in order to address the patients' needs. A phenomenological study by Halligan (2006) described six critical care nurses' experiences in caring for Muslim patients in Saudi Arabia. In Saudi Arabia, the Islamic religion shapes virtually all aspects of life. Therefore, religion, closely interconnected with culture, plays a significant role in caring for patients. Halligan (2006) noted that non-Saudi nurses that experienced cultural differences in caring in Saudi Arabia became frustrated by the limitations that restricted the provision of care. For example, they noted that the patient's family required greater control over the patient's healthcare than in Western contexts, and was a source of stress for the non-Saudi nurses. This corresponds with Abudari et al. (2016), where in Saudi Arabia 'family-centred healthcare decisions' were found to be the norm. Also, owing to the deep religious convictions of many Saudi patients, they did not accept some forms of treatment and care, which hindered the non-Saudi nurses. Thus, according to Halligan (2006) and Abudari et al. (2016), the provision of care is often in conflict with the patient's culture for the effective management of the patient's healthcare needs.

The role of mothers in Saudi Arabia, and that of women in general, has been in a state of flux for at least 70 years (Assad 1989; Le Renard 2014). During this time, the life of women has become more diverse and complex, evolving from being mothers and family members to include various types of occupations across a variety of professional spheres. Moreover, in the last 30 years, the cultural landscape of Saudi Arabia has changed radically, and it is now more socially acceptable for mothers to be involved in a large

range of professional activities and to continue to have a central role in family life. The scope of activities for women and mothers has increased even more dramatically with the reforms of the Saudi Vision 2030, announced in 2016, which set forth plans for Saudization, a program that has ensured that more Saudi Arabian nationals are assimilated into the workforce (Vision Team of Saudi Government 2020). This means that Saudi Arabian mothers, similar to mothers in Western countries, have a significant number of expectations on them in their personal, professional, and family life that impact their personal fulfilment and quality of life.

1.4 Structure of thesis

This thesis is comprised of five chapters. Chapter One informs the reader about the research problem. Chapter Two provides a literature review of the theoretical perspectives and practical research knowledge regarding mothers' involvement in their child's postoperative pain management. The search strategy of the literature review is outlined, and six themes are developed from the current literature and explained individually. Chapter Three provides an overview of the research process with justifications. It presents the research aims and objectives, a justification for choosing the qualitative approach, and a rationale for adopting case study design. It explains the type of case study design, the case and its unit of analysis, and theoretical propositions for the case study. This is followed by a description of the study methods, including the context of the study, sampling, and inclusion and exclusion criteria for nurses and mothers. Moreover, Chapter Three also outlines the methods of data collection. It describes data management and analysis. Lastly, it discusses the quality of empirical research design and reflexivity of the study. Chapter Four reports on the findings of the study. It presents the six main themes generated from the data addressing the research questions. Chapter

Five provides a discussion of the contribution and main findings of the study, its implications for future research, and the strengths and limitations. Chapter Five also presents the conclusions of the study.

CHAPTER 2 : LITERATURE REVIEW

2.1 Introduction

This chapter presents a review of the evidence related to mothers' participation in managing their child's postoperative pain in hospital and following discharge. It describes nurses' perceptions of postoperative pain management in children and parents' participation in the child's postoperative pain management. It also explains parents' experience in participating in their child's postoperative pain management. A systematic approach was conducted in the literature search to ensure transparency and to identify key areas of research. The search strategy is explained in the beginning of the chapter. The synthesis of the identified literature is presented, and is conducted as a narrative review. This provides a description of the results from previous studies, and compares results that use different methods, from which various concerns are addressed that relate to the research question (Popay et al. 2006). The review was guided by the following questions:

- What are nurses' perceptions of children's postoperative pain management and parents' participation?
- What are parents' perceptions of their involvement in their child's postoperative pain management?

2.2 Search Strategy

A literature review was performed to identify the most relevant information related to parental involvement in children's postoperative pain management. Four computerised research databases were used: Medline (via Ovid), Cumulative Index to Nursing and Allied Health Literature (CINAHL), British Nursing Index (BNI), and Scopus. The

search terms were parent*, mother*, mum, child*, paediatric, pediatric, kid, boy, girl, pain*, postoperative, post surg*, after surg*, after operation, nurs*, “health care professional”, “health care worker”, healthcare providers, healthcare professionals, and healthcare workers. In order to capture information about current practice, the search was limited to English language literature and peer-reviewed articles between the period 2008 and 2017.

The literature review could have examined output from the 1950s, which was when consideration of parental involvement commenced (and was further developed in the 1980s) (Darbyshire 1994). However, it was not possible to include the published articles from 1950 to 2017 owing to the large volume of work produced during this period being not recent and thus not relevant, because theory and practice have developed during this period. Therefore, the time period was reduced to between 2000 and 2017, and 61 articles were retrieved. However, this was considered still to be too many articles for review, so the search period was further reduced to involve the most recent articles, covering the decade between 2008 and 2017. It was found that the Scopus database did not have an option to limit the search to ‘peer-reviewed’ articles. Table 2-1 shows the search strategy used in the three databases.

Table 2-1 The search strategy in the four databases

Search terms	Number of articles CINAHL	Number of articles Medline Ovid	Number of articles (BNI)	Number of articles Scopus
1. parent*	98223	21891	44627	365270
2. mother*	53165	21891	32218	157263
3. mum	930	822	1680	1345

4.	1 or 2 or 3	137348	22690	64038	485206
5.	child*	457734	123841	112096	1192392
6.	paediatric	102785	6519	31798	218145
7.	pediatric	102785	28363	31798	218145
8.	kid	2608	104	3934	8298
9.	boy	21805	2189	8062	94386
10.	girl	24234	2028	10079	99686
11.	5 or 6 or 7 or 8 or 9 or 10	493153	131882	121555	1276873
12.	pain*	182359	61667	49513	615928
13.	postoperative	94541	39525	12181	458937
14.	post operative	6796	3661	4297	40340
15.	post surg*	4692	1010	16615	94297
16.	after surg*	40820	7130	42057	508674
17.	after operation	4188	217	11286	125950
18.	13 or 14 or 15 or 16 or 17	125385	46970	53813	854924
19.	nurs*	347876	35134	408787	300279
20.	“health care professional”	783	184	2053	16584
21.	“health care worker”	399	966	777	7741
22.	healthcare providers	8166	2470	22073	24502
23.	healthcare professionals	9442	2553	41549	33245
24.	healthcare workers	3508	840	14049	11196
25.	19 or 20 or 21 or 22 or 23 or 24	362681	40603	413039	346773
26.	4 and 11 and 12	3077	458	8998	8490
27.	11 and 12 and 25	2142	410	15514	3389

28. 26 and 25	603	82	7683	1089
29. 28 and 18	107	22	3469	558
30. 26 or 27 or 28 or 29	4654	786	3469	10790
31. Total number of articles after removing duplication			4659	

Prior to the review of the identified articles, the inclusion and exclusion criteria were developed in order for the literature search to be relevant to the scope of the subject, as well as to provide comprehensive information within this context. These are shown in Table 2-2.

Table 2-2 Inclusion and exclusion criteria

Inclusion criteria	Exclusion criteria
Studies relating to postoperative pain management in children	Studies relating to chronic pain in children
Studies relating to parents' participation in their child's pain care	Studies concentrating on pain in neonates and infants
Papers written in English	Studies focusing on intensive care and emergency department settings
Published literature	Studies regarding mental issues such as parents with mental or psychological illness
Original studies	
Between 2008-2017	Studies regarding pain management in children with a cognitive deficit
	Studies not written in English
	Publications not peer-reviewed

The research papers identified (amounting to 4659 abstracts) were reviewed to determine the relevance of articles based on the inclusion and exclusion criteria. Of the 4659 studies retrieved in the search, 35 described acute postoperative pain management at hospital as well as parents' participation in their child's postoperative pain management at hospital (and following discharge). Also, lists of references from the 35 relevant papers were searched to locate further studies. A further four articles were found, amounting to 39 in total. The quality of the relevant qualitative studies was assessed using the Critical Appraisal Skills Program, produced by the Public Health Research Unit at the University of Oxford (<http://www.casp-uk.net/>), which permits the appraisal of different types of qualitative research design. Also, the Joanna Briggs Institutes critical appraisal checklist tools for quantitative studies were used for the appraisal of different types of quantitative research designs (<http://joannabriggs.org/research/critical-appraisal-tools.html>). Figure 2-1 shows the process of identifying the relevant articles.

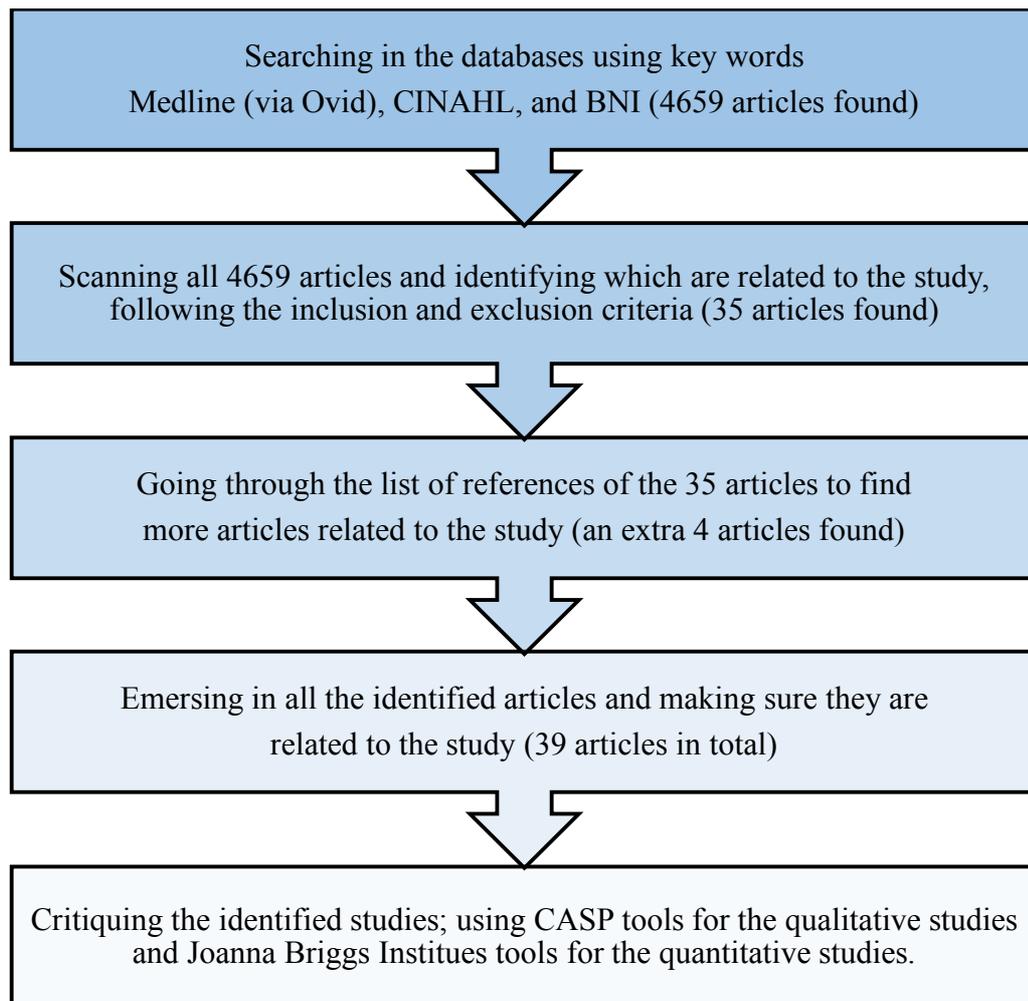


Figure 2-1 Process of identifying relevant articles for the literature review

At the end of this process, 39 articles were identified to be included in the literature review. They are summarised in the ‘grid table’ (see Table 2-3, below), including author names, the study title, the year of the study, the aim, participants, methods, findings, and strengths and weaknesses.

2.3 Synthesising literature

The search process identified 39 studies for full review. The grid table (see Table 2-3), which summarises the identified articles, shows that the methodology employed in most studies was quantitative (n=24) rather than qualitative (n=9). Six studies used the mixed methods approach. Other methods include randomised trial (n=1), cross-sectional design

(n=4), phenomenology (n=2), pre-test and post-test intervention (n=5), and retrospective audit (n=1). Some other studies used observational exploratory methods through survey (n=14) or descriptive design (n=12). A number of studies provided minimal information about study design (Gimble-Berglund et al. 2008; Kankkunen et al. 2008; Fortier et al. 2011; Tait et al. 2008; Ekim and Ocakci 2013; Twycross and Collis 2013).

Many studies were conducted in the UK (n=7) and USA (n=6). Some studies were conducted in mainland Europe and Scandinavia, specifically, Italy (n=1), Portugal (n=1), Sweden (n=1), and Norway (n=1). A number of studies were conducted in Asian countries: China (n=3), Hong Kong (n=1), Thailand (n=1), and Singapore (n=5). The remainder of the studies were conducted in Canada (n=4), Australia (n=3), Mexico (n=1), Iran (n=1), Turkey (n=1), and Israel (n=1).

Researchers and healthcare professionals in Saudi Arabia use English as the main language of communication, and scientific medical journals use English as the main language to publish findings (AlReshidi 2018). The researcher did not find any studies conducted in Saudi Arabia that specifically explored mothers' involvement in their child's postoperative pain care. Only one study conducted in Saudi Arabia (Alabdulaziz 2017) explored family-centered care from the perspective of paediatric nurses. After searching using the same strategy described above, a number of studies were found to have been conducted in Saudi Arabia on dental pain management (Alaki and Bakry 2012; Alshoraim et al. 2018; Batawi 2015), chronic pain (Bakri et al. 2014), intensive care (Elette et al. 2015), nurses' knowledge and attitude regarding pain management in adults and children together (not a paediatric study) (Albaqawi et al. 2016; Eid et al. 2014), and the emergence department (Taha and Rehmani 2011).

To understand nurses' perceptions of postoperative pain management on paediatric wards, as well as to evaluate parental involvement, it is desirable to examine their personal and clinical backgrounds (Huth et al. 2010). Of the studies reviewed, not all explored nurses' knowledge and attitudes of pain management with respect to their clinical and individual backgrounds. Three studies, He et al. (2011b), Huth et al. (2010), and Ekim and Ocakci (2013), were exceptions, explaining these relationships in various ways. However, the search did not find any studies that examined the relationship between parents' views of their involvement in their child's postoperative pain management and parental backgrounds. Exploring parents' and nurses' views might have provided deeper explanations of the issues surrounding pain management. Only one qualitative study explored nurses' and parents' views in parental involvement within the context of the study (Melo et al. 2014). No studies were found that specifically explored mothers' involvement only (without the father) in their child's postoperative pain management, and how this might be improved – neither at hospital nor at home, following discharge. This highlighted an important gap in knowledge that the present thesis aimed to investigate, which was mothers' involvement in their child's pain management postoperatively and following discharge. A further aim of this study was to find ways that mother's involvement could be strengthened.

As shown in the grid table (Table 2-3), themes were generated from the findings of each study. The studies often contained several themes in common. The identified themes reflect the literature review questions (set out in 2.1 Introduction). The themes are presented in the first column of the grid table, and are as follows:

- Nurses' perceptions of postoperative pain assessment in children

- Nurses' perceptions of pharmacological methods of postoperative pain management in children
- Nurses' perceptions of non-pharmacological postoperative pain management in children
- Nurses' perceptions of parental involvement
- Documentation of children's postoperative pain management
- Factors related to paediatric nurses' practice in children's pain management
- Education programs of pain management for paediatric nurses
- Parents' perceptions of their participation and needs
- Barriers for nurses in managing children's pain

The following sections discuss literature connected to each of the themes individually. The implications of identified studies for the design of the current study are established, and a summary of the review is presented at the end of the chapter.

2.4 Nurses' perceptions of postoperative pain assessment in children

In this section, nurses' perceptions of pain assessment are explored. In many of the studies, children's postoperative pain assessment and management are often sub-optimal. Twycross (2008) highlighted that nurses' had insufficient knowledge of pain assessment and management in paediatric settings in a quantitative study that examined the relationship between nurses' perceptions of the importance of pain management in children and clinical practice. Sample size, recruitment, and collection method tools were used, which are explained in the grid table.

The results of Twycross (2008) indicated that ten nurses took the child's pain history into account, perceiving it to be highly critical for effective pain management. Seven nurses indicated that family experiences of pain were rated as moderately-to-highly critical for effective pain management. However, from the observation data, these concerns did not appear to be considered in practice. Also, eight nurses believed that using pain assessment tools for all age groups was highly critically important, while four nurses did not consider these important in neonatal, infant, or preverbal children. The observation data showed that only three nurses were observed using the pain assessment tool. This highlighted the point that the importance attributed to using a pain assessment tool did not actually appear to be regarded in practice. Using behavioural indicators of pain was rated as highly critically important by four participants, while with the other nine participants the ratings were split between moderately and highly critically important. Indeed, in clinical practice, nurses did not appear to be taking behavioural indicators into account.

Most participants agreed that using physiological indicators, such as a pain assessment tool, was rated as highly or moderately important, but three participants rated these of low critical importance in neonates, infants, and preverbal children. By contrast, the observation data showed that none of the participants used physiological indicators to assess pain. Despite all nurses considering reassessing pain as highly critically important, only three participants were observed to reassess pain, and then only occasionally. All participants rated the importance of seeking advice from the multidisciplinary team highly. However, only four participants were observed asking for advice in practice. The study showed that the perceptions of paediatric nurses about pain management did not affect their performance in clinical practice. However, it should be noted that this study is perhaps of limited generalisability because of the small sample size. Broadly,

Twycross (2008) posited that guidelines of pain assessment and management were readily available, and paediatric nurses' practice seemed to fall short of the ideal. Possible explanations should be explored so that practice might improve.

Children seem to continue to receive insufficient postoperative pain management in practice, as found in a quantitative retrospective audit study in Australia by Shretha-Ranjit and Manias (2010). Shretha-Ranjit and Manias (2010) examined paediatric nurses' pain assessment and management practices in relation to postoperative pain care for children following surgery of a fractured lower limb and compared these practices with evidence-based guidelines. The sample size and the data collection tool are described in the grid table. The results indicated that nurses assessed pain postoperatively less frequently than required by hospital guidelines. The type of pain assessment tool was not documented by nurses in 87.8% (n= 92) of children's medical records. Shretha-Ranjit and Manias (2010) recommended that nurses should assess pain more frequently using an age- and context-appropriate pain assessment tool, and to be aware of the different indicators of pain.

The study may be limited because the results were formed from retrospective data taken from medical records and the sample size was small, just 106 medical records. Also, pain documentation might not reflect the nurse's performance in clinical practice. Many areas of nurses' pain assessment practice did not conform to current guidelines, and required improvement. This could be explained in several ways, in terms of the professional culture of nursing, a lack of theoretical knowledge, and a lack of priority given to pain assessment. Broadly, analgesics should be prescribed and administered on a regular basis, not as PRN (*pro re nata*), at least for the initial postoperative period when moderate to severe pain is likely (Shretha-Ranjit and Manias 2010).

The general picture that emerges from nursing postoperative pain management studies is that nurses in practice often do not conform to the current guidelines of pain management. This assessment was supported by a qualitative observational study over a three-month period by Twycross et al. (2013). They examined paediatric postoperative pain management practices in a Canadian paediatric hospital (Canadian Tertiary Children's Hospital). Data were collected during a 3-month period, for 72 hours following surgery. The researchers monitored each child's postoperative care for four 2-hour periods at various times during the day. Field notes were used to understand the contextual information regarding the nurses' perceptions of managing pain and the interactions between nurses, parents, and children. Content analysis was used.

In the study, nurses were observed using informal methods to assess children's pain, asking children questions such as, "Are you feeling better?", instead of using pain assessment tools and scoring pain systematically. Moreover, pain assessment documentations and nurses' actions taken were not recorded regularly. It was observed that nurses did not reassess the pain after pain management intervention. Also, nurses generally did not assess and manage with enough consideration about how mothers might be involved in their child's pain management after surgery. It was observed that parents understood that the nurses were asking about their child's pain. Twycross et al. (2013) concluded that health professionals should give more attention to children's pain rating scores and the use of pain assessment tools. There is a lack of knowledge, education, and understanding of the importance of pain assessment and pain assessment tools. Twycross et al. (2013) suggested further research is required to examine nurses' performance of pain assessment in children, and to explore strategies that might encourage nurses to give greater attention to pain assessment. However, the demographic

data of the nurse participants were not collected, which might limit the transferability of the findings.

2.5 Nurses' perceptions of pharmacological methods of postoperative pain management in children

Various studies have explored nurses' perceptions regarding the use of analgesics for pain relief in children (Ekim and Ocakci 2013; Twycross 2008). Ekim and Ocakci (2013) highlighted that nurses had deficits in knowledge with respect to the use of analgesics to relieve children's pain. They found that the majority of nurses (85.3% of 224 nurses) answered incorrectly in the pharmacology and addiction questionnaires. They suggested that there is a need for an increased level of awareness for paediatric nurses about the use of analgesia.

Twycross (2008) found that nurses administered opioid or non-opioid analgesics for relieving pain based on children's self-reports. Also, although nurses considered administering analgesics as highly critically important for relieving pain, some nurses observed did not give medication when the child complained of pain. Non-opioid medications were given regularly even if they were prescribed as PRN. Nurses preferred to wait and see if the child needed morphine, rather than giving it regularly, even if morphine had been prescribed every two hours. They did not give children additional doses of pain medication, even if their level of pain was ≥ 5 , indicating that the child was experiencing significant pain. It was found that they did not always respond to behavioural cues because children's pain scores did not correspond to the amount of pain the nurses thought they should have. Twycross et al. (2013) suggested that further research is needed to identify the actual incidence of under-treatment of children's pain,

to qualify the factors that contribute to under-treatment of children's pain, and to examine the effectiveness of specific pain management guidelines.

Smyth et al. (2011) investigated nurses' perception of PRN administration of analgesics in children with postoperative pain. A sequential explanatory mixed methods study was conducted, which included two phases. Data were obtained from the medical records of 95 children and participant observations and interviews with 18 nurses. Data collection methods and sampling are explained in the grid table, below. The findings indicated that while the majority of children (n = 72, 76%) were prescribed PRN analgesics, only half of them received it (n = 46, 48%). Three of the 23 children who were not prescribed PRN analgesics received either a *stat* dose (requiring a medical officer's order) or nurse-initiated analgesics medication (which does not require a medical officer's order). Twenty-nine children that were prescribed PRN did not receive medication (n = 29, 31%). Overall, PRN was administered 182 times on the children. The qualitative data of observations and interviews indicated that nurses used multiple strategies to examine the requirement for PRN analgesics administration. This included using pain assessment tools and children's behaviour as indicators, incorporating the participation of parents and children, and applying the nurses' knowledge and experience. However, the effectiveness of PRN analgesics was poorly documented by nurses. The strength of this exploratory study is that its design is mixed methods, which may have increased its rigour since it incorporated both qualitative and quantitative data, permitting the collection of more nuanced results from the quantitative data through the analysis of the qualitative data (Morse 1991); this is especially significant for the complex issues that emerge with respect to nurses' behaviour.

In Simons and Moseley (2008), analgesics were found not to have been administered in the prescribed amount; the dosage or frequency was often decreased. When the analgesics were prescribed regularly, nurses gave them 88% of the time; when they were prescribed as PRN, nurses gave them 77% of the time. Thus, children had a greater chance of receiving analgesics if they were prescribed regularly. It should be noted, this study included only retrospective chart reviews, and used only a small sample size (175 participants), which limited the generalisability of the study. Griffin et al. (2008) noted that nurses who perceived a high level of pain gave children doses of analgesics close to the maximum order from physicians. A survey was mailed to a random sample of 700 registered paediatric nurses; 334 nurses responded. Nurses were required to respond to their perceptions regarding three hospitalised school-aged children's pain levels, indicating how much analgesia they would recommend. In the study, nurses encouraged the use of non-pharmacologic pain relief methods. The differences of pain perception and variances in the decision-making processes between nurses were found not to be related to their background and experience, such as education level, ethnicity, age, and years of clinical experience. However, this study might be limited owing to the response rate, which was under 50%. The researchers were concerned that they had recruited subjects who were mostly well-educated and well-read. Indeed, most of the participants had attained a bachelor's degree (70%) and the remainder had a diploma (30%). This means there might be inherent bias and the findings may not have given a clear picture about nurses' knowledge about analgesics administration in general (that includes those with a lower education level than a bachelor's degree).

It is important to consider whether nurses have adequate knowledge of using analgesics in paediatric contexts. Vincent and Gaddy (2009) showed that nurses administered inadequate analgesic medication for children after surgery. They conducted a mixed

methods study that investigated nurses' perceptions about pain assessment and the administration of morphine. Vignettes were used to describe two children with pain at level 8 on a 0-10 pain scale. One of the children was smiling, while the other was grimacing. Nurses were required to assess the pain score, advising the level of morphine that should be administered: 1mg, 2mg, or 3mg. Following this, interviews were conducted to explain their choices. The results showed that nurses may have had some misconceptions about pharmacokinetics and the administration of morphine. Nurses that responded to the vignettes said that they would not administer 3 mg of morphine to the child that is either smiling or grimacing, because they were concerned about overdose, sedation, and respiratory depression. Nurses who chose to administer 1 or 2 mg of morphine often argued that 3 mg was too much for the child. They would wait to see if the child still feels pain, and if so, give more morphine. This study might be limited because of the small sample size (n=30 nurses), which did not enable a statistical analysis of the nurses' responses to the vignettes. While using a case study vignette is an economical way to obtain information about peoples' behaviour in a hypothetical situation which could prove too complex to analyse quantitatively, a vignette might be considered to be partly fictive because it does not reflect nurses' actual behaviour in a clinical situation.

Vincent et al. (2010) examined paediatric nurses' cognitive representations (CRs) of the assessment and management of children's pain to determine the relationship between their CRs and their choices about pain assessment and morphine administration. A convenience sample was taken of 87 paediatric nurses from four institutions. A mixed methods study design was incorporated. Data were collected through nurses' responses to two case study vignettes and interviews. The researchers measured the nurses' CRs of children's pain using the Conceptual Content Cognitive Map (3CM) technique, and

examined their pain assessment and morphine administration, using smiling and grimacing child vignettes. Content analysis was used for the qualitative data; statistical analysis of the quantitative data was carried out. Ninety-one percent of the participants identified the child's behaviour as necessary to assess pain, and 48% indicated it as most important. Ninety-two percent of the participants identified pharmacological methods as the preferred pain management approach, and 48% indicated it as most important. Seventy-one percent of participants identified non-pharmacological methods as an important management approach. Most participants chose the appropriate analgesic response for the grimacing child (73%), but less participants identified the appropriate analgesic response for the smiling child (41%). However, nurses with more years of experience were less likely to select administration of the appropriate morphine dose. Most participants agreed with both smiling and grimacing children's self-reports of pain (88.5% with the grimacing child and 72.4% with the smiling child). This suggests that the 3CM method provided insights into how nurses think about pain, which may indicate gaps in knowledge that may be amendable through intervention. A strength of this study is that it included the use of a mixed methods approach, which enables a combination of data types and an innovative measure of nurses' beliefs and misconceptions about assessing and managing pain. This permits exploration of these issues and the collection of extensive information about the thought processes of nurses regarding pain assessment and management.

Some studies have found that nurses had a lack of knowledge about pharmacological pain relief methods. Lui et al. (2008) investigated knowledge levels and attitudes of pain management among nurses in medical departments; a descriptive cross-sectional design was used. One hundred and forty-three nurses completed the Nurses' Knowledge and Attitudes Survey Regarding Pain. A lack of knowledge relating to pain management was

calculated at 47.7%, with a range of 20-76%. Participants were weak in both pharmacological and non-pharmacological pain management interventions for patients experiencing pain. Seventy-one percent of participants believed the most accurate judge of the intensity of pain was the patient, and only 1.4% of participants believed that no patients over-reported their experience of pain. Seventy-one percent of participants believed that the patient should have to endure as little pain as possible and should be promptly treated. Sixty-four percent of participants would advise patients to use non-pharmacological methods alone, rather than use them concurrently with analgesics. However, the use of a convenience sample might have affected the study results, since they only used available nurses, and this might have excluded nurses that might have given different responses. Generally, in Lui et al. (2008), it was found that nurses had inadequate knowledge and inappropriate attitudes regarding analgesics for pain management in children. They concluded that further research is needed to obtain a broader picture. The findings might have been more reliable with an increased sample size and multiple settings to enhance generalisability. Method triangulation could also have been used to gain a greater understanding about other factors influencing nurses' knowledge, attitudes, and practice of pain management (Lui et al. 2008).

For this theme it was found that many studies determined pain was infrequently assessed and managed. Generally, the extent of mothers' involvement in nurses' decisions about the child's need for analgesics has been shown to be limited. This section also shows how nurses' attitudes about the use of analgesics for pain relief could be improved by greater parental participation.

2.6 Nurses' perceptions of non-pharmacological postoperative pain management in children

In general, non-pharmacological methods have been found to be used in a limited way to relieve children's pain. In Twycross and Collins (2013) and Twycross et al. (2013), it was noted that many nurses considered non-pharmacological methods to be part of the parents' role, since parents were thought to be better able to understand their child's behaviour than nurses; they are in a unique position to know their child's feelings and emotions. However, while their participation in pain management of children at hospital is considered pivotal, cooperation between parents and nurses can greatly assist pain relief in children (Twycross and Collis 2013; Zisk-Rony et al. 2015).

Svendsen and Bjork (2014) examined the use of non-pharmacological methods in nurses and explored their reasoning for their use. Fourteen experienced nurses were recruited and divided into three focus groups. They were required to discuss several topics, including their use of various non-pharmacological approaches. They were asked when they should use these methods and in what situations, what age group these methods might be helpful for, and which methods they did not use and why. The findings indicated that cooperation between the child and nurse was deemed necessary during painful medical procedures, when nurses often used non-pharmacological methods. However, non-pharmacological methods were used less frequently to manage children's postoperative pain. Nurses also reported that the most useful approaches were displaying energy, being playful, and using positive language with the child and parents. These approaches were used to avoid negative responses during medical procedures and were less fear-provoking. Nevertheless, this study is limited since it used the focus group method only, which could mean that there is an underlying tendency to respond agreeably. It is possible that some participants might have expressed different views in

private. Furthermore, when in group discussions, some participants' views may be affected by the views of others (Sussman et al. 1991).

He et al. (2011b) examined nurses' use of non-pharmacological methods to manage school-aged children's postoperative pain. A convenience sample of 134 out of 151 registered nurses from seven paediatric wards participated in the study. A questionnaire was used to collect data, which was originally developed by Polkki et al. (2001). The requirement and questionnaire information is presented in the grid table, below. The results indicated that cognitive behavioural methods were often used by nurses, including relaxation (89%), breathing technique (88%), and distraction (75%). Physical methods used were positioning (61%), comforting/reassurance (79%), touch (73%), helping children with daily activities (82%), giving preoperational information for the child (75%), and talking to them about fears and anxiety (58%). The response rate for the questionnaire was high (94%). However, surveys conveying self-reported actions may not necessarily concur with actual clinic practice (Manias et al. 2005), so additional methods, such as observation, might result in contrary views to the survey findings (Wayers et al. 2008). Moreover, the survey did not include a *not applicable* option; this might pressure participants to choose the *never* option.

This section has noted that in some studies paediatric nurses did not use non-pharmacological methods for pain relief, as required by current guidelines. A number of studies recommended that nurses expand their knowledge about the use of non-pharmacological methods to manage children's pain, and understand the importance of using them consistently in practice (He et al. 2011b; Svendsen and Bjork 2014). In sum, nurses have been shown not to pay enough attention to mothers' involvement in the use of non-pharmacological methods in managing children's pain after surgery.

2.7 Nurses' perceptions of parental involvement

An examination of parental participation in their child's postoperative pain management has often been considered essential in attaining optimal outcomes (He et al. 2015). He et al. (2015) investigated nurses' perceptions about providing preparatory information and non-pharmacological methods to parents, and how nurses' demographic information and their perceived knowledge adequacy of non-pharmacological methods might influence this guidance. A convenience sample was used of 134 nurses working in seven paediatric wards, across two public hospitals. The findings indicated that cognitive and sensory information were provided by more than two-thirds of the nurse participants. The majority of nurses provided parents guidance on the methods of positioning (81%, n=108), breathing technique (80%, n=107), comforting (79%, n=106), relaxation (78%, n=104), and creating a comfortable environment (75%, n=101). Fewer nurses provided guidance to parents on methods of positive reinforcement (55%, n=74), imagery (53%, n=71), and massage (34%, n=46). It was found that nurses had an inadequate knowledge about non-pharmacological pain relief methods (n=62). However, in a self-report survey, the response bias might be a concern; observing the topic from the parent's perspective may have resulted in different findings. It was argued that there was a need to extend nurses' guidance to parents in the areas of children's perioperative sensory information of anxiety and pain as well as in less frequently conveyed methods, such as imagery and physical methods.

A number of studies have explored nurses' perceptions of parental participation (e.g., He et al. 2011a; He et al. 2015). They have highlighted the issue that nurses sometimes provide limited information to parents about non-pharmacological methods of pain relief. Often, nurses have a lack of understanding about parents' roles in managing their child's pain, which might have aided their participation (Lim et al. 2012). Zisk-Rony et

al. (2015) found that 86% of nurses strongly relied on parents when they assessed the child's pain. By contrast, Twycross and Collins (2013) observed that some negotiation and persuasion by nurses with parents about managing children's pain was required so that parents could better understand their roles. Only eight out of thirty nurses provided information for parents about how they can manage their child's pain after discharge. Twycross (2008) observed that nurses rated communication between themselves and parents and children as highly critically important. Despite this, four participants were observed not communicating with children, and only one nurse communicated with the parent. This section has indicated that nurses often do not have a clear understanding about the mother's role in managing her child's postoperative pain.

Alabdulaziz et al. (2017) examined paediatric nurses' perceptions and practices of family-centred care in Saudi hospitals. They used a mixed methodology study design. A convenience sample was taken of 234 nurses from six hospitals in Jeddah, Saudi Arabia, which completed the Family Centred Care Questionnaire. The qualitative phase took place in one hospital and involved 140 h of non-participant observation of paediatric nurses' practice. The convenience sample included 14 nurses. Additionally, 10 face-to-face semi-structured interviews were conducted with key staff members. A purposeful sample of 10 nurses was carried out. From the quantitative phase, participants identified most elements of family-centred care as necessary for its practice. They were less likely to incorporate them into their practice ($P < 0.001$, paired *t*-tests, all subscales). Participants had limited and superficial understanding of what family-centred care means as a model of care; rather, they worked with the elements as a set of core tasks. In the current study, there were similarities between what has been found in the Saudi context and findings of studies using the same tool in western contexts. There is general agreement regarding the differences between theory and practice. Nurses believe and

acknowledge the importance of family-centred care, however, they struggle with using this model in their everyday work. In Alabdulaziz et al. (2017), many factors contributed to this issue, including language barriers, communication issues, cultural issues, and hospital policies.

2.8 Documentation of children's postoperative pain management

Documentation is required for communication among health staff in hospitals, and is integral to managing children's pain. Twycross et al. (2013) reported that nurses did not always document pain reassessment, nor note the effectiveness of pain relief medication. Also, Twycross and Collis's study (2013) found that there was a lack of children's pain documentation in the chart audit data. In Twycross (2008) study, which involved 16 nurses, ten nurses considered documentation as highly critically important, but in practice only three nurses were observed documenting their patients' pain intensity. Eleven nurses rated documentation about the effectiveness of pain relief intervention as highly important, but seven nurses were observed not documenting pain management. In Zisk-Rony et al. (2015) it was found that not all nurses have a systematic way to document pain assessment in the paediatric ward, usually either in their nursing notes (75%) or medical files (73%). Nearly half the nurses (48%) reported that they recorded pain scores on the child's vital signs record sheet. Also, Zisk-Rony et al. (2015) found that a few of the nurses responded that they did not document the child's pain assessment. Twycross and Collis (2013) pointed out that despite the availability of pain management guidelines in hospitals, nurses reported that they should have documented the child's pain assessment and reassessment, but did not follow all the hospital guidelines regarding these. The findings, which suggested that nurses ignore pain management guidelines, could impact on the quality of managing children's pain in

clinical practice. Twycross and Collis (2013) found that nurses could improve their use of documentation to enhance communication between health professionals and to provide a legal, permanent, and comprehensive record of patient care. They suggested that there was a need to identify strategies and guidelines that support the use of documentation in pain management. Broadly, nurses do not properly consult hospital documentation about nursing practice regarding mothers' involvement in pain management.

2.9 Factors related to nurses' practice in children's pain management

Nurses' demographic characteristics has been shown to have an effect on nurses' perception and performance in practice. Several studies have discussed factors that affect nurses' provision of children's pain management (Ekim and Ocakçı 2013; He et al. 2011b; and He et al. 2015), such as nurses' age, education level, working experience, number of own children, experience of earlier hospitalisation of their children, and the hospital itself. These factors affect nurses' knowledge and attitudes about pain management, including the use of pharmacological and non-pharmacological methods and parental involvement.

Ekim and Ocakçı (2013) examined 224 nurses about their knowledge with regards to pain assessment, intervention, and evaluation. Information about the participant demographic data and the Paediatric Nurses' Knowledge and Attitude Survey (PNKAS) was used in the study, and is explained in the grid table. The findings indicated that while the mean score of 40.8% for the bachelor degree group was highest, statistically it was not significantly different from the master's degree group (39.0%). Bachelor's and master's degree groups' PNKAS results were statistically significantly higher than associate's degree (36.4%) and diploma (38.2%) groups ($P=0.03$). Nurses with greater

experience had the lowest scores (34.1%); those with experience of 1-5 years had significantly higher PNKAS scores than the nurses who had ≥ 10 years of experience ($P=0.01$). Even though PNKAS scores decreased significantly with years of nursing experience, increased paediatric nursing experience was not significantly correlated with PNKAS scores ($P>0.05$). When the PNKAS scores were compared on the basis of age groups, the group aged 20-25 years scored significantly higher than the three other groups (aged 26-32, 33-39, and 40-46 years) ($P=0.03$). Intensive care nurses' PNKAS mean scores (43.1%) were higher than those of medical paediatric ward nurses (38.1%) and surgical paediatric ward nurses (37.1%), and the results were statistically significant ($P=0.001$). However, no significant correlations were found between the average PNKAS scores and sex, paediatric nursing experience, having had pain, education, and membership of a nursing organisation.

In He et al. (2011b), statistically significant differences were found between nurses in the ≤ 24 years group and other age groups (25-33 years and ≥ 34 years). Nurses in the 25-33 years group informed children about the duration of the procedure more frequently than those in the ≤ 24 years group. Nurses in the 25-33 and ≥ 34 years groups used the following non-pharmacological methods more frequently than those in the ≤ 24 years group: positioning, presence, comforting/reassurance, and touch. Also, statistically significant differences were found between nurses with basic and higher education in nursing; nurses with higher education used the following methods more often than those with basic level education: imagery ($P=0.018$), breathing technique ($P=0.028$), massage ($P=0.006$), positioning ($P=0.007$), presence ($P=0.004$), comforting/reassurance ($P=0.018$), and touch ($P=0.001$). Also, senior nurses reported that they more frequently implemented the emotional support methods of comforting/reassurance ($P=0.035$) and touch ($P=0.006$). He et al. (2011b) found that nurses with 5-10 years working experience

implemented methods of imagery, massage, presence, and touch more frequently than nurses with <2 years of working experience. Nurses with 2-5 years working experience provided information to the child about postoperative monitoring more often than nurses with >10 years of working experience. There were statistically significant differences between the scores for nurses that had children of their own compared to those without. Nurses with their own children reported that they informed children more frequently about pain medication ($P=0.011$), non-pharmacological pain relief methods ($P=0.018$), and sensation after procedures ($P=0.015$). They also provided the following methods more frequently: imagery ($P=0.001$), distraction ($P=0.013$), breathing technique ($P=0.041$), positioning ($P=0.007$), presence ($P=0.009$), comforting ($P=0.027$), and touch ($P=0.013$). However, relying on self-reports of participants is perhaps not sufficient for a rigorous examination of clinical practice (Manias et al. 2005); the use of multiple data sources, such as observational methods, might strengthen the study findings (Wayers et al. 2008). He et al. (2011b) suggested that training and educational programs about pain relief methods need to be provided for paediatric nurses, particularly for those that are younger, less educated, without children, with lower designation, or with less years of experience.

In Lui et al. (2008), a deficit in knowledge and attitudes related to pain management was found to be prominent (mean percentage of total score=47.72, range=20-76%). The results used the stepwise regression model to analyse the knowledge and attitudes of nurses in relation to pain management. The combined variables of years of experience and application of knowledge to practice explained nine percent of the total variability in level of knowledge and attitudes. Nurses that had more working experience (estimate effect=0.75, 95% confidence interval [CI] = 0.22-1.27, $P=0.006$) and were able to apply their knowledge of pain management to daily practice (estimate effect=4.66, 95% [CI] =

0.39-8.92, $P=0.032$) were also more likely to have a higher percentage of correct scores on the Nurses' knowledge and Attitudes Survey Regarding Pain (NKASRP) (the study sample and methods are explained in the grid table).

He et al. (2015) used an independent samples *t*-test to compare the mean scores of nurses' provision of preparatory information and nonpharmacological pain relief methods for various demographic and perceived knowledge adequacy subgroups. The sample comprised 134 nurses. With regards to nurses' provision of preparatory information scores, there was a significant difference between the nurses in the two groups considered (≤ 30 and > 30 years), with moderate ($\eta^2=0.06$) magnitude of difference in the means (mean difference=-6; 95% [CI] -10.1 to -1.9). There was a significant difference in the preparatory information scores between nurses with or without their own children, with a small ($\eta^2=0.05$) magnitude of difference in the means (mean difference = -5.8; 95% [CI] -9.6 to -2.0). There was a significant difference in preparatory information scores between nurses who perceived having adequate or inadequate knowledge of non-pharmacological pain relief methods, with a large ($\eta^2=0.19$) magnitude of difference in the means (mean difference=-10.5; 95% [CI] -14.2 to -6.8).

In He et al. (2015), with respect to nurses' provision of non-pharmacological pain relief methods scores, there was a significant difference between nurses in the two education groups (lower and higher levels), with a small ($\eta^2=0.03$) magnitude of difference in the means (mean difference=-3.2; 95% [CI] -6.5 to 0). There was a significant difference in the non-pharmacological pain relief methods scores between nurses with or without their own child, with a small ($\eta^2=0.04$) magnitude of difference in the means (mean difference=-3.9; 95% [CI] -7.2 to -0.5). There was a significant difference in non-

pharmacological pain relief methods scores between nurses who perceived having adequate or inadequate knowledge of non-pharmacological pain relief methods, with a large ($\eta^2=0.18$) magnitude of difference in the means (mean difference=-8.0; 95% [CI] -11 to -5.1).

He et al. (2015) concluded that nurses that were older, had children, and perceived that their own knowledge of non-pharmacological pain relief methods was adequate provided more preparatory information to parents. Also, nurses that had a higher education level, were parents, and perceived that their knowledge of non-pharmacological relief pain methods was adequate likewise provided more guidance on non-pharmacological methods to parents. Thus, nurses' perceived knowledge adequacy of non-pharmacological methods seemed to be the most important factor influencing their provision of preparatory information and use of non-pharmacological methods. He et al. (2015) and Lui et al. (2008) suggested that education be provided to nurses about the use of non-pharmacological pain relief methods so that they may be competent enough to provide this information to parents.

2.10 Education programs of pain management for paediatric nurses

Education programs for paediatric nurses on pain management may positively affect nurses' practice. In general, many studies showed that developing education programs for children's pain management improved nurses' knowledge and attitudes (Zhang et al. 2008; Huth et al 2010; He et al. 2011a). Huth et al. (2010) explored the effectiveness of a pain education program on nurses' knowledge and attitudes in three hospital settings in Mexico. A convenience sample of 106 registered nurses was used. The program comprised a four-hour pain management course which was developed by three researchers: two clinical experts and a doctoral student in paediatric pain management.

The education program and recruitment are explained in the grid table. The PNKAS was used to collect data. A total of 79 nurses completed both pre-test and post-tests; the response rate was 81.5%. The findings indicated that there were significant differences between pre- and post-test scores ($P < 0.0001$). Thus, the intervention was effective in improving paediatric nurses' knowledge and attitudes. The study could be improved if there was a protocol used to acquire participants' responses. For example, some tests were collected after the break time, which gave participants the opportunity to discuss their answers with others. In addition, using a convenience sample technique meant nurses were self-selected for participation. Other nurses might have been more positive and knowledgeable than those that participated.

Zhang et al. (2008) studied the impact on nurses of a Pain Education Program (PEP) implemented in China. A quasi-experimental design was used to examine its effectiveness. One hundred and ninety-six nurses participated in the study, from five wards in two teaching hospitals. The number of participants was 90 in the control group and 106 in the intervention group. Green's (1980) PRECEDE model of health behaviour was used by Zhang et al. (2008) to develop the program. This model is a comprehensive structure for assessing health needs when designing, implementing, and evaluating promotion and other public health programs. This model identified three categories: 1) predisposing factors (e.g., beliefs, attitudes, and perceptions), 2) enabling factors (e.g., the skills and resources necessary to perform the behaviour), and 3) reinforcing factors (e.g., feedback provided by patients or other health professionals that might influence continuance or discontinuance of the behaviour). The data baseline was collected before starting the PEP, using a form of demographic information and the Nurses' Knowledge and Attitude Survey (NKAS). Data were collected one month and three months after the PEP. The PEP content is described in the grid table. The majority of nurses were female

(98%, n=185). Ninety-six percent (n=180) had prior experience of providing pain care, and 52.4% (n=98) had not received any pain education. Only 21.9% (n=41) had received a pain training course at school, and 25.7% (n=48) had been educated during their clinical work.

The findings indicated that after the intervention the scores in the experimental group increased significantly from the baseline scores in two post-tests. Before the intervention, the baseline over all scores for the nurses on the NKAS ranged from 7 to 24; the mean score was 15.46 (SD±3.70), and the average accurate response rate was 39.6%. The mean scores of the control group was 15.20 (SD±3.54); the mean score of the control group was 15.67 (SD±3.83). There was no difference between both groups with respect to the test score before intervention ($t=-0.86$, $P=0.38$). After the intervention, the mean scores on the NKAS of the experimental group at the two post-test points increased significantly from the baseline. When compared with the control group, the mean scores were also different (third month: $t=-28.82$, first month: $t=-16.50$, all $P<0.001$). The scores of the experimental group were higher in the follow-up test of the third month than those of baseline and the score of the first month ($F=350.45$, $P<0.001$), and there were significant differences in the mean scores between the first month and the third month ($P<0.001$). There was no difference in the mean scores among three measurement points in the control group ($F=1.32$, $P<0.05$).

In Zhang et al. (2008), twenty-six participants did not complete the questionnaire. If they had all completed them, this might have had an influence on the findings (Kang 2013). Zhang et al. (2008) noted that nurses were randomly assigned only at the hospital level (the study was carried out in two teaching hospitals); the researchers attempted to randomly assign nurses at the base unit level (there were five nursing units examined in

each hospital), but this was not possible owing to limitations of time and manpower. This likely resulted in specialist nursing professionals being unequally represented across the base units. Also, an awareness of being involved in the study may be sufficient to cause nurses to change their behaviour, thus affecting the results. The importance of continued nursing education programs on pain management were discussed, and it was posited that they should include knowledge of both pharmacological and non-pharmacological methods with respect to current evidence-based practice. It was suggested that they might focus not only on practice, but on theory. Also, consistent evaluation and support of these programs could maintain the suitability of these improvements in clinical practice.

It has been broadly established in the literature reviewed so far that nurses require education programs for the use of non-pharmacological methods for the postoperative pain relief of children. This may have a decisive influence on nurses' practice. He et al. (2008) conducted a descriptive comparative pre-test and post-test study. The study compared the performance of nurses in the use of non-pharmacological methods in the years 2002 and 2004. A convenience sample of paediatric nurses from 12 surgical settings was taken from five hospitals in the Fujian province, China. A validated questionnaire was used for the collection of data. The education program included an education booklet with accompanying lectures. Information about the questionnaire and the program are provided in the grid table. The results showed that there was a significant increase in the use of non-pharmacological methods with nurses in 2004 compared to 2002, including imagery ($P<0.01$), positive reinforcement ($P<0.001$), touch ($P=0.001$), transcutaneous electrical nerve stimulation (TENS) ($P<0.001$), and presence ($P<0.001$). There were similarities in the use of particular methods, including preparatory information (for children), distraction, comforting, and creating a

comfortable environment. Cognitive and sensory information were provided with an overall increase in frequency of use by nurses in 2004. Position and massage were the most frequently used physical methods for pain relief in both 2002 and 2004. However, there was no use of TENS as a pain relief strategy, although nurses reported using it after the education program. These results suggested that the education program of pain management for paediatric nurses helped to improve the quality of pain care in surgical wards generally. However, this study only used a small sample size and was conducted in a single province in China, and so might have limited generalisability. In addition, the follow-up was two months after the education program. It might have been better if there was a later follow-up, perhaps 6–12 months after the education program in order to measure its influence on nurses' performance when memory might have faded.

He et al. (2011a) found that nurses required an education program to improve their performance on advising parents on non-pharmacological postoperative pain relief methods. He et al. (2011a) examined the effectiveness of an educational program on nurses' provision of guidance to parents on the use of non-pharmacological methods to relieve their child's pain after surgery. This was a quasi-experimental, one group pre- and post-test study. The theoretical framework for identifying behaviour change strategies (Ashford et al. 1999) was used. A pre-test and post-test were conducted after three months. The questionnaire (initially developed by Polkki 2002) was used to collect data. Information about the questionnaire is provided in the grid table. A convenience sample of 134 nurses out of a total of 156 from two public hospitals was used. Only 112 questionnaires were valid, although the response rate was high (83%). There was a non-significant increase in the use of non-pharmacological methods suggested by nurses to parents after the program (pre-test 73% n=98, post-test 75% n=84, $P=0.77$). This included sensory information about pain before the procedure (pre-test 52% n=70, post-

test 57% n=64, $P=0.52$). Nevertheless, there was a non-significant decrease in the sensory information about pain after the procedure (pre-test 67% n=90, post-test 66% n=74, $P=0.89$) and during the procedure (pre-test 58% n=78, post-test 57% n=64, $P=0.89$). However, the sample size was quite small, which might have limited the generalisability of the results. He et al. (2011a) noted that there was a need for paediatric nurses to improve the provision of guidance to parents on the use of less frequently used methods, such as imagery and various physical methods. Therefore, He et al. (2011a) suggested there be a continued education program for nurses about non-pharmacological methods to equip them with knowledge to improve practice.

2.11 Parents' perceptions of their participation and needs

Parents often show interest in being involved in their child's pain care (Melo et al. 2014), and parental involvement in the care of hospitalised children is important for enhancing its quality (Twycross and Finley 2013; Melo et al. 2014). Some studies have been conducted to identify parents' roles during their child's admittance to hospital, such as what parents want to do, what parents actually do, and what barriers and facilitators are involved in engaging them in pain care (e.g., Lim et al 2012; Melo et al. 2014). The following subsections address parents' perceptions about provided information on their hospitalised child's postoperative pain management, involving the communication between parents and health professionals during the hospitalisation period. Parents' preferences and roles regarding pain management while their child is in hospital are examined.

2.12 Sufficient provision and complete information

Providing adequate information to parents about their hospitalised child's postoperative pain management is important for parental participation. Parents' knowledge, attitudes,

and behaviour regarding their child's pain management are significant for improving parental involvement and providing adequate pain assessment and management (Broome 2000). For example, a lack of knowledge could produce unsuccessful parental participation in the child's pain care. Various studies have examined parents' knowledge and attitudes regarding the management of their child's postoperative pain at the surgical ward, and the meaning of parents' participation (e.g., Chng et al. 2015; He et al. 2010; Lim et al. 2012; and Melo et al. 2014). Melo et al. (2014) explored the involvement of parents in a Portuguese hospital. Six hundred and sixty parents and caregivers and ninety-five healthcare professionals participated. The open-ended questionnaire was concerned with their perceptions in the care provided for their child's postoperative pain. It was used to explore their opinions with respect to how this care should be improved. The range of questionnaire response ratings was between 7% and 81%. The inclusion criteria for participants, study settings, and questionnaire details are provided in the grid table.

Melo et al. (2014) noted that data were analysed based on content analysis in three dimensions: domains, categories, and subcategories. The dimensions contained the following subsections: 1) hospital daily life, through developing adequate strategies and approaches that involved, a) communication between parents and health care professionals, guidance and teaching, and primary nurse, and b) hospital infrastructure, including the environment and resources; 2) involvement of parents through three domains, a) presence and participation involving information about parent needs and responsibilities, b) performance of care activates through family and nursing care, and c) helping health professionals by cooperation and managing workload; 3) continuity of care after discharge through shared learning, health service support, and home visits.

The study of Melo et al. (2014) highlighted that parents could take part in the care during their child's hospitalised period, but needed to be knowledgeable and given clear instructions and demonstration by health professionals about their roles with respect to their child's postoperative pain care. This would prepare them for continued care of their child at home (after discharge), because they could learn through their participation at hospital. This study involved three hospitals with a large sample size. One setting was a children's hospital and two settings were general hospitals. This difference might have affected the study results because the facilities at the respective hospitals could have been different.

In Twycross et al. (2013) it was found that the organisational facilities in hospitals encouraged nurses to involve parents. However, this study included both doctors and nurses, and nurses generally spent more time with patients and their parents than do doctors. Thus the study might have been more accurate if it had focused on either nurses or doctors. As it was an exploratory study, an open-ended questionnaire was used to collect data. The results might have been strengthened if observation methods were used. Melo et al. (2014) reported that health professionals should be given strategies about how to engage in successful communication with parents. Furthermore, nurses need to find ways to enhance their communication skills with parents, such as attending programs and workshops about communication skills.

Chng et al. (2015) examined parents' knowledge and attitudes about pain management and the use of pain relief methods. The study also aimed to measure parents' satisfaction regarding their child's postoperative pain management and to identify the correlation between parents' knowledge, attitudes, and satisfaction about pain management and the use of pain relief strategies. The Pain Management Knowledge and Attitudes (PMKA)

and the Parents' Use of Pain Management Relief Strategies (PUPRS) questionnaires were used to collect data. Information about questionnaires and inclusion criteria are provided in the grid table. Sixty parents of a total of 82 completed the questionnaire.

The findings indicated that parents display a moderate level of knowledge, attitudes, and use of pain relief methods in relation to their child's postoperative pain management. The study also highlighted that parents that had received adequate knowledge had positive correlations with using non-pharmacological pain relief methods, such as distraction and touch. The study also reported that parents whose child had previous admissions prior to the admission in question had significantly higher attitudes scores (median=28.0, IQR (interquartile range) =3.25) than those that did not have previous experience (median=26.5, IQR=3.5). There was a significant moderate positive correlation between parents' knowledge scores and attitudes scores, between parents' knowledge scores and PUPRS scores, between parents' knowledge scores and satisfaction scores, between parents' attitudes scores and PUPRS scores, and between parents' attitudes scores and satisfaction. However, caution needs to be taken to generalise the findings because the sample size was small. The small sample size also limited the use of statistical analysis; it was not possible to detect any statistically significant relationships between variables (Polit and Beck 2004). Chng et al. (2015) concluded that parents needed more adequate information from health professionals to be able to manage their child's pain after surgery.

He et al. (2010) found that some parents required detailed information and clear explanations from health professionals about their child's surgical procedure, the use of medications, pain relief methods, and their own roles. He et al. (2010) explored parents' perceptions towards informational and emotional support provided by nurses. The

purpose of the He et al. (2010) study was to garner recommendations from parents. This was to improve children's postoperative pain management at hospitals in the context of practice in China. Two hundred and sixty parents of 6-12-year-old hospitalised children participated in the study. The children were undergoing surgery in one of 12 wards in five hospitals in Fujian. A questionnaire was distributed to participants in 12 wards of the five hospitals. Information about the questionnaire is provided in the grid table. Two hundred and six parents (109 mothers and 97 fathers) completed the questionnaire.

Twenty-three of the returned questionnaires were excluded because they were empty or missing a considerable amount of data, although the response rate was 88%. The findings revealed that 188 parents felt worried and 122 parents had acute anxiety. Sixty-two of the parents gave reasons for having these negative feelings: lack of knowledge or capability in assisting their child during the hospitalisation period (14 parents), their child's general condition and lack of progress (18 parents), the surgical procedure, risk of surgery failure, and anaesthesia side effects (30 parents). Most of the parents reported that they had obtained sufficient information on outcomes of the surgical procedure (n=157, 85%) and the postoperative recovery process (n=173, 84%), and fewer reported they had received sufficient information about pain and pain medication (n=105, 51%) and non-pharmacological pain relief methods (n=122, 59%). One hundred and seventy-five parents reported that they had opportunities to discuss with nurses about their child's postoperative pain relief and that they were instructed on methods for relieving their child's pain. Only 109 parents (53%) had a clear idea about what they could do to manage their child's pain. This study was conducted in a single province in China, so might not represent national or global parental recommendations concerning pain management.

Twycross and Finley (2013) found that most parents were satisfied with nurses' management of their children's pain, and had received sufficient information regarding their child's pain. However, they found that there was a lack of preparatory preoperative information given. Furthermore, they noted that there was a gap between the information given and information understood, and this could produce unsuccessful parental participation. Therefore, adequate criteria for the information and instructions should be developed for nurses and doctors considering the parents' literacy, culture, and personal preferences. Numerous studies have identified several factors that could affect parents' understanding of information regarding their child's postoperative pain management (Kankkunen et al. 2008; Fortier et al. 2011; Jongudomkarn et al. 2012;). These could pose a risk of under-treatment of pain after surgery.

Jongudomkarn et al. (2012) examined parents' experience of involvement in acute pain care for their hospitalised child. A phenomenological design was used for conducting interviews with 45 parents whose children were admitted in one of five hospitals in North-Eastern Thailand. Further details about the inclusion criteria for participation and collection data process are explained in the grid table. Participants were invited to discuss freely about their experience of managing their hospitalised child's pain (i.e., Can you talk about what sorts of things you do to help your child when they are having pain?). Many participants believed that pain was 'karma', which is loosely understood in Thai Buddhism as a cause and effect to one's actions, mystical or otherwise. Both positive and negative experiences in life are attributed to one's karma, and this is connected to thoughts and events in a previous life (Klausner 1993). Thus, many participants considered pain as inevitable, and described good and bad pain in relation to karma. One participant explained how karma contributed to pain: "It is the karma. If he didn't get bitten by a snake he might have gotten harmed by something else. So we have

to accept it [i.e., the pain].” Also, participants believed in maintaining *Kreng Jai*. This means that “[i]t does not a matter if you face daily suffering. You are a child of Isan so you are born to be a fighter. You have to be patient” (Isan [Thai] saying). In understanding the experience of these parents in caring for their child, it is necessary to have an appreciation of the influence of Thai Buddhism as it affects the meaning of pain and influences traditional treatments and everyday behaviour. When a child had pain, most parents waited to determine if the child could cope with the pain in the hope that it would decrease before approaching a nurse for help. This study showed how parents’ involvement can be affected by cultural beliefs towards children’s pain and the role of social-behavioural expectations. However, parents recommended that health professionals should show more empathy and provide more effective pain care. This study might not be generalisable to other cultures because it concerns socio-cultural conditions that are specifically connected with the beliefs and practises of parents of the Thai culture.

Tait et. al. (2008) examined the nature of provided information for parents regarding their child’s postoperative pain management, and investigated how they understood it. One hundred and eighty-seven parents participated whose children were scheduled to undergo surgery. A questionnaire was used to explore their understanding of the given information. Information about the questionnaire is provided in the grid table. The findings indicated that there was considerable variability in the content and amount of information provided to parents based on the methods of postoperative pain control provided (patient-controlled analgesic, nurse-controlled analgesic, and intravenous analgesic). Parents whose child received patient-controlled analgesic were given more information on the risks and benefits compared with those receiving nurse-controlled or intravenous analgesic. It was also found that approximately one third of parents had no

understanding of the risks associated with postoperative pain management. There were no differences in understanding in terms of the participant demographical information of race, ethnicity, or education level.

In Tait et. al. (2008), parents were given provided information preoperatively and advised about the risks and benefits. They generally had a better understanding than parents who were not given information or were given minimal information. However, the study only used one method of data collection, a questionnaire. Using multiple data collection techniques might have permitted more detailed information to be gathered. It is possible that participants might not have been able to properly estimate their level of understanding. For instance, some studies have reported that parents overestimate their understanding of the consent information (Bellew et. al 2002; Tait et al. 2003). Tait et al. (2008) posited that parents needed clear and sufficient information about their child's pain management, particularly with respect to the risks and benefits of surgery. Also, the information is better provided before surgery to more effectively improve understanding.

Parents' cultural beliefs can cause misconceptions of pain management after a surgical procedure. Fortier et al. (2011) identified the impact of ethnicity and language on parental attitudes regarding analgesics to treat children's pain. Two hundred and six parents of children undergoing outpatient surgery were recruited to complete the 'Medication Attitudes Questionnaire'. Information about the questionnaire is provided in the grid table. Participants were divided into three groups based on primary language spoken and ethnicity (English-Speaking White, English-speaking Hispanic, and Spanish-speaking Hispanic). The results indicated that, compared with other groups, English-Speaking Hispanic parents had a higher level of misconception about pain medication use, including a tendency to want to avoid analgesics for children. The study highlighted

that parental characteristics, including ethnicity and language, may place children at higher risk for under-treatment of acute pain owing to misconceptions about analgesics use in children. However, this study was limited in that it did not cover a large range of cultural backgrounds or diverging socio-economic statuses, which might have uncovered different attitudes and understanding regarding postoperative pain management.

Another study conducted by Kankkunen et al. (2008) in Finland and the USA compared parents' perceptions towards analgesics use in children. Data were collected from 315 Finnish parents and 110 American parents whose children were undergoing surgery. The questionnaires requested information about the children's and parents' background, and the parents' perceptions about the use of analgesics. Statistical analysis showed that parents' perceptions about children's analgesics were statistically significant different between the two groups. More American parents than Finnish parents thought that analgesics should be given before the pain becomes too severe ($P=0.001$). Nevertheless, more American parents than Finnish parents claimed that their children became too easily dependent on analgesics ($P=0.022$). They also believed that analgesics for home use might be dangerous for children ($P>0.001$). However, the instrument of data collection was developed with the Finish parents, and the validity of the instrument was not tested with American parents. Also, the sample of American participants was smaller than the Finnish sample, and children in the Finnish sample were younger than those in the American sample. These differences in sample size and age distribution might have affected the study findings. Kankkunen et al. (2008) asserted that nurses should be aware of parents' incorrect perceptions, which may be barriers to managing their child's pain.

Paquette et al. (2013) found that a nurse follow-up telephone call improved parents' understanding of managing postoperative pain in children, and can minimise

complications at home. They undertook a randomised control trial with children aged 4-12 years undergoing elective tonsillectomy. Children with their parents were assigned to a nurse follow-up phone call on postoperative days 1, 3, 5 and 10, or had standard care without follow-up. Fifty-two families were recruited. Seven families were excluded because they did not answer the telephone calls, after three attempts. Forty-five remaining families (24 in the intervention group and 21 in the control group) were included in the study. Even when the child received greater amounts of analgesics, there was no statistically significant difference between both groups in terms of pain intensity. Mann–Whitney tests showed that the nurse follow-up group had statistically significant lower pain intensity scores after analgesics on the third postoperative day, in the morning ($U=139.5$, $P=0.05$), and the evening ($U=106.5$, $P=0.009$). However, children in the intervention group received more doses of analgesics than those in the control group on postoperative day 1 [$\chi^2(1)=6.42$, $P=0.01$] and day 3 [$\chi^2(1)=9.91$, $P=0.002$]. However, following Bonferroni adjustment, there was no statistically significant difference in the occurrence of nausea between both groups; fewer children in the intervention group vomited on postoperative day 0 ($P=0.03$) and postoperative day 3 ($P=0.03$). However, three parents from the control group stopped analgesics after the child vomited, even though the child still experienced moderate to severe pain. The intervention group increased their fluid intake at postoperative day 1 and 3, but more were constipated at day 3 than the control group.

Paquette et al. (2013) might be underpowered owing to the limited recruitment time. Following Bonferroni adjustment, the results were not statistically significant, especially with missing data in the follow-up study (four missing from the intervention group and nine from the control group). Indeed, it was noted in the study itself that the results were underpowered. The sample size was based on a statistical comparison with a similar

study (Joshi et al. 2003), and might have reached statistical significance with a greater sample size. Beside the follow-up telephone calls, other factors could have been considered that might have influenced parental management of postoperative pain, such as parents' cultural backgrounds and beliefs. Paquette et al. (2013) suggested that telephone follow-up calls by nurses are clinically useful and should be implemented to improve postoperative pain management, discussing optimising analgesics administration and increasing fluid intake, which would decrease the incidence of postoperative complications.

Vincent et al. (2012) examined parents' provision of pain care after the child was discharged. A quasi-experimental study was conducted, using 108 children aged 7-17 years' old, with their parents, undergoing an elective surgery. The results showed that on a scale of 0 to 10, on day one, children's mean numeric rate scale (NRS) pain scores ranged from 3.78 to 4.41 (control group) and 4.29 to 4.80 (intervention group) and decreased over each successive day of the three post-discharge days in both control and intervention groups. There were no significant differences in mean pain scores between both groups. Over the three days, the mean percentage of available analgesics administered by parents to children reporting NRS pain scores decreased from 66.68% to 43.29% in the control group, and from 70.07% to 55.19% in the intervention group. Indeed, parents administered fewer analgesics over each successive day of the three post-discharge days in the control and intervention groups. However, parents in the intervention group administered greater amounts of analgesics on all three days than did parents in the control group, but not significantly greater amounts (Day1 $P=0.51$, Day 2 $P=0.43$, Day 3 $P=0.19$). Furthermore, parents' and children's satisfaction with pain levels was high overall and the hospital services were used only by a few parents. The findings showed that written provided information about postoperative pain management

and a brief interactive session were insufficient to alter parents' approaches in providing adequate postoperative pain management at home.

Vincent et al. (2012) may be limited in that it does not use a specific protocol or set of guidelines to standardise the education sessions for a care group. Nurses provided individual education sessions for parents before children were discharged. The difference between nurses' background (e.g., experience and education level) could influence parents' understanding about provided information. Also, the use of a convenience sample could produce bias. For example, most of the participants in this study were white, which might have influenced the study findings. Differences in ethnicity have been shown to affect parents' views of pain management (Fortier et al. 2011). This study was also limited because the sample was a convenience sample. Therefore, not all participants had an equal probability of being selected (Sedgwick 2013). Indeed, the obvious disadvantage of convenience sampling is that it could be biased (Etikan et al. 2016). The analgesics administered and pain levels were recorded by parents in a pain log (date, time, name, and amount of medication). As with any self-reporting instrument, parents' documentation in the pain log may not have been accurate. For example, parents may have recorded higher pain scores for their children because they feel they needed to justify analgesic administration (Vincent et al. 2012). Also, parental reports can tend to underestimate children's pain, especially acute pain (Matziou et al. 2016). Thus, relying on the self-reports of participants is perhaps not sufficient to examine actual clinical practice (Manias et al. 2005).

Longard et al. (2016) explored parents' experiences of managing their child's postoperative pain at home. They found that all children in the study experienced some postoperative pain. Parents' experiences of managing their child's pain were impacted by

balancing the pros and cons of administering analgesic medications, managing the emotional and psychological effects of their child's pain, as well as their information needs. While most parents' information needs were met, they still struggled to manage their child's pain. These findings provide insight into some of the barriers that make pain management challenging for families, and highlights what healthcare centres can do to help support parental management in terms of pain care at home. However, this study used only information about what parents reported, not what was actually observed. Having other methods to validate given information might improve the study validity (Longard et al. 2016).

Throughout this review, various studies have reported the significance of provided information for parents about their child's postoperative pain before a surgical procedure. This ostensibly leads to an improvement in the role of parents and minimises the stress for parents and children (Gordon et al. 2011). Gordon et al. (2010) conducted a survey on the importance of provided information. This consisted of a total of 172 parent-child dyads in Sydney, with 102 returning the questionnaire. The children were aged between six and ten years and undergoing a surgical procedure. The information about the child and parent questionnaires are provided in the grid table. Thirty-five (46.7%) children reported that they had been informed by one or both parents; thirty-one (41.3%) children said that they had been informed by a doctor; and nine (12%) children reported they had been informed by both a doctor and parent(s). Most of the children reported they were happy with the amount of information that they received prior to admission (n=63, 85%); some stated they would have liked more information (n=9, 12%), and two children (2.7%) noted that they would have preferred less information. Parents said that children booked in for planned surgery acquired verbal information, and 26.7% had information by letter. Most parents (95.8%) said that they had received

information about the procedure that their child was required to have, given knowledge about anaesthesia (91.9%) and guidance about their child's condition (92.6%). Some parents received information about the hospital environment (75.3%) and about how their child might feel (78.4%). Eighty-seven percent of parents reported being advised about options for parental presence during admission and given information about any other procedures.

The findings of Gordon et al. (2010) showed that parents were asked a number of questions by their children, e.g., the length of hospital stay, length of the procedure, and pain. Parents were found to have a main role as the information provider for their child and so needed sufficient information. Children who were satisfied about the provided information were less distressed and voiced that they would not mind coming back to hospital if needed. However, it might have been better if the confidence and competence of parents were assessed regarding whether the child's informational needs were met. However, the validity of the instrument was not checked. In support of these findings, Gordon et al. (2011) likewise found that parents had a major role as information provider for their child, so they presumably required sufficient information. Further research is needed to assess parental confidence and competence in meeting their child's information needs.

Twycross and Collis (2013) explored nurses' knowledge and attitudes about hospital policies and guidelines concerning pain management at St. George's Hospital, London, United Kingdom. Their aim was to examine the parents' and young people's views about how pain is managed. Three data collection methods were developed and included in the study: observational data, chart audit, and a questionnaire for young people and parents. The chart audit showed that 58% of children (n=10) experienced severe pain, 24% (n=4)

moderate pain, and 18% (n=3) experienced mild pain. Observational data indicated that nurses did not practice current pain management and assessment guidelines in all areas of the hospital. Two nurses out of eight reported that they sometimes provided parents with verbal information about how to manage their child's pain after discharge, while three nurses did not. Also, four nurses pointed out that they did not provide parents with information about how to manage their child's pain after discharge. The parent questionnaire data found that three parents said that they did not use non-pharmacological pain relief methods to manage their child's pain as often as they would like. Three parents (18%) indicated that their child did not receive an explanation from nurses regarding the pain assessment tool. Nine parents of 17 (56%) said that they were not actually involved in making decisions about their children's pain management. In general, the study found that parents need to be involved in decision-making with respect to their child's pain management, and moreover, they need sufficient information to be involved in pain management.

2.13 Communication with health professionals

Communication among parents and health professionals is very important for providing coordinated pain care for hospitalised children after surgery (Melo et al. 2014). This helps to improve parents' perceived knowledge regarding their child's pain care and to have sufficient parental involvement (Lim et al. 2012; Twycross and Finley 2013; Melo et al. 2014). Lim et al. (2012) aimed to explore parents' experience of managing their child's postoperative care. A semi-structured interview was conducted with parents 24 hours after their child's surgery. The interview guide was established after an extensive review of related studies on parental participation in managing children's postoperative pain. Parent participants aged between 29 and 46 years were included in the study. The

inclusion criteria for participation is explained in the grid table. Three themes were developed in the analysis, including: 1) parents' action to relieve their child's pain; 2) the factors influencing parental management; and 3) whether parents are directly engaged in their child's care postoperatively, which comprised a need for involvement, adequate rest, and support from nurses. There were also three sub-themes that were considered in each theme: 1) the use of non-pharmacological methods; 2) the use of pharmacological methods; and 3) pain monitoring. In the study, parents reported they had difficulty in communicating with nurses and that they needed information and guidance. They also hesitated to ask nurses if they believed they were overloaded with work. The study highlighted the need for nurses to improve communication with parents, facilitating parents' roles and improving postoperative pain management. Also, it was found that nurses must appear welcoming for parents so that they can feel free to discuss possible concerns.

Twycross and Finley (2013) showed that there are sometimes communication deficiencies between parents and nurses. Twycross and Finley (2013) used interviews to explore children's and parents' perceptions about the quality of postoperative pain management in one unit in a tertiary children's hospital. Using a purposive sample, ten children undergoing surgery (which required children to remain at least 48 hours at hospital) and their parents participated in the study. The researcher excluded children who were in the intensive care unit, those below five years of age, children unable to communicate verbally, and children and parents that nurses felt were too distressed to take part. Interviews were undertaken in the hospital on the second or third day following surgery. Three interview techniques were used to collect data from children: 1) drawing and writing technique, 2) semi-structured interview, 3) written answers to interview questions. Child participants were required to describe their feelings when they

were in pain and to indicate the worst pain they felt. One parent of each child participant was required to fill in a questionnaire. The information on the questionnaire is described in the grid table. The findings showed that parents were generally satisfied with their child's pain care at hospital and nurses generally asked about the child's pain when children were still experiencing moderate to severe pain. It was reported that only one parent was not satisfied about the nurses' interaction because the nurses did not discuss with the parent about the child's pain medication and did not pay attention to the parent's preferences. However, some parents suggested that nurses should spend more time with them to improve communication. Data were collected while the child was still in hospital. This might mean participants were reluctant to discuss negative perceptions in case this had an adverse effect on their relationship and care. Twycross and Finley (2013) also noted that parental preferences and beliefs towards their child's postoperative pain management were reported not to have been fully taken into account. For example, setting a pain goal with children and parents might have been one way of ensuring improvement. Further research is required to explore different cultural contexts regarding parental involvement at hospital towards improved communication.

2.14 Parents' preferences and roles in their child's pain care

Understanding parents' personal preferences and culture is essential when considering their child's hospitalisation. Festini et al. (2009) noted that health professionals deal with hospitalised children and parents from many different cultures. Therefore, health professionals should consider these factors when involving parents in the child's pain care after surgery. He et al. (2015) indicated that mothers' background might affect their preferences in managing the child's postoperative pain. For example, He et al. (2010b) reported that Chinese parents preferred that nurses apply non-pharmacological methods,

and that nurses should spend more time with them and their child to enhance the quality of communication.

He et al. (2015) posited that parents that were less educated, unemployed, or without earlier hospital experience should be given more guidance and taught to manage their child's pain. Also, further research is needed to: 1) explore factors that influence the parents' participation, and 2) to give parents' recommendations to health providers to improve participation. Twycross and Finley (2013) argued that parent participation is not only about activities or monitoring, it is also about taking part in decision-making regarding their child's pain care. Melo et al. (2011) believed that parents could ensure their child's safety since parents are involved in their child's necessary activities, such as feeding, sleep, and games. By giving parents tasks with clear instructions about how to alleviate their hospitalised child's postoperative pain, this might also reduce the anxiety of those parents (Melo et al. 2011). Other parental roles for comforting their child were explored by Chng et al. (2015), such as distraction methods, massage, touch, positioning, and emotional support. Another view of parents regarding participation, explored by He et al. (2010), is that parents also require emotional support from nurses. Parents suggest that nurses need to consider the natural feelings of parenthood, such as worry and anxiety, and so should be patient with them. The present researcher did not find any studies that determined conclusive ideas about the parent's role in their child's pain management at hospital or at home; it seems that overall, the conception of parental or nursing roles can largely depend on background and culture.

2.15 Barriers for nurses in managing children's pain

Czarnecki et al. (2014) assessed barriers for paediatric nurses in providing an optimal pain management program, in a study at the Children's Hospital of Wisconsin, in the US.

This study was the second point of a two-part cross-sectional design that investigated nurses' barriers of optimal pain management provision. This study concerned 442 of the 1150 registered nurse responders to an electronic link survey, using the email "Barriers to Optimal Pain Management" (adapted from Vincent and Denyes 2004). The response rate was 38%. Mean results were based on a 0-10 scale, with 0 indicating "not a barrier" and 10 indicating "a major barrier". The findings indicated the following two major barriers for effective management: processing of analgesics orders were delayed by the pharmacy (M=4.91, SD±3.00) and there were delays in orders being delivered by the pharmacy (M=4.90, SD±4.96). In addition, the study indicated some additional barriers, such as inadequate and insufficient physicians and medication orders (M=4.64, SD±2.73), insufficient time allowed for pre-medication prior to procedures (M=4.34, SD±2.80), and insufficient pre-medication (M=4.34, SD±2.79). Unfortunately, MDs (medical doctors) were unwilling to be involved in the pain management service (M=4.28, SD±3.13). The study also indicated barriers in parents that were reluctant to give medication to their children (M=4.28, SD±2.32), and parent's concern about the side effects of medication (M=3.60, SD±2.30).

Twenty-one potential barriers (found in Czarnecki et al. 2011) and 18 major barriers (in Czarnecki et al. 2014) of pain management have been identified. In Czarnecki et al. (2014) there were improvements in pain management compared to Czarnecki et al. (2011). Improvement strategies regarding pain management were implemented after the first study, which may have impacted the outcomes of the second study. However, several limitations were found in the research methodology of Czarnecki et al. (2014). The survey was electronically linked by email, therefore the researchers could not verify registered nursing licenses. Also, the self-reporting survey may have been subject to bias. The response rate in both studies was low, which thus could produce bias in the

survey results and affect the strength of the results (Templeton et al. 1997). With respect to current practice, Czarnecki et al. (2011) and Czarnecki et al. (2014) highlighted that pain management in paediatric hospitals does not adhere to recent guidelines in all areas. Knowing these barriers might help hospitals improve strategies and patient pain care policy, while evaluating them continuously. This suggested that further research is needed to investigate the perception of barriers for health professionals and parents.

Twycross et al. (2013) conducted a study in a hospital in England in which 30 nurses were put into groups of between four and six. They took part in two (modified) focus groups which were conducted during their lunch break in two mandatory study days, in May and September, 2010. They were required to record their view after a discussion for ten minutes in each of the following four categories: pain assessment, pain management, child and parent involvement, and facilitators and barriers of pain management. They noted that they had uncovered a number of issues, such as nurses' lack of knowledge, insufficient prescriptions by physicians, and fear of overdose. They also indicated barriers related to children and parental involvement, including the child's age, exaggeration and culture, misbehaviour owing to their pain, not informing nurses about feeling pain, refusing or encouraging pain medication, and interference between a parent and child regarding the experience of pain. Participants also indicated factors related to the organisation, such as staff and supply shortage, lack of time-appropriate and age-appropriate assessment tools, and lack of equipment to distract a child during pain assessment and management. However, the study used focus groups, which meant that it was not possible to probe responses to explore fully what might have been communicated. Participants in the focus group might have influenced each other's views. In general, the participant's suggestions showed that the organisation could avoid the

barriers through providing adequate pain assessment tools, appropriate supply, sufficient doctors' orders, and adequate parental involvement in pain care.

Namnabati et al. (2012) used a phenomenology study design to identify potential barriers for pain management in children in Iran. Semi-structured interviews were conducted with 16 nurses from medical, surgical, and infectious paediatric departments. A purposive sample was used to elect appropriate subjects with the relevant information. Three themes emerged from the data, including organisational barriers, barriers related to children's characteristics, and barriers related to diagnosis and treatment. The organisational obstructions were a lack of authority in using some analgesics, lack of sufficient equipment, and a lack of opioids. Barriers related to the child's characteristics were age, gender, temperament, and behaviour expression. A barrier related to the nature of disease and its treatment were the type of disease that patients were undergoing. For example, some patients had painful, invasive procedures that caused greater pain than the disease itself, requiring procedures and medication administration. This meant that some diagnoses were required for the child to have medical procedures that could cause uncomfortable or painful feelings for the child. Namnabati et al. (2012) noted that some guidelines were required to achieve optimal pain management in children.

There are other barriers and facilitators that might affect the nurses' ability to manage children's pain. Gimpler-Berglund et al. (2008) designed a qualitative study to identify factors that affect nurses' pain management. A semi-structured interview was used with twenty nurses who were working in a paediatric department. Content analysis was also used. In the study, nurses reported the importance of cooperation with doctors, parents, and children to provide optimal pain management. However, nurses pointed out that cooperation with parents was often unsuccessful, whereas the child's cooperation was

variable, and could be affected by a number of factors, e.g., the department as a new environment for the child. Nurses also reported factors that were associated with the organisation, including prescription (such as that nurses preferred a regular prescription, rather than an 'as needed' prescription), lack of routine, lack of time, and the need for support (e.g., resources at the pain clinic were described as a facilitator for pain management).

Other factors related to nurses raised in Gimbler-Berglund et al. (2008) were nurses' experience, knowledge, and attitudes. The findings also showed that an increased number of nurses with more experience made it easier to understand the children's situation and improve decisions regarding pain treatment. The study highlighted that a lack of knowledge about pain management, especially when the pain did not have a clear physical cause, was also significant for pain assessment and management. Indeed, a lack of knowledge about how certain impairments could affect children's behaviour could be an obstacle for pain assessment and management. The study showed that the sharing of information between nursing staff about managing children's pain eased pain assessment and management. Also, nurses' attitudes about children's right to pain relief appeared to facilitate pain management. However, when pain assessment was not considered important it was an obstacle for pain management. The use of the qualitative approach and interview method in this study helped to provide more fine-grained information.

Festini et al. (2009) showed that language is an important criterion to achieve sufficient communication. It has an important influence on the relationship between nurses and parents. They investigated Italian nurses' attitudes in a paediatric department with respect to the provided care for children and their parents from countries outside Italy. A questionnaire was distributed to 201 paediatric nurses, and 129 returned completed

questionnaires (64.1%). Seventy-eight percent of nurses (n=101) reported that they experienced difficulties in providing care to non-Italian patients and their families. Eighty-seven percent (n=113) reported that the language and communication was the most difficult obstacle. Half of the participants pointed out that differences with respect to levels of nutrition (n=70, 54.2%) and personal hygiene (n=75, 58.1%) were also a barrier. Twenty-six percent of nurses (n=34) had an issue with children's and parents' religious, spiritual, and habitual attitudes. Some nurses reported that parents' views about nurse' roles were different to their own (n=15, 10%), as were children's attitudes regarding the pain associated with medical procedures (n=58, 45%). The study concluded that speaking a different language and originating from a different culture affected the nurses' provided care for patients. Ninety-nine of the nurses (87.6%) recommended the use of a cultural mediator as a solution for patients who cannot speak the Italian language. Festini et al. (2009) suggested that there is a need for nurses to have a background in transcultural nursing and theory. Since the study used a quantitative method and the sample size was small it might have limited generalisability.

2.16 Conclusion

This literature review examined nurses' and parents' experience in children' pain management after surgery and their perceptions of parental participation in the child's pain care. Many studies concluded that paediatric nurses had a lack of knowledge and appropriate attitudes to achieve successful postoperative pain management, with particularly insufficient knowledge on the use of pharmacological and non-pharmacological methods (Twycross 2008; Simons and Moseley 2008; He et al. 2011b). Also, it was found that nurses often did not pay enough attention to the importance of parental participation (He et al. 2015; Lime et al. 2012; Zisk-Rony et al. 2015). Many

studies showed that a number of parents needed more information and emotional support in order to be more fully involved in their child's postoperative pain management (Chng et al. 2015; He et al. 2010; Melo et al. 2014). It was also found that parents often needed their personal preferences to be better understood (Twycross and Finley 2013; Jongudomkarn et al. 2012). In general, in nursing practice, the roles of mothers were not clearly demarcated, and so as a resource they are not used optimally. There are various barriers that affect nurses in reaching successful pain management and advancing parental participation (Czarnecki et al. 2011; Czarnecki et al. 2014). The next chapter explains the methodology used in this study, describing the study design and methods.

Table 2-3 Identified studies in the literature review

No.	Theme	Author(s) Year Location	Study Title	Aim(s)	Participants	Methods	Findings	Strengths and Weaknesses
1	Nurses' perceptions of parental involvement	Alabdulaziz et al. (2017) Saudi Arabia	Paediatric nurses' perceptions and practices of family-centred care in Saudi hospitals: A mixed methods study	To explore family-centred care in the Saudi context from the perspectives of paediatric nurses.	Convenience sample of 234 nurses from six hospitals in Jeddah. 14 nurses for non-participant observation, in one hospital. Purposeful sample of 10 nurses for interview	Mixed methodology/explanatory sequential design. Family Centred Questionnaire was used for the quantitative phase. Non-participant observation of paediatric nurses' practice was used in the qualitative phase. 10 nurses from the quantitative phase, participants identified most elements of family-centred care as necessary for its practice were interviewed. The quantitative data from the questionnaires were analysed using SPSS. Descriptive statistics were generated for demographic variables and for each of the subscales within the primary scales (perception and practice). Content analysis was used. In the final integration and interpretation phase, Phase Four, data from all three sources relating to each of the family-centred care elements were drawn together.	From the quantitative phase, participants identified most elements of family-centred care as necessary for its practice. They were less likely to incorporate them into their practice ($p < 0.001$, paired t-tests, all subscales). From the qualitative phase, participants had limited and superficial understanding of what family-centred care means as a model of care; rather, they worked with the elements as a set of core tasks. In the current study, there were similarities between what has been found in the Saudi context and findings from other studies using the same tool in Western contexts. There is general agreement regarding the differences between theory and practice. Nurses do believe and acknowledge the importance of family-centred care; however, they struggle with practising this model in their everyday work. In the current study, many factors contributed to this issue, including language barriers, communication issues, cultural issues, and hospital policies.	The study used questionnaire, interview, and observation methods to obtain data. This improve the validity of the study findings.
2	Parents' perceptions of their participation	Chng et al. (2015) Singapore	Parents' knowledge, attitudes, use of pain relief methods and satisfaction related to their children's postoperative pain management: a descriptive correlation study	To examine parents' knowledge about, and attitudes towards managing pain, use of pain relief strategies, satisfaction with their children's postoperative pain management, as well as the relationships among these variables.	Convenience sample of 82 parents. Only 60 parents returned completed the questionnaire. Inclusion criteria: parents whose children aged 6-14 years undergoing surgery in a public hospital, being the main caregiver of the child, and being able to speak and read English. Exclusion criteria: parents who had a child with chronic pain.	Quantitative/descriptive correlational study. PMKA contained a total 17 items of 2 sections (developed by Dr. He), which were divided into 2 sections with questions that must be answered on a 5-point Likert scale. The first section involved five questions regarding the knowledge part. The total scores ranged from 5-25, (5-11 indicates a low perceived knowledge adequacy, 12-18 indicates a moderate percentage, and 19-25 indicates a high percentage). The second section involved seven questions about attitudes. Total scores ranged from 7-35 (7-16 indicates a less positive attitude, 17-26 indicates a moderate attitude, and 27-35 indicates a positive attitude). An additional five questions were prepared for parents who responded with "disagree" or "strongly disagree" to the questions regarding their attitudes about the use of pain medication. The five questions were used to clarify more about parents' attitudes regarding the use of medication. To examine the validity of the	Parents had moderate (48.3%) to high (45%) scores of received adequate knowledge. Parents had moderate (38.3%) to positive (60%) scores of general attitudes about their children postoperative pain management. Parents had moderate (50%) to high (36.7%) scores of the use relief pain methods to their children after surgery such as touch (89.1%), comforting (87.3%), presence (83.6%), helping them with daily activities (78.2%), and providing a comfortable environment (78.2%). Parents whose child had previous admission prior to this admission had significant higher attitudes scores (median= 28, IQR= 3.25) than those had not experience (median= 26.5, IQR= 3.5). No other differences were found in parents' knowledge, attitudes, PUPRS and satisfaction scores between or among different demographic subgroups of parents and children. There was a significant moderate positive correlation between parents' knowledge scores and attitudes scores ($r_s = 0.39$), between parents' knowledge scores and PUPRS scores ($r_s = 0.32$), between parents' knowledge scores and satisfaction scores ($r_s = 0.34$), between	This study is of limited generalisability because of the small sample size. Also, It might not be appropriate to detect significant correlations between some variables. The study used only questionnaires to collect data. Using mixed methods of data collection, such as interview or focus group that might enhance the study findings and explore more in-depth features for the study.

						questionnaire, eight paediatric experts were asked to rate the relevance of each item in the PMKA questionnaire. The PUPRS was modified from a questionnaire developed by Pölkki et al. (2002) and validated by He et al. (2006). It was to measure parents' use of pain relief methods and parents' satisfaction levels about their children's postoperative care. It consisted of two sections. The first section included 15 questions that were answered on a 5-point Likert scale, and two open-ended questions. The second section included one question answered on a 6-point ordinal descriptive scale to measure parents' satisfaction. The score was classified as low (15-35), moderate (36-55), or high (56-75). Descriptive statistical analysis was used. Correlations between parents' knowledge about, and attitudes towards managing pain, use of pain relief strategies, satisfaction with their children's postoperative pain management were described.	parents' attitudes scores and PUPRS scores ($r_s=0.28$), and between parents' attitudes scores and satisfaction scores ($r_s=0.38$). There was no significant correlation between parents' PUPRS scores and their satisfaction scores ($r_s=0.21$, $P=0.11$).	
3	Barriers for managing children's pain	Czarnecki et al. (2011) UK	Barriers to paediatric pain management: A nursing perspective	To ascertain how nurses described optimal pain management To identify barriers for paediatric nurses in practices to provide optimal pain care for children.	Convenience sample, 272 nurses of total 970 participated in the study. Inclusion criteria: Nurses working in any nursing role. Exclusion criteria: Nursing assistants, nurse interns, and nursing students	Quantitative/cross-sectional study. Barriers to Optimal Pain Management Survey was distributed to all registered in a paediatric hospital. The survey includes 35 questions based on a 11-point Likert scale, from 0 (not at all barrier) to 10 (a major barrier) based on Agency for Health Care Policy and Research guidelines. The survey was adapted with permission from Van Hulle Vincent and Denyes (2004). Descriptive statistical analysis was used.	The five most significant barriers as indicated by the highest mean were: 1) insufficient doctor medication orders, 2) insufficient pre-medicate orders before procedures, 3) insufficient time allowed to pre-medicate before procedures, 4) a low priority given to pain management by doctors, and 5) parents' reluctance to have children receive pain medication. The least significant barriers as indicated by the lowest means were: 1) low priority given to pain management by the respondent, 2) respondent's personal concern about children becoming addicted, 3) limitation in the respondents' personal ability to assess pain, 4) low priority given to pain management by nursing management, 5) low priority given to pain management by nursing staff. Additional barriers in comments section included: delays in obtaining pain medication (52 comments, 19% of respondents); issues with pain service coverage (34 comments, 12% respondents); issues with MDs not ordering pain service consultations when needed (24 comments, 8% of respondents); and issues with pain assessment tools for certain patient populations, such as children with chronic pain or development delay (19 comments, 6% of respondents). Most nurses felt they were able to overcome the barriers they identified and ultimately provide quality pain management for their patients (mean 7.23 ± 2.06 ; 0 indicating "not	Response rate of 28% may not be representative of the general population of nurses in the hospital.

							at all able” and 10 indicating “very able” to overcome barriers). No correlation was found between year of experience or education level and the ability to overcome barriers. Nurses reported being optimistic that improving identified barriers would positively impact their ability to provide quality pain management (mean 8.08 ± 2.31).	
4	Barriers for managing children’s pain	Czarnecki et al. (2014) UK	Do barriers to paediatric pain management as perceived by nurses change over time?	To reassess nurses’ perceived about the optimal pain management and barriers as interfering their practices to provide optimal care	Convenience sample of 442 nurses of total 1150 participated in the study.	Quantitative/cross-sectional study 3 years after the first study (Czarnecki et al. 2011). Barriers to Optimal Pain Management Survey was distributed to all registered nurses in a paediatric hospital. It included 39 questions based on a 11-point Likert scale, from 0 (not at all barrier) to 10 (a major barrier). This survey tool was modified based on the study (Czarnecki et al. 2011). Descriptive statistical analysis was used.	The five most significant barriers as indicated by the highest mean were: 1) delays in orders being processed by the pharmacy, 2) delays in orders being delivered by the pharmacy, 3) inadequate or insufficient doctor medication order, 4) insufficient time allowed to pre-medicate before procedures, and 5) insufficient pre-medicate orders before procedures. The least significant barriers as indicated by the lowest means were: 1) low priority given to pain management by nurses, 2) low priority given to pain management by nursing management, 3) limitation in the ability to assess pain, 4) concern about children become addicted, and 5) low priority given to pain management by me (respondent). No relationship was found between years of experience or educational level and the reported ability to overcome barriers.	This study conducted in one hospital which may limit generalisability. Response rate of 38 % may not be representative of the general population of nurses in the hospital.
5	Nurses’ Perceptions of pain management (pharmacological and non-pharmacological methods) Factors related to nurses	Ekim and Ocakci (2013) Turkey	Knowledge and attitudes regarding pain management of pediatric nurses in Turkey	To determine the level of knowledge and attitudes of paediatric nurses regarding the child’s pain.	Convenience sample, 224 nurse average age (20-46), 89.7% of those were female. 29.9% of nurses had a diploma, 40.6% associate, 25.0% bachelor, and 4.5% master degree. The average of experience years was 6.1.	Quantitative/observational exploratory study/survey. 2 measures were used: 1) the participant demographic form (14 questions), and 2) the Pediatric Nurses’ Knowledge and Attitude Survey (PNKAS). The survey was developed by Manworren (2001) to measure nurses’ knowledge and attitudes regarding pain management in paediatric settings. It contained 40 questions, including multiple choice and true/ false questions. Descriptive statistical analysis was used. Correlations between nurses’ PNKAS scores and their background were described.	The total mean score on the PNKAS scale was 38.2%. The highest score was 65% and the lowest score 15%. The findings of the survey show that paediatric nurses in Turkey have insufficient knowledge regarding children’s pain management. The mean score for nurses with bachelor’s degree (40.8%) and master’s degree (39.0%) was significantly higher than associate’s degree (36.4%) and diploma (38.2%), ($P= 0.03$). Nurses with more experience had the lowest score (34.1%). Those with 1-5 years of experience scored significantly higher than nurses who had ≥ 10 years of experience ($P= 0.01$). When the PNKAS scores were compared on the basis of age groups, the group aged 20-25 years scored significantly higher than the three other groups ($P= 0.03$). The PNKAS scores of the nurses in the age 33-39 and 40-46 years groups were not statistically different ($P> 0.05$). When the PNKAS scores were compared on the basis of age groups, the group aged 20-25 years scored significantly higher than the three other groups (aged 26-32, 33-39, and 40-46 years) ($P= 0.03$). Intensive care nurses’ PNKAS mean scores (43.1%) were higher than those of medical paediatric ward nurses (38.1%) and	This study is of limited generalisability because of the small sample size.

							surgical paediatric ward nurses (37.1%), and the result was statistically significant ($P=0.001$).	
6	Barriers for managing children's pain	Festini et al. (2009) Italy	Providing transcultural to children and parents: An exploratory study from Italy	To investigate attitudes and problems encountered by Italian nurses in a paediatric setting with regard to nursing care of children and their families from other countries.	Random sampling of 129 nurses of 201 answered the survey.	Quantitative/exploratory descriptive study. Questionnaire was developed for the study after reviewing the literature about transcultural care. Also, 2 focus groups were conducted to collect data. The questionnaire contained 11 items about areas of difficulty concerning nursing care of foreign children. Over 50 instruments have been designed in used among them the most frequency used were the Cultural Self-Efficacy Scale (Bernal and Froman 1987); the Multicultural Awareness, Knowledge, and Skills Survey (D'Andrea et al. 1991); the Ethnic Attitude Scale (Rooda 1993); and the Multicultural Counselling Inventory (Sodowsky et al. 1994). Statistical descriptive analysis was used.	78.3% of nurses reported having experienced some difficulties in providing care to foreign children and their families. The language barrier was the most important (87.6%), although more than half of nurses speak a language in addition to Italian. Half of nurses encountered problems in care because of different nutrition (54%) and personal hygiene customs of patients and their families (58.1%). Religious and spiritual practices were perceived as problem by only a minority of nurses (26%). Nurses also perceived in foreign parents' opinions different from their own about the role of nurses (10%), and attitudes of children toward pain associated with medical procedures (45%).	Response rate was 64.1%. This study is of limited generalisability because of the small sample size. Also, this study was only conducted in one hospital.
7	Parents' perceptions of their participation	Fortier et al. (2011) USA	Parental attitudes regarding analgesic use for children: differences in ethnicity and language	To identify the impact of ethnicity and language on parental attitudes regarding analgesic use to treat children's pain.	Convenience sample, 206 parents of paediatric surgical patients (1-17 years' old). English-speaking white (n=90) English-speaking Hispanic (n=68) Spanish-speaking Hispanic (n=48) participated in the study.	Quantitative/exploratory descriptive study. Medication Attitudes Questionnaire was used. It contained 16 items measures of attitudes and beliefs regarding the use of analgesics for children's pain. Parents asked to indicate their view using a 7-point Likert scale. Descriptive statistical analysis was used.	English-speaking Hispanic parents endorsed higher levels of misconceptions about pain medication use, including a tendency to avoid analgesic use for children, compared with English-speaking white and Spanish-speaking Hispanic parents ($P=0.04$).	This study is of limited generalisability because of the small sample size.
8	Barriers for managing children's pain	Gimble-Berglund et al. (2008) Sweden	Factors influencing pain management in children	To identify factors that influence nurses' pain management in children.	Convenience sample, 20 nurses from one paediatric ward.	Qualitative/exploratory descriptive study. Semi-structured interview was used. Content analysis was used.	4 categories and 13 factors were identified: 1) co-operation with (physicians, parents, and children), 2) children (behaviour of the children, children diagnosis, children' age), 3) organisation (prescriptions, routines, time, and support), and 4) nurses (experience, knowledge, and attitudes).	The use of qualitative approach and interview methods helped to provide in-depth information.
9	Parents' perceptions of their participation	Gordon et al. (2011) Australia	Child and parental surveys about pre-hospitalization information provision	To have a better understanding and where necessary, improving the preparation that children receive prior to hospitalisation.	Convenience sample of 102 parents whose children aged 6-10 years' old. 82 mothers and 17 fathers, and 1 guardian completed the survey.	Quantitative/exploratory descriptive study. Parent and child survey was distributed to the parents of day-surgery patients in the recovery unit and collected prior to their discharge from hospital. A 16-item parent survey consisted of 5 main sections: 1) demographic information, 2) the admission information (e.g. reason for admission), 3) the amount and type of notice, 4) the parent's	Parents were found to have a major role in providing their child with information the forthcoming hospitalisation, including information about pain. 35 children reported they had been informed by one or parents, 31 children reported they had been informed by a doctor, and 9 children reported they had been informed by a doctor and parents. Children were asked their parent prior their surgery about the length of procedure, duration of	This study is of limited generalisability because of the small sample size. Also, this study was only conducted in one hospital.

						own perspective (e.g., parent's satisfaction), and 5) the types of questions that the child asked about going to hospital. The children's survey contained nine items with open-ended questions, e.g., 'If your friend had to come to hospital what would you tell them to make it better for them?'. The validity of the instruments was tested by peer review, although other aspects of validity were not addressed, such as construct validity and reliability. Data were collected over a 12-month period of time. Statistical descriptive analysis was used.	admission, pain, procedural information, anaesthesia, needles, whether parents can be present, and activities to do in hospital. Most parents reported they received information about any procedure that the child was required to have (95%), anaesthesia (91.9%), and their child's condition (92.6). Fewer parents received information about the hospital environment (75%) and about how their child might feel (78.4%). Parents reported being advised about options for parental presence during admission and any procedure. They found this was helpful (86%).	
10	Nurses' perceptions of pain management (pharmacological methods)	Griffin et al. (2008) UK	Nurse characteristics and inferences about children's pain	To describe paediatric nurses' responses to children's pain as described in vignettes of hospitalized children and to explore nurse characteristics that might influence those responses.	Random sample of 700 registered nurses, and 334 nurses responded.	Quantitative/exploratory descriptive study. The survey emailed to the nurses. The survey included case reports of three hospitalized school-aged children experiencing pain. Nurses were asked to rate their perceptions of the children's pain levels and to indicate how much analgesia they would recommend. Statistical descriptive analysis was used.	Nurses who perceived a high level of pain gave children doses of analgesics close to the maximum order from the physicians. In the study, nurses encouraged the use of non-pharmacologic pain relief methods. Also, the differences of pain perception and variances in the decision-making process between nurses were not related to the nurses' background and experiences, such as education level, ethnicity, age, and years of clinical experience.	The researchers were concerned that they recruited subjects who were well-educated and well-read. Indeed, most of the participants had attained at least a bachelor's degree (70%). This means there might be inherent bias in the study. This study might be limited owing to the response rate, which was only 40%.
11	Nurses' needs of education program	He et al. (2008) China	Increasing nurses' knowledge and behaviour changes in nonpharmacological pain management for children in China	To examine the effectiveness of education program on nurses' use of non-pharmacological methods for children's pain.	Convenience sample of 187 nurses in 2002 and 195 nurses in 2004 from 12 surgical wards of hospitals. 183 questionnaires were returned in 2002 and 185 in 2004	Quantitative/descriptive comparative pre-post-test study. Education program was developed and implemented, including booklet and lectures about postoperative pain management in children, and nursing roles: emphasis on the use of non-pharmacological methods. The questionnaire was used to collect data in 2002 and 2004. The questionnaire was Nurses' Use Pain Relief Strategies Survey, developed by Polkki et al. (2001). The first concerned demographic data, and the second contained 15 questions regarding the use of non-pharmacological pain relief methods. The first item was about preparatory information, contained 21 sub-questions (included two categories: cognitive and sensory information, and techniques of providing information). The possible answers ranged from "not at all", "very seldom",	Nurses used same methods in both years, including providing preparatory information, distraction, comforting/ reassurance, creating a comfortable environment, and positioning. Nurses used imagery (38%) and positive reinforcement (9%) in 2002, there was improvements in 2004 nurses used imagery (68%) and positive reinforcement (67%). Nurses used physical methods e.g. positioning (61% in 2002 and 59% in 2004). No nurses used TENS (transcutaneous electrical nerve stimulation) method in 2002. Nurses reported they used non-pharmacological methods the (physical and emotional support) more frequently after the education program. There was a significant increase in the use of non-pharmacological methods with nurses in 2002 compared to 2004 including, imagery ($P > 0.01$), positive reinforcement ($P < 0.001$), touch ($P = 0.001$), Transcutaneous electrical nerve stimulation (TENS) ($P < 0.001$), and presence ($P < 0.001$).	Response rate was high (98% in 2002, and 95% in 2004). The study conducted in only one province which might limit the generalisability of study findings.

						through to “sometimes”, “nearly always”, and “always” Descriptive statistical analysis was used.	There were similarities in the use of particular methods, including preparatory information for the children, distraction, comforting, and creating a comfortable environment.	
12	Parents’ perceptions of their participation	He et al. (2010) China	Chinese parents’ perception of support received and recommendations regarding children’s postoperative pain management	To describe Chinese parents’ perceptions of informational and emotional support received from nurses and their recommendation for improvement in the management of their child’s postoperative pain	Convenience sample of 260 parents (109 mothers and 97 fathers), Inclusion criteria: parents of the child between 6 and 12 years’ old undergoing surgery, and they can read and answer the Chinese questions. Exclusion criteria: parents who had any mental disabilities, or had a child with chronic pain.	Mixed methods/descriptive study. Survey was distributed to participants in 12 wards at five hospitals, 229 of them completed it. 23 of these questionnaires were excluded. The survey was a modification of an original study conducted in Finland. The validity and reliability of the modified survey was investigated by conducting a pilot study of 20 parents whose children had undergone surgery. Based on their responses, some changes were incorporated into the survey. The survey contained 3 sections: 1) demographic data, 2) parents’ feelings and perceptions regarding when their child was in pain at a hospital, informational and emotional support from nurses, 3) their recommendations for nurses to improve their child’s pain management. The responses were elicited using a five-point Likert scale from ‘Totally Agree’ to ‘Totally Disagree’. Statistical description analysis was used for quantitative data. Content analysis was used in open-ended questions data.	Parents (n= 188) felt worry during their child hospitalised period. 123 parents answered the question about reasons of being worry including; (n= 62) risk of complication, risk of failure surgery, and analgesic side effects, and (n= 23) lack of knowledge or capability to assist their child during hospitalisation period. 85% of the parents received sufficient information about the outcomes of procedure, 84% about the postoperative recovery process. Less than two-third of the parents had received sufficient information in the following area of pain care: duration of pain (n=134), non-pharmacological methods (n=122), and pain medication (n= 105). Most parents (82%) had a chance to consult nurses. Only 53% of the participants had a clear idea about managing their child’s pain. 84 parents recommended nurses should apply non-pharmacological methods, and 39 parents suggested nurses should spend more time with them and their child to enhance communication. Other recommendations included nurses’ friendly attitude (n= 28) and concern towards the child (n= 26).	Data were obtained from only one province in China which could limit the generalisability of study findings. Data were obtained from different wards (cardiac and thoracic, ear nose and throat, and general surgical ward). The differences of the ward culture and nurses’ attitudes could affect study results.
13	Nurses’ needs of education program	He et al. (2011a) Singapore	Singaporean nurses’ provision of guidance to parents on non-pharmacological postoperative pain relief methods: An educational intervention study.	To examine the effectiveness of an educational program on nurses’ provision of guidance to parents on the use of non-pharmacological methods to relief for their child’s pain after surgery.	Convenience sample of 134 nurses of a total 156 from 2 public hospitals. Only 112 questionnaires were returned and valid.	Quantitative/quasi-experimental one group pre- and post-test study. The theoretical framework for identifying behaviour change strategies (Ashford et al. 1999) was used. Pre-test and post-test after 3 months were conducted. The questionnaire was developed by Pölkki (2002) and consisted of 2 sections: 1) about participants’ demographic data (7 items, and 2) about the frequency of the nurses’ provision of guidance to parents on school-aged children’s non-pharmacological postoperative pain relief (28 items). Descriptive statistical analysis was used.	There was increase in all the non-pharmacological methods that were being suggested by nurses to parents after the program. In the pre-test, > 75% of the nurses provided guidance to parents on the use of positioning, breathing, techniques, comforting/reassurance, helping with daily activities, relaxation, and creating a comfortable environment; whereas, in the post-test, the methods of touch, presence, and distraction were suggested by > 75% of the nurses to parents, in addition to those methods that were commonly suggested in the pre-test. Statistically significant differences were found in relation to the nurses’ instructions on massage ($P= 0.003$) and positive reinforcement ($P = 0.025$) between the pre- and post-test. No statistically significant difference was found sensory information of preparatory information to parents pre- and post-test provided to guide parents about pain, after the procedure ($P= 0.89$), during ($P= 0.89$), and before ($P= 0.52$).	Response rate was high 83%. This study is of limited generalisability because of the small sample size.

14	Nurses' perceptions of pain management (pharmacological and non-pharmacological methods) Factors related to nurses	He et al. (2011b) Singapore	The use of nonpharmacological methods for children's postoperative pain relief: Singapore nurses' perspectives	To examine nurses' use of non-pharmacological methods for school-age children's postoperative pain relief.	Convenience sample of 134 of 151 registered nurses from 7 paediatric wards.	Quantitative/exploratory descriptive study. A questionnaire was used to collect data (developed by Polkki et al. 2001), and contained 2 sections. The first section concerned nurses' backgrounds (7 items), and had a description of pain assessment and management at the working unit (2 items). The second section was about nurses' use of non-pharmacological methods. Descriptive statistical analysis was used. Correlations between nurses' use of non-pharmacological methods and their background were described.	Cognitive behavioural methods was always or nearly always used by nurses including relaxation (89%), breathing technique (88%), and distraction (75%). Physical methods were positioning (61%), comforting or reassurance (79%), touch (73%), and helping children with daily activities (82%), giving preoperational information for the child (75%), talking about fears and anxiety (58%). Age 25- to 33-year-old age group and 34 and older age group used the following methods more frequently than those in the less 24-year-old age group: poisoning, presence, comforting or reassurance, and touch. Also, statistically significant differences were found between nurses with basic and higher education in nursing. Nurses with higher education in nursing used the following methods more often than those with basic level education: imagery ($P=0.018$), breathing technique ($p=0.028$), massage ($P=0.006$), positioning ($P=0.007$), presence ($p=0.004$), comforting/reassurance ($P=0.018$), and touch ($P=0.000$). Also, senior nurses reported that they more frequently implemented the emotional support methods of comforting/reassurance ($P=0.035$) and touch ($P=0.006$). nurses with 5 to 10 years working experience implemented methods of imagery, massage, presence, and touch more frequently than nurses with less than two years of working experience. Nurses with 2 to 5 years working experience provided information to the child about postoperative monitoring more often than nurses with more than 10 years of working experience. There were statistically significant differences between the scores for nurses with children of their own compared with those without. Nurses with children of their own reported that they informed children more frequently about pain medication ($P=0.011$), non-pharmacological pain relief methods ($P=0.018$), and sensation after the procedure ($P=0.015$). They also provided the following methods more frequently: imagery ($P=0.001$), distraction ($P=0.013$), breathing technique ($p=0.041$), positioning ($P=0.007$), presence ($P=0.009$), comforting ($P=0.027$), and touch ($P=0.013$).	Response rate was high (94%). Surveys convey self-reported actions that may not necessarily concur with actual clinic practice, so additional methods such as observation might explore more information. The survey did not include <i>not applicable</i> option; this might force participants to choose <i>never</i> option.
15	Nurses' perceptions of parental involvement Nurses' perceptions of	He et al. (2015) Singapore	Nurses' provision of parental guidance regarding school-aged children's postoperative pain management: a	To examine nurses' perceptions of providing preparatory information and non-	Convenience sample of 134 nurses working in 7 paediatric wards of 2 public hospitals.	Quantitative/descriptive correlation-survey study. Questionnaires were distributed to nurses. The questionnaire contained 2 sections: demographic data, and information about nurses' provision of parental guidance on preparatory information and non-	Cognitive and sensory information were provided by more than two-third of the nurses. The majority of nurses provided parents guidance on methods of positioning (81%), breathing technique (80%), relaxation (78%), comforting (79%), and creating comfortable environment (75%). Fewer nurses provided guidance to parents on methods of	A self-reported survey, the response bias is always a concern; observing or examining the topic from parent's view may result in

	pain management (non-pharmacological)		descriptive correlational study	pharmacological methods to parents, and how their demographic and perceived knowledge adequacy of these methods influencing this guidance.		pharmacological methods). Statistical descriptive analysis was used. Correlations between nurses' backgrounds and their provision of parental guidance were described.	positive reinforcement (55%), imagery (53%), and massage (34%). Nurses had very inadequate knowledge about pain relief methods (n= 62). There was significant difference in nurses' provision of parental guidance on preparatory information between nurses two age groups, two education groups, with and without own child, and having adequate and inadequate information.	different findings.
16	Nurses' needs of education program Factors related to nurses	Huth et al. (2010) Mexican	Education changes Mexican nurses' knowledge and attitudes regarding pediatric pain	To explore the effectiveness of a pain education program on nurses' knowledge and attitudes regarding pain management.	Convenience sample of 106 nurses from 3 hospitals. They completed the demographic data questionnaire and pre-test. Only 79 nurses completed both pre- and post-tests.	Quantitative/intervention-pre- and post-test design. The curriculum of the 4-hour program included aspects of pain processing pathways, pain assessment, pharmacological and non-pharmacological relief pain strategies. The program included lectures, question-and-answer format, case studies, props, and discussions. PNKAS (Manworren 2000) was modified and used to measure nurses' pain knowledge and attitudes prior and after the program. It contained 30 question (19 true/false items, 7 multiple-choice, and 2 patient case scenarios. The instrument modification was not piloted. Descriptive statistical analysis was used. Correlations between nurses' PNKAS scores and their background were described.	There were significant differences between pre- and post-tests scores on PNKAS ($P < .0001$). Nurses who had worked <5 years scored significantly lower on the pre-test PNKAS than those who had worked >20 years ($P = 0.04$). One test item on children's ability to reliably report their pain had significantly lower score after the intervention ($P = 0.016$).	Convenience sample permitted the self-selection. This means participants might have knowledge about pain management more than those who did not participate. Many testes were collected after the break time. This permits chance to participants to discuss their answers with others.
17	Parents' perceptions of their participation	Jongudomkarn et al. (2012) Thailand	My Child You Must Have Patience and Kreng Jai: Thai Parents and Child Pain	To elicit the experiences of parents in providing care for their hospitalized child's acute pain needs.	A convenience sample of 45 parents from 5 hospitals was used. The inclusion criteria consisted parents whose children were hospitalised with acute pain. The study excluded any parent whose child was experiencing a serious injury or disease.	Qualitative/phenomenological design Two research assistants conducted the interviews after obtaining training and piloted the interview guide with a first author. They were required to write in the field notes about their feelings, questions, or insights from the interview. Then they discussed these with the first author to reflect on their thoughts.	Two themes emerged– “Understanding my child's pain: it's karma” and “Maintaining <i>Kreng Jai</i> ”– which identify parent beliefs toward pain and pain treatment, as well as perceived barriers in securing pain management for their children. Together these two themes describe the essence of this study as parents experienced an “inner struggle in providing pain care.” Pain was perceived as an inescapable part of life, and participants identified a preference for traditional remedies. Parents experienced a tension as they wanted to provide and secure pain care for their child but at the same time were reticent to approach staff with concerns about their child's care.	Data were collected from five hospitals in the Isan region. This permitted to obtain the range of experiences of parents in their hospitalised child' pain care.
18	Parents' perceptions of their participation	Kankkunen et al. (2008) USA	A tale of two countries: Comparison of analgesics among	To compare parental perceptions regarding	Convenience sample of 315 parents from Finland and 110 from parents USA.	Quantitative/exploratory study. Questionnaire was used to collect demographic data of parents and children, and parents' perceptions of children's	Parents thought analgesia should be given regularly, but more American than Finnish parents thought analgesia should be given to the child before the pain becomes severe. More American	Using a convenience sample without inclusion criteria such as children's

			Finnish and American parents	children's analgesics in Finland and the USA.	In Finland children (1-6-year-old) who underwent surgery in 10 hospitals, and discharged on the day of surgery. In USA, children age was 3-14 years and had elective surgery. The age was inconsequential in the study.	analgesia. It contained 14 items which were rated using Likert scale from "completely disagree" to "completely agree". The questionnaire was translated into English and piloted to use it in data collection of American parents. Statistical descriptive analysis was used. Correlations between the parents' use analgesics and their background were described.	than Finnish parents stated that children easily become dependent on analgesics and that analgesics for home use may be dangerous for children. American parents believed that analgesia should be given to the child if the reason of pain was known. Most Finnish parents did not believe that analgesia for home use cause respiratory depression in children. Fewer Finnish parents considered analgesia is the final alternative to alleviate postoperative pain. Different responses based on ethnicity of parents to the statement "Pain medicine is the final alternative to alleviate children's postoperative pain": 62% of African Americans and 45% of the Hispanics responded they agree with this, whereas only 22% of the Caucasians responded they agreed.	age might affect the generalisability of the study results, because children background might affect the parents' response.
19	Parents' perceptions of their participation	Longard et al. (2016) Canada	Parents' experiences of managing their child's postoperative pain at home: an exploratory qualitative study	To explore parents' experiences of managing their child's postoperative pain at home.	Convenience sample of parents of 10 typically developing 5- and 6-year olds, who underwent (adeno)tonsillectomy, and experienced no complications.	Qualitative/exploratory descriptive study Semi-structured interviews were conducted with parents within three months of their child's surgery. content analysis was used.	All children experienced some postoperative pain. Parents' experiences of managing their child's pain were impacted by balancing the pros and cons of administering analgesic medications, managing the emotional and psychological effects of their child's pain, as well as parents' information needs.	Only one parent from each family was interviewed, so some missing information from other family members who may have been impacted by the surgery, most notably the children.
20	Parents' perceptions of their participation	Lime et al. (2012) Singapore	An exploration of Singaporean parental experiences in managing school-aged children's postoperative pain: a descriptive qualitative approach	To enhance understanding of parents' experiences in managing their children's postoperative pain in Singapore.	Purposive sample, 14 parents (12 mothers and 2 fathers) participated from three paediatric hospitals. Inclusion criteria: 1) parents who had a child age between 6-12 years, undergoing to surgery, and hospitalised for 24 hours, 2) they had main responsibility for the child's care. 3) they are able to speak and read English, 4) they are willing to participate.	Qualitative/exploratory descriptive study. Semi-structured interviews were conducted to collect data. Parents were interviewed 24 hours after surgery. Interviews were transcribed verbatim. Thematic analysis was used.	Themes were emerged and each theme had sub-themes: 1) Actions of parents in to relieving their child's pain (sub-themes: use non-pharmacological methods, use pharmacological methods and, monitoring pain), 2) Factors influencing parents' management of child's postoperative pain (sub-themes: promoting factors, and hindering factors), and 3) Parents' needs in the process of their child's postoperative pain care (sub-themes: need for involvement in their child's care, need for adequate rest, and need for support from nurses). Most parents used distraction methods, massage, touched, positioning, and emotional support to comfort their child. Some parents used prayers as a form of support and believing it would help their child have less pain. Parents asked pain medications from nurses when their child was unable to tolerate pain. They checked that their child was given medication. They monitored regularly their child's pain. Parents stated they must be involved in their child's pain especially children were afraid from hospital environment and their role to take care of their child. Parents considered family support as essential factor to help them manage their child's	Participants were not limited to either mothers or fathers and of the 14 participants, 2 were fathers. While the study did not aim to draw comparisons on the basis of gender about differences in parent's management of their child's pain, research has shown that parents' gender influences perceptions of children's pain and methods chosen to manage pain (He et al. 2006).

							<p>pain. Frustration, fatigue and helpless were common feeling expressed by parents. could do mothering tasks such as daily activities. Parents feel nurse had workload, so they were hesitant to ask about their child's pain management. Parents were confused when their child was in pain. They needed more information about child's pain and its management. They needed for adequate rest, and they were distracted by nurses.</p>	
21	<p>Nurses' perceptions of pain management (pharmacological and non-pharmacological)</p>	<p>Lui et al. (2008) Hong Kong</p>	<p>Knowledge and attitudes regarding pain management among nurses in Hong Kong</p>	<p>To investigate knowledge levels and attitudes regarding pain management among nurses in the medical departments.</p>	<p>Convenience sample of 143 nurses completed the survey.</p>	<p>Quantitative/cross-sectional study. A survey was self-administered, containing two parts, including demographic data and the Nurses' Knowledge and Attitudes Survey Regarding Pain (NKASRP). It contained 25 items (16 true or false questions, and 9 multiple-choice questions). 143 nurses completed the survey. A regression analysis method was used to examine the data. Regression analysis was used.</p>	<p>A lack of knowledge and attitudes related to pain management was prominent (47.72%, with a range of 20-76%). Participants were weak in both pharmacological and non-pharmacological pain management interventions for patients experiencing pain. 71.3% of participants believed the most accurate judge of the intensity of pain was the patient, and only 1.4% of participants believed that no patients over-reported their experience of pain. 71.1% of the participants believed that the patient should have to endure as little pain as possible and so should be promptly treated. 64.3% of participants would advise patients to use non-pharmacological methods alone, rather than use them concurrently with analgesics.</p>	<p>The use of a convenience sample could affect the study results because nurses who did not have a chance to participate might have given different responses.</p>
22	<p>Parents' perceptions of their participation Nurses' perceptions of parental involvement</p>	<p>Melo et al. (2014) Portugal</p>	<p>The involvement of parents in the healthcare provided to hospitalised children</p>	<p>To analyse the answers of parents and healthcare professionals concerning the involvement of parents in the care provided to hospitalised children. It was conducted in three different hospitals (one children's hospital and two hospitals that offer paediatric services).</p>	<p>Convenience sample of 660 parents (p) and 95 healthcare professionals (HCP) participated from 3 hospitals (one paediatric hospital, and another two hospitals with paediatric services). The study inclusion criteria were as follows: parents who had interest to participate in the study; nurses who had more than six-months' work experience in paediatric wards; and doctors who had two-years' experience as paediatricians</p>	<p>Qualitative study/exploratory study. Validated questionnaire was used to collect data from participants. The questionnaire comprised of first three questions specific for parents, and last three questions for HCPs. The questions were: 1) What do you understand involvement of parents in the care delivered to your hospitalised child to be? 2) In what care activates delivered to your child would you like to take a part? 3) What do you think could be done to improve care provided to your child during and after hospitalisation? 4) What do you understand involvement of parents in the care provided to hospitalised children to be? 5) What strategies do you use to involve the parents in the care provided to children during hospitalisation? 6) In regard to your hospitals, what do you think could be done to improve the care provided to children during hospitalisation? Content analysis was used.</p>	<p>3 themes were emerged: 1) Daily care provided to hospitalised children 2) Opinions concerning the involvement of parents in the care provided to hospitalised children 3) Continuity of healthcare provided to the child after discharge. Theme 1-subtheme 1 (strategies of approaches): (88 P) highlighted that communication between health staff and parents is very important. (204 P), (34 HCP) indicated that strategies focused on health teaching and training for parents are required, and (12 HCP) suggested there should be primary nurse who would attend to the child and family so that parent would feel ease expressing their doubts and fears, enabling them to become more involved in the care provided to the child. Theme 1-subtheme 2 (hospital infrastructure): (304 P) better space and privacy of children within the hospital are needed (48 HCP) stated that allocation of nurses, doctors and technicians should be suitable to the number of hospitalised children in the unit. Theme 2 subtheme 1 (presence and participation): (23 P) considered involvement only to mean constant monitoring and companionship, (451 P and 64 HCP) consider involvement is take apart in the care provided to children, and (570 P) highlighted parents participation should be adjusted to the child's</p>	<p>Convenience sample was used, that might not permit the other parents and health professionals to express their views. The study used only questionnaire. Using mixed methods of collecting data that might enhance study findings by using triangulation.</p>

							context, how parents feel prepared to do it. Parents need a lot of emotional support (HCP 56, and 658 P). Theme 2- sub-theme 2 (performance of care activities): (106 p) and (66 HCP) considered parents' participation is parents should be active in child such as hygiene, comfort, and positioning, and professionals. Theme 2 sub-theme 3 (help provided to the health care professionals: (106 P) parents cooperate with procedures and monitoring, this could reduce the workload of the health such as taking temperatures. Theme 3 sub-theme 1 (communication between parents and health services): (603 P) highlighted communication is important for solving problem. (6 HCP and 593 P) mentioned parents should be prepared for the child care before discharge. Theme 3 sub-theme 2 (follow-up after discharge): (11 HCP and 725 P) suggested home visit or phone follow-up to contact the family after discharge.	
23	Barriers for managing children's pain	Namnabati et al. (2012) Iran	Identification of perceived barriers of pain management in Iranian children	To explore barriers in children pain management at the nurses had perceived.	Purposive sampling of 16 paediatric nurses from one hospital. They were of educational hospital in Iran in the medical, surgical and infection wards, aged 26-35 years old and there were Bachelor in nursing with a background in paediatric setting ranging from 4 to 10 years.	Qualitative/phenomenology study. Semi-structured interviews were conducted to collect data. Colaizzi methods were used to analyse data.	Three major themes emerged from data were: 1) organizational barriers, 2) limitations relating to children characteristic (e.g., age, gender, and mod), and 3) barriers relating to the nature of disease and its treatments. There were barriers related to the organization: 1) there was no pain chart sheet and available pain scale should be established, 2) there was no available opioid medication, 3) doctors do not order analgesic based on the standard protocol, 4) the overwork was considered a barrier, and 5) inadequate equipment of pain management.	Demographic data of participants was not collected which could limit the transferability of the findings.
24	Parents' perceptions of their participation	Pagquette et al. (2013) Canada	A randomized clinical trial of a nurse telephone follow-up on paediatric tonsillectomy pain management and complications	To determine the effect of a nurse telephone follow-up on paediatric postoperative tonsillectomy pain intensity, complications, and use of other healthcare services.	Random sampling of parents of 45 children, intervention group (n = 24), and control group (n = 21). Inclusion criteria: 1) children aged 4-12 years, 2) physical status classification 1 or 2 according to American Society of	Quantitative/randomized clinical trial. All parents received routine information about the child's postoperative pain care. A research nurse contacted the parents in the intervention group by telephone on the child's postoperative day 1, 3, 5, and 10 to provide support and information. The follow-up call by the nurse was to assess the child's well-being and to respond to parents' queries, giving advice related to problems identified, as well as promoting proper interventions and providing reassurance. Demographic data	There were no significant differences in median pain intensity scores. Children in the intervention group received more doses of analgesics than those in the control group at day 1 and 3. Many parents requested information or clarification about pain evaluation, management of complications, non-pharmacological pain relief methods. All parents needed reassurance about detail on the prognosis, and advice on what to watch for over the next few days. Most parents inquired about topics already covered in the information booklet given at discharge and in the standard postoperative	The study might have been underpowered due to limited recruitment time, thus results which did not reach statistical significance.

					Anesthesiologists physical status classification system, 3) at least one parent could speak French, and 4) assured telephone access to parent. Exclusion criteria: children with neurocognitive deficit, or chronic pain, or who had surgery in the month preceding their tonsillectomy.	were collected from all participants. They were given a home diary to collect information regarding pain intensity, medication use, postoperative complications, and consultations with health care services. They were provided with an education brochure about children's postoperative pain care and standard postoperative pain care. Statistical descriptive analysis was used.	instructions, including suggested food, when to stop medication, constipation, permissible activities, and bad breath. Over a quarter of the parents (26.1%) in the intervention group consulted other healthcare professionals during the recovery period, compared with 41.2% of the parents in the control group, but this difference did not reach the statistical significance.	
25	Nurses' perceptions of pain assessment Nurses' perceptions of pain management (pharmacological methods) Documentation	Shretha-Ranjit and Manias (2010) Australia	Pain assessment and management practices in children following surgery of the lower limb	To examine paediatric nurses' pain assessment and management practices in relation to postoperative care for children following surgery of a fractured lower limb and to compare these practices with evidence-based guidelines.	Population sampling of medical records of 106 children aged 5-15 years' old.	Quantitative/retrospective audit of medical records. The audit tool contained 4 sections (25 items); 1) patient's demographic data, 2) nurses' practice in assessing vital signs before and after administering analgesics, 3) nurses' pain assessment practices (the use of assessment tools, frequent of pain assessment, and documentation pain scored), and 4) information about nurses' practices of using pharmacological and non-pharmacological methods. Descriptive statistical analysis was used.	Assessment of pain using a specific pain assessment tool was not usually documented (87% of medical records, n= 92). Nurses assessed pain less frequently compared to the number of times that should be based on the hospital policy. Patients received significantly lower amounts of analgesics than prescribed amounts. Paracetamol was ordered over the postoperative period, patients only received about 60% of the order amounts on the surgery day and 70% during the first 3 postoperative days. The use of non-pharmacological intervention was documented in only 23.6% of medical records.	The results were relayed on retrospective data of medical records. Pain documentation might not fully reflect the nurse's performance in clinical practice.
26	Nurses' perceptions of pain management (pharmacological methods)	Simons and Moseley (2008) UK	Post-operative pain: the impact of prescribing patterns on nurses' administration of analgesia	To measure the difference between what children are prescribed for analgesia postoperatively and what they are administered in the first 24 hours following surgery and to explore the influence of the analgesic being prescribed 'as required' or regularly.	Purposive sample of chart review of 175 children Inclusion criteria: child who had undergone surgery and stayed on the ward for 24 hours postoperatively. Day cases were excluded.	Quantitative/audit retrospective study. A retrospective chart review was undertaken of children's analgesia charts during the first 24 hours' post- surgery. The study was conducted at two sites, a paediatric hospital and a paediatric ward in a general hospital Statistical descriptive analysis was used.	Each analgesic that was prescribed was administered in decreasing amounts relative to the strength of the analgesic. The highest percentage given was of paracetamol. When the prescribed analgesics were paracetamol, nurses gave them 88% of the time. By contrast, when they were PRN analgesics, 77% were given paracetamol. It was concluded that children had a greater chance of receiving analgesics if they were prescribed regularly.	This study included only retrospective chart reviews, and used only a small sample size (175 participants), which limited the generalisability of the study.

27	Nurses' perceptions of pain management (pharmacological methods)	Smyth et al. (2011) Australia	Children's postoperative prerenal (PRN) analgesia: nurses' administration practices	To explore nursing practices associated with administration of PRN postoperative analgesia to children and to understand nurses' decisions about this important intervention.	A convenience sample of 95 children who stayed at least on night in the paediatric surgical ward after surgery. Also, 18 paediatric nurses participated in the study.	Mixed methods/exploratory study. The first phase was to identify the patterns of PRN analgesia administration. Data was obtained from the medical records of 95 children over a two-month period from children that were admitted for at least a night after surgery. The information taken was the child's age, gender, details of prescribed and PRN analgesia, the use of a pain assessment tool, and documentation regarding the influence of analgesics administration. The second phase was to examine nurses' decision-making processes of PRN analgesia administration. Participant observations and interviews were conducted for 18 nurses. Descriptive statistical analysis and content analysis were used.	Nurses used multiple strategies to determine children's need for PRN analgesia, including reference to pain assessment tools, focusing on the behavioural cues of children, involving parents and children, and drawing upon personal and professional backgrounds and experience. The findings indicated that while the majority of children (n= 72, 76%) were prescribed PRN analgesia, only half of them received it (n= 46, 48%). 29 children that were prescribed PRN did not receive any (n= 29, 31%). Evaluation the effectiveness of PRN postoperative analgesia was poorly documented.	Using mixed methods design permitted exploring the nurses' perceptions in-depth. Also, using observation methods permitted to collect data in real practice.
28	Nurses' perceptions of pain management (non-pharmacological methods)	Svensden and Bjork (2014) Norway	Experienced nurses' use of non-pharmacological approaches comprise more than relief from pain	To investigate the use of, and reasoning by, experienced nurses regarding non-pharmacological pain approaches to care for children in hospitals.	Convenience sample of 14 paediatric nurses	Qualitative/exploratory descriptive study. Three focus-groups were organised which comprised 14 experienced nurses. They were acquired to discuss several topics, including their use of different non-pharmacological approaches. They were asked when they needed to use them, and in what situations. They were asked for what age group these methods would be helpful, and which methods they did not use and why. Content analysis was used to analyse data.	Cooperation between the child and nurse was necessary during painful medical procedures, when nurses used appropriate non-pharmacological methods. However, non-pharmacological methods were used less frequently for the child's postoperative pain. Nurses also indicated that the most useful approaches were displaying energy, being playful, and using positive language with the child and parents. These approaches avoided negative responses during medical procedures, and were less fear-provoking.	This study is limited since it used focus group method only, which could mean that there is an underlying tendency in responses towards conformity. Some participants might have expressed different views within the group than those that they might have expressed in private.
29	Parents' perceptions of their participation	Tait et al. (2008) USA	Parents' understanding of information regarding their child's postoperative pain management	To examine the nature of information provided to parents regarding options for postoperative pain control and their understanding thereof.	Convenience sample, 187 of 272 parents participated in the study. Parents whose children (0-17 years' old) had undergone surgery requiring postoperative IV opioids for pain control.	Quantitative /exploratory descriptive study. After the child's surgery, parents were given a questionnaire to elicit information regarding their perception and understanding of the risks, benefits, and alternative methods for their child's pain management. The questionnaire contained 42 items divided into five sections: 1) information about pain control options, 2) decision-making, 3) child's postoperative pain experience, 4) preferences for pain control information, and 5) demographics. Statistical descriptive analysis was used.	There was considerably variability in the content and amount of information provided to parents based on the methods of postoperative pain control provided (patient-controlled analgesia, nurse-controlled analgesia, and intravenous analgesia). Parents whose child received patient-controlled analgesia were given more information on the risks and benefits compared with those whose receiving nurses controlled or intravenous analgesia ($P < 0.025$). It was also found that approximately one third of the parents had no understanding of the risks associated with postoperative pain management. Parents who were provided information preoperatively and were given information about the risks and benefits had a better understanding compared with parents who	This study conducted in one hospital which limited the generalisability of study findings. Surveys convey self-reported actions that may not necessarily concur with actual clinic practice, so additional methods such as observation might explore more information.

							were not given information or were given minimal information ($P < 0.001$).	
30	Nurses' perceptions of pain assessment Nurses' perceptions of pain management (pharmacological and non-pharmacological methods) Documentation	Twycross A. (2008) UK	Does the perceived importance of pain management task affect the quality of children's nurses' post-operative pain management practices?	To ascertain whether there is a relationship between the perceived importance of pain management tasks and the quality of individual nurse's practice.	Convenience sample of 16 registered paediatric nurses in the surgical ward, caring for children aged 0-16 years were recruited for the study. 13 of them participated. 12 nurses returned completed questionnaires.	Quantitative/observational exploratory study. Observation data were collected, using a checklist providing a list of tasks that would be undertaken if pain management practice complied with the current best practice. The researcher shadowed participants over 3-4 months for two to four shifts each (185 hours). At the end of the observations, nurses were required to complete Paediatric pain training needs questionnaire (PPTNQ). This questionnaire indicated how important nurses' considered each aspect of pain management with respect to four groups: neonates/infants, preverbal children, school-aged children, and adolescents. Participants were required to score their perceived performance on each pain assessment task for all five groups, using a scale of 1-7 (1 represents low performance, and 7 represents high performance). Data were collected from a teaching hospital in the English Midlands. Descriptive statistical analysis was used.	10 nurses considered taking child's previous pain history as highly critically important. No one showed this in practice. 8 nurses considered pain assessment tools as highly critically important for all age groups. Only 3 nurses were observed using one in the practice. 4 nurses considered using behavioural indicators as highly critical and others had responses split between moderately to highly critical. Only 4 nurses were observed using behavioural indicators in practice. All nurses considered using physiological indicators as highly or moderately important. No one were observed being used physiological indicators in practice. 7 nurses considered using non-pharmacological methods as highly critically important. Only 3 nurses were observed being used them in practice. All nurses consider administering analgesics as highly critical. 3 nurses were observed not administering medication when the child complained of pain. All nurses considered reassessing pain as highly critically important, only 3 nurses were observed reassessing pain in practice. 10 nurses considered documentation as highly critical, but only 3 nurses were observed documenting pain intensity and management in practice. Communicating with children about their pain were rated as highly critical by all nurses. Only 4 nurses were observed communicating with children. Communicating with parents about children's pain was rated as highly critical by all nurses. Only one nurse was observed communicating with parents.	This study is of limited generalisability because of the small sample size.
31	Nurse's perceptions of pain assessment. Nurse's perceptions of pain management (pharmacological and non-pharmacological methods)	Twycross et al. (2013) Canada	Paediatric nurses' postoperative pain management practices: An observational study	To examine in-depth paediatric postoperative pain care practices on one in Canadian Tertiary Children hospital	Purposive sample of 10 children (0-18 years aged) 20 parents 17 nurses	Qualitative/observational exploratory study. Data were collected during a 3-month period for 72 hours following surgery. The study researchers monitored each child's postoperative care for four 2-hour periods at various times during the day. Field notes were used to understand the contextual information regarding the nurses' perceptions of managing pain and the interactions among nurses, parents, and children. Content analysis was used. To reduce bias, another researcher coded the information data.	2 pain assessment tools were used Face Pain Scale-Revised, and numerical 0-10 scale. All children had 2 pain assessment recorded during the first 48-72 hours postoperatively. 2 of 17 nurses were observed not assessing pain, nor did they document any pain score. The regularity of pain assessment decreased as the time since surgery increased. Pain assessment was not always documented. Nurses did not consistently reassess a child's pain if the child had a score of 5 or greater. Nurses sometimes used informal methods to assess pain. Behavioural tools were not available in the world. Nurses did not always respond to behavioural cues if children's pain scores corresponded to the amount of pain the nurse thought they should have. Non-opioid	Demographic data of nurse participants were not collected, which could limit the transferability of the findings.

	Parents' perceptions of their participation						medications were given regularly even if they were prescribed as PRN. Nurses preferred to wait and see if the child needed morphine, rather than giving it regularly, even when morphine was prescribed every 2 hours. They did not give children additional doses of pain medication, even if their level of pain was ≥ 5 . Limited use was made of non-pharmacological methods. Little negotiation between nurses and parents was seen with respect to the parents' role in managing their child's pain. Parents did not always let the nurse know the child was in pain unless they were specifically asked by the nurse.	
32	Nurse's perceptions of pain assessment. Nurses' perceptions of pain management (non-pharmacological methods)	Twycross and Collis (2013) UK	How well is acute pain in children managed? A snapshot in one English hospital	To explore the paediatric pain management practices in one English hospital	Convenience sample of 8 nurses, 20 children, and 20 parents. 17 children and 17 parents returned the questionnaire.	Quantitative/observational and audit exploratory study. Structured observation data were developed based on the current best practice guidelines and the hospital guidelines, this tool allowed the researchers to collect information from the chart audits. Questionnaires for parents and children were developed specifically for the study. Children questionnaires were about how well their pain was managed as well as focusing on area of practice included within the hospital pain management guidelines. Parents questionnaire was about how well they felt their children's pain had been managed during their hospital stay. Descriptive statistical analysis was used.	Chart audit showed that 58% of children (n=10) experienced severe pain, 24% (n=4) moderate pain, and 18% (n=3) mild pain. Observational data indicated that nurses did not observe current pain management and assessment guidelines in all areas in the hospital. 2 nurses of 8 reported that they sometimes provided parents with verbal information about how to manage their child's pain after discharge. Also 4 nurses reported they did not provide parents with information about how to manage their child's pain after discharge. The parent questionnaire data found that 3 parents would also use non-pharmacological pain relief methods to manage their child's pain as often as they would like. 3 parents (18%) indicated that their children did not receive an explanation from nurses regarding pain assessment tool. 9 parents of 17 (56%) reported that they were not involved in making decisions related to their children's pain management. One-half of parents indicated that a pain history was taken on admission, and over one-half indicated that their child had used a pain assessment tools. Non-pharmacological methods were recommended to only 19% of children. The children questionnaire data indicated one-half of young children remember having a pain history taken on admission and three-fourths indicated they had used a pain assessment tools. Non-pharmacological methods were recommended for only 22% of young children. 2 children said they were not asked about their pain. 24% of children mentioned nurses did not discuss ways of relieving their pain.	Data were collected only on evening shifts and weekends; this did not allow the researcher to observe more children's care in the immediate postoperative period.

33	Barriers for managing children's pain	Twycross and Collins (2013) UK 2013	Nurses' views about the barriers and facilitators to effective management of paediatric pain	To explore paediatric pain management practices in one hospital in the north of England	Convenience sample of 30 nurses were divided into two focus groups for discussion	Qualitative/exploratory study. Data were collected through focus groups. Participants were put into groups of 4-6. They were provided with a set of flipcharts. The set was about paediatric pain assessment and management, child and parent involvement, and facilitators and barriers. Participants were given 10 minutes to write about their attitudes and beliefs. Content analysis was used.	Factors related to nurses: lack of knowledge, fear of overdosing, insufficient analgesia prescribed by doctors, and need for education of medical staff. Factors related to parents and children: child's age, child's culture, noncompliance with nurses' suggestion for pain care by child and parents. Nurses feel parents should inform the nurse if the child feels pain. Nurses may not take as active a role as they could do in managing pain, rather seeing it as the parents and child's responsibility. Factors related to parents could be facilitating providing pediatric pain management, including parents being involved in pain care and verbalising their concerns. Factors related to organisations: lack of age- appropriate pain assessment tools, not having a flowchart of pain medication, insufficient supply of some medication, and lack of equipment for distraction and play therapists.	Using focus group method of data collection permits producing direct data on consensus as well as diversity by providing the opportunity for participants to reflect on and react to the opinion of others.
34	Parents' perceptions of their participation	Twycross and Finley 2013 Canada	Children's and parents' perceptions of postoperative pain management: a mixed methods study	To explore children's and parents' perceptions about the quality of postoperative pain management in one unit in a tertiary children's hospital	Purposive sample of 10 children undergoing surgery, requiring to remain at least 48 hours at hospital, and their parents participate in the study. The researcher excluded children who were in the intensive care unit, their age below 5 years, and unable to communicate verbally. Also, children and parents who the nurses felt were too distressed to take part.	Qualitative/phenomenology study. Children were interviewed on the second or third day postoperative in the hospital. 3 interview techniques used to collect data from children: 1) draw and write technique, 2) semi-structured interview, and 3) answers to interview questions by writing. Participant children were required to describe their feelings when they were in pain and the worst pain they had. Then one parent of each child were required to fill out the questionnaire. It included 5 items: 1) how information about pain management was provided, 2) parents' observation of their child's response, 3) the period of time their child was in pain, 4) the total amount of time their child was in pain, and 5) satisfaction with pain management and recommendations. Content analysis was used.	4 themes emerged from data; 1) my pain while in hospital, 2) who asked me about my pain and how they do this, 3) what happened when I was in pain, and 4) things that could have been done differently. Most children experienced moderate to severe pain after surgery. They reported being asked about their pain, receiving pain medication, and using non-pharmacological methods for pain relief. Parents received information about their child's pain management during hospitalisation period. Parents were satisfied with their child's pain care.	Data were collected while the child was still in hospital, this might mean participants were reluctant to discuss negative perceptions in case this had an adverse effect on their care.
35	Nurses' perceptions of pain management (pharmacological methods)	Vincent and Gaddy (2009) USA	Pediatric nurses' thinking in response to vignettes on administering analgesics	To examine paediatric nurses' thinking—in response to case study vignettes—about pain assessment and morphine administration for children experiencing postoperative pain.	Convenience sample of 30 paediatric nurses on 4 wards at a children's hospital. Inclusion criteria: registered nurse (RN) working at least 20 hours per week on any shift on a general care unit and ≤1 year of	Mixed methods/descriptive exploratory study. Data were collected through the responses of nurses in semi-structured open-ended interviews, and two case study vignettes. The vignettes contained items that were developed from the Pediatric Nurses' Knowledge and Attitudes Survey Regarding Pain (PNKAS) (developed by Manworren 2001). The vignettes described two children with pain experience at level 8 on a 0-10 scale. However, one of the children was smiling, while the other was grimacing.	Nurses considered numerous factors when assessing and managing children's pain, including pain level, vital signs, and facial expression. Nurses frequently relied, however, on behavioral and physiological manifestations, as opposed to self-report when choosing whether to administer morphine. Nurses demonstrated misconceptions about pharmacokinetics and unwarranted concerns about the adverse effects of morphine.	Although an economical way of eliciting information about how nurses might behave in a situation, vignettes are to an extent fictive, and may not reflect thinking and behavior in actual situations.

					current experience as a paediatric nurse.	Nurses were required to assess the pain score from multiple answers, and to choose the level of morphine to administer. Following this, interviews were conducted to explain their choices. Content analysis was used.		
36	Nurse's perceptions of pain assessment. Nurse's perceptions of pain management (pharmacological methods)	Vincent et al. (2010) USA	Paediatric nurses' cognitive representations of children's pain	To describe paediatric nurses' cognitive representations (CRs) of the assessment and management of children's pain and to determine the relationships between their CRs and their choices about pain assessment and morphine administration.	Convenience sample of 87 paediatric nurses from 4 institutions. Participants should have at least one-year of experience as a paediatric nurse.	Mixed methods/exploratory study. The researcher measured the nurses' CRs of children's pain with the Conceptual Content Cognitive Map (3CM) technique and pain assessment and morphine administration with smiling and grimacing child vignettes. Content analysis was used for qualitative data. Statistical analysis for quantitative data was used.	91% of the participants identified the child's behaviour to assess pain, and 48% indicated it as most important. 92% of the participants identified the pharmacological method as the preferred pain management approach, and 48% indicated it as most important. 71% of participants identified non-pharmacological methods as an important management approach. Most participants chose the appropriate analgesic responses for the grimacing child (73%), but less so for the smiling child (41%). However, nurses with more years of experience were less likely to select administration of the appropriate morphine dose. Most participants agreed with both smiling and grimacing children's self-report of pain (88.5% with the grimacing child and 72.4% with the smiling child). The 3CM methods provided insights into nurses thinking about pain that are indicative of gaps, which may be amendable to interventions.	The strengths of this study included the use of mixed methods approach and a new and innovation measure of nurses' beliefs and misconceptions about assessing and managing pain. This permitted exploring extensive details about the thought processes of nurses regarding pain assessment and management.
37	Parents' perceptions of their participation	Vincent et al. (2012) USA	Parents' management of children's pain at home after surgery	To examine home pain management for children for effects on pain intensity, analgesics administered, satisfaction, and use of healthcare services over 3 post-discharge days.	Convenience sample of 108 children aged 7-17 years old, and their parents from a children's hospital. Inclusion criteria for the children included: 7 to 17 years of age, expected to be hospitalised for at least a 23-hour observation period after selected surgical procedures, discharged with a prescription for an analgesic opioid, able to understand and speak English, able to use either the 0 to 10 numeric rating scale or Faces Pain Scale-Revised, and a custodial parent who was able	Mixed methods/prospective, two-group, pretest-posttest, quasi-experimental design. The Numeric Rating Scale or The Face Pain Management Scale-Revised was used to measure pain. The amount of analgesics used was calculated. The amount of administered medication was determined by calculating the percentage of medication ordered by the physician that was given by the parent during the study period. The parents' satisfaction, expectations, and views about hospitals services were recorded in a questionnaire. The significance of the differences between the groups was tested using <i>t</i> -tests and ANOVA. Participants were interviewed after surgery. Data were collected about children's and parents' expectations from a usual care group. Information about controlling postoperative pain and using analgesics at home was also obtained from the intervention group. Demographic data was also collected. The intervention group were provided with pain management leaflets, asked to read it, and a follow-up session scheduled to discuss pain management principles. The content of the leaflet was based on the guidelines of the	Children experienced moderate pain, and parents administered more analgesics. ranged from 3.78 to 4.41 (control group) and 4.29 to 4.80 (intervention group) and decreased over each successive day of the three post-discharge days in both control and intervention groups. There were no significant differences in mean pain scores between both groups. Parents administered mean percentages of 66.68% to 43.29% (control group) and 70.07% to 55.19% (intervention group) of available analgesics to children reporting NRS pain scores. Parents administered fewer analgesics over each successive day of the three post-discharge days in the control and intervention groups. However, parents in the intervention group administered greater amounts of analgesics on all three days than did parents in the control group, but not significantly greater amounts (Day 1 <i>P</i> =0.51, Day 2 <i>P</i> =0.43, Day 3 <i>P</i> =0.19). Furthermore, parents' and children's satisfaction with pain levels was high overall and the hospital services were used only by a few parents. The findings showed that written provided information about postoperative pain management and a brief interactive session were insufficient to alter parents' approaches in providing adequate postoperative pain management at home.	The use of a convenience sample could provide bias. For instance, most of participants in this study were white. The intervention and control groups were not randomised. Also, the measure of analgesics administered and pain levels included use of a pain log. As with any self-report instrument, parents' documentation in the pain log may not always have been accurate.

					to understand and speak English. Exclusion criteria: children with cognitive impairment	American Pain Society. It was written considering the sixth-grade level to be suitable for children and their parents. Routine teaching was provided for parents before discharge. The parents received telephone calls every day for the first three days after discharge. Statistical descriptive analysis was used for quantitative data. For qualitative data, thematic and descriptive analyses were used to summarise the open-ended questions about parents' and children's expectations about pain management.		
38	Nurses' needs of an education program	Zhang et al. (2008) China	Effects of a pain education program on nurses' pain knowledge, attitudes and pain assessment practice in China	To develop, implement, and evaluate the impact of a pain education program (PEP) for nurses in China.	Random sampling of 196 nurses from two teaching hospitals (90 in the control group and 106 in the intervention group)	Quantitative/quasi-experimental study. Green's PRECEDE model of health behaviour was used to develop the program. The program included focused education, group activity, and individual instruction for a five-week period. The pain education contained three two-hour sessions. Each session covered a specific topic: 1) introduction to pain management, 2) pain assessment, and 3) pharmacological and non-pharmacological methods of pain relief. It also included provided information for nurses about how to use the Changhai pain scale, which is developed by Zhao et al. and contained the numerical and verbal rating scale. Data were collected a month after the program and again after 3 months. Descriptive statistical analysis was used.	After the intervention, the scores in the experimental group increased significantly from the baseline scores in two post-tests. Before the intervention, the baseline over all scores for the nurses on the NKAS ranged from 7 to 24; the mean score was 15.46 (SD±3.70), and the average accurate response rate was 39.6%. The mean scores of the control group was 15.20 (SD±3.54); the mean score of the control group was 15.67 (SD±3.83). There was no difference between both groups with respect to the test score before intervention ($t=-0.86$, $P=0.38$). After the intervention, the mean scores on the NKAS of the experimental group at the two post-test points increased significantly from the baseline. When compared with the control group, the mean scores were also different (third month: $t=-28.82$, first month: $t=-16.50$, all $P<0.001$). The scores of the experimental group were higher in the follow-up test of the third month than those of baseline and the score of the first month ($F=350.45$, $P<0.001$), and there were significant differences in the mean scores between the first month and the third month ($P<0.001$). There was no difference in the mean scores among three measurement points in the control group ($F=1.32$, $P<0.05$).	Nurses were randomly assigned only at the hospital level; the researcher attempted to select the nurses in a unit base but this was not able to be done due to time restrictions.
39	Nurse's perceptions of pain assessment	Zisk-Rony et al. (2015) Israel	Nurses' report of in-hospital pediatric pain assessment: Examining challenges and perspectives	To examine the hospital pain assessment methods, and identify barriers to assess pain in hospitalised children.	Convenience sample of 82 paediatric registered nurses participated from 8 paediatric wards.	Quantitative/cross-sectional study. Pediatric nurses' knowledge and attitudes of pain management (PNKAS) was used. It included 15 items scored a 5-point (Likert scale rating). It covered 3 themes of paediatric pain management; nurses' familiarity with hospital's pain assessment protocol, nurses' involvement of the child in pain assessment, and nurses' involvement of the parent or family in the child's pain assessment. It also contained a comments	90% of the nurses had enough knowledge of children pain assessment. 86% of the nurses were relying on child's self-report to manage pain. 90% were familiar about using pain assessment tools. 75% of nurses were not using pain scales. 31% had difficulties in using children pain assessment tools. 86% relied on their own impression of the child's pain, and 69% relied on the parents even when the child could communicate. 90% agreed that parents should be involved. However, in practice 34% of the nurses reported hardly involving parents. 89%	This study was conducted in one hospital, which limited the generalisability of the findings. Data were collected using a survey only, which did not allow observing actual

section so that nurses could write their personal views. Descriptive statistical analysis was used.

of the nurses used the child's impression for assessing pain, 86% used self-report, and 79% used a numerical scale or relied on the child's vital signs. 4% of the nurses did not document pain assessment.

practice.

CHAPTER 3 : METHODOLOGY

3.1 Introduction

This chapter presents the aims and objectives of this study, providing information on study methods, sample selection, the setting, and the requirements of the participants. It also discusses ethical considerations specific to the study, and justifies the use of particular research methods. The use of observation and interview is considered, and how review documents are used to inform the analysis. Finally, the data management and analytic processes are explained.

3.2 Research aims and objectives

This research explored mothers' involvement in their child's postoperative pain management, both in hospital and following discharge, and identified ways in which their participation in pain management activities can be strengthened.

The research objectives were:

1. To explore mothers' perceptions of their involvement in their child's postoperative pain management (mother interviews).
2. To explore nurses' perceptions of mothers' involvement in their child's postoperative pain management (nurse interviews).
3. To identify the extent to which mothers are involved in their child's pain management activities (observations, informed by documentary evidence [hospital policy and forms]).

4. To identify ways in which mothers can be supported to participate in their child's postoperative pain management (nurse and mother interviews, documentary evidence, and observations).

3.3 Choosing a qualitative approach

This study was qualitative and exploratory by nature; its purpose was to explore mothers' involvement in managing their child's postoperative pain. Denzin and Lincoln (2000, p. 3) define qualitative research as:

[Qualitative research] is a situated activity that locates the observer in the world. It consists of a set of interpretive, material practices that make the world visible. These practices transform the world. They turn the world into a series of representations, including field notes, interviews, conversations, photographs, recordings, and memos to the self. At this level, qualitative research involves an interpretive, naturalistic approach to the world. This means that qualitative researchers study things in their natural settings, attempting to make sense of, or interpret, phenomena in terms of the meanings people bring to them.

It is important to consider the research question and aim because they will guide the choice of methodology (Polit and Beck 2004). A qualitative approach provides subjective data about mothers' involvement. Thus, in-depth information and understanding regarding the studied phenomenon is best revealed using its methods. Neill (2007) posited that qualitative research is often used to describe and understand human behaviour, feelings, or experiences related to a specific phenomenon. An in-depth investigation in Saudi Arabia could clarify understanding of the complexity of mothers' involvement, exploring mothers' and nurses' experiences. At present, little is currently known about mothers' involvement within a Saudi context. Qualitative studies tend to focus on smaller samples rather than one large, potentially disparate, sample

(Sandelowski 1995). By focusing on a small group of mothers and nurses the researcher can gain in-depth understanding of their social and material circumstances, their experiences, and perspectives about mother involvement. Qualitative research is inductive and theory generating, rather than deductive or theory testing (Creswell 2013). Mothers' involvement in the paediatric surgical department is still generally not fully understood; the generation of theory is required for implementation in clinical settings (Ygge et al. 2004). In addition, qualitative research design is exploratory, fluid, flexible, data-driven, and context-sensitive (Mason 2002). These characteristics have permitted the researcher to develop a study design with respect to the hospital context, Saudi culture, and the organisational resources. Also, the data collection methods of the qualitative approach usually involve close contact between the researcher and participants in the research, which are interactive and developmental, such as participant observations and semi-structured interviews. This has allowed emergent issues of mothers' involvement to be explored.

The use of a quantitative methodology was not appropriate for this study. Quantitative methodology essentially answers a research question by gathering quantitative data to explain the research phenomenon. In collecting quantitative data, a structured and valid research instrument should be determined prior to conducting the study (Creswell 2009). However, in the present study, using structured instruments would not permit the research phenomenon to be explored widely. The quantitative approach assumes that objective and quantifiable data exists in reality, and so the researcher does not interact with the study participants (Burns and Grove 2007). Moreover, quantitative methods typically answer 'what', 'where', 'when', and 'who' type questions (Silverman 2000), which have the potential to provide only superficial information regarding how mothers' involvement might be strengthened in an organisational context.

3.4 Rationale for adopting a case study design

It has been established that a qualitative case study methodology was appropriate for addressing the research question. Robson (1993, p. 178) defined case study research as “[a] strategy for doing research which involves an empirical investigation of a particular contemporary phenomenon with its real-life context using multiple sources of evidence”.

Case study is a research method that is becoming increasingly popular among healthcare organisations and healthcare research (Yin 2009). It often enables the researcher to obtain a holistic and meaningful description of a particular phenomenon (Gerring 2004). Qualitative case study methodology permits researchers to study a complex phenomenon in a particular context. It also allows the researcher to explore individuals or organisations through complex interventions, relationships, communities, or programs (Yin 2003).

A case study approach was chosen for several reasons. Firstly, a case study design is desirable when the focus of the study is to answer questions of ‘how’ and ‘why’ (Rowley 2002; Yin 2003). A part of the case study research question in the present study was ‘how’ to strengthen mothers’ involvement in Saudi Arabia. In Saudi Arabia, there were no studies to date that had looked at the extent to which mothers were involved in their child’s postoperative pain management. Hence there were no studies that could provide knowledge about ways to strengthen mothers’ involvement. Therefore, case study was the most appropriate approach for generating the necessary data to answer the research question. However, there were a number of examples of the use of the case study approach in qualitative research in pain management generally (Payakkaraung et al. 2010; Greenwood 2012; Fleiszer et al. 2015).

Secondly, an important strength of case study design is the ability to investigate a phenomenon in its real-world context, whereby the event, situation, or phenomenon is not discrete or may not be clearly defined (Yin 2009), such as mothers' involvement. Unlike other research approaches, case study design is characterised by what Cronbach (1957, p. 123) described as "*interpretation in context*". This focuses on a single entity or phenomenon of mothers' involvement whereby the researcher aims to reveal important contextual factors such as those that improve mothers' involvement. Using this approach permits exploration and description of its context (Merriam 1988). Yin (1984) proposed that the case study approach is suitable when it is impossible to separate the phenomenon from its context. In the present study, exploring mothers' involvement and determining ways to improve participation could not be made without a consideration of context. Factors that were considered necessary to understand the mothers' involvement include communication, interactions, behaviours, the organisation of the ward, and the organisation of care delivery, which were identified in the literature as significant aspects for this research phenomenon. These factors could not be investigated without participation in the real-life context. Since no studies were found that explicitly explore mothers' involvement in post-operative pain management of their child in a Saudi context, it was important to study the phenomenon in real life. The researcher would be able to capture rich data holistically regarding the mothers' involvement in the child's postoperative pain relief.

Thirdly, the choice of case study design was determined by the control an investigator had over actual behavioural events. Yin (2009) recommended case study design when the researcher cannot manipulate the behaviour of those involved in the study. This study was not an experimental study, and so did not control the contexts of the environment.

This meant the researcher did not have control of the variables regarding the child's postoperative pain care.

Fourthly, case study design captures the different views of the individuals involved, and permits the inclusion of multiple sources of evidence for an understanding of the whole context (Gillham 2000). A case study approach offers the advantage of using multiple sources with different data collection techniques (data triangulation) (Merriam 1998). Triangulation is a technique that the researcher uses to strengthen the rigour of the research by examining the study from different perspectives. In qualitative research design, the most common triangulation is data triangulation (Silverman 2011). Data triangulation can include reviewing documentations, archival records, interviews, physical artefacts, participant observation, and direct observations (Stake 1995). The present study used observations, interviews, and reviewing documents.

Qualitative research comprises a number of approaches besides case study, including ethnography, grounded theory, and phenomenology. These methodologies generally seek answers for questions related to human experience and their subjective realities through examining people in their own environments to generate rich descriptions that help in understanding their experiences, behaviour, and attitudes (Dingwall et al. 1998). The remainder of this section examines the reasons why these research methodologies were not incorporated.

Ethnography is a qualitative design in which the researcher describes and interprets the shared and learned patterns of values, behaviors, beliefs, and language of a culture-sharing group. The group may be small – although it is typically large – involving many people who interact over time. As a process, ethnography involves the extended observation of a group, most often through participant observation, in which the

researcher is immersed in the day-to-day lives of the people, with observation and interviews of participants (Creswell 2007). The aim of ethnography is to obtain description, understanding, and interpretation of a social setting by revealing structures and interaction with society, and also to understand how people give meaning to their actions, and how they are situated within the social-cultural context (Reeves et al. 2008). In relation to the present study, it was anticipated that prolonged immersion and engagement of the researcher with the mother would be difficult. In fact, in Saudi Arabian culture people often do not want to be visited at home because they perceive the researcher as a stranger (Kaynak et al. 2014). This would make observation at home of mothers' managing their child after discharge difficult. Moreover, the study focuses on mothers experiences regarding managing their child's postoperative pain to identify their role, and not to examine their culture, values, and beliefs. Indeed, mother participants were often of various nationalities, with their own cultures and beliefs, and often spoke different languages, which would not be conducive to an ethnographic methodology. While the distinction between ethnography and case study is marginal in the view of many authors, it was thought that case study provided a more objective framework for thematic analysis.

A further approach that was not elected for use in this study is grounded theory. This is a qualitative research method where the researcher generates a general explanation (theory) of a process, action, or interaction, usually shaped from the interviews of a large number of participants (Creswell 2007). Grounded theory can include all data sources that contribute to the development of theory, such as interviews, diaries, observations, images, previous literature, and other research methods (Creswell 2012). Grounded theory research design is appropriate for building theories and knowledge about a specific topic or research area. Theories are thus described as grounded in data from the

topic or study area, specifically in terms of the actions, interactions, and social processes of the people concerned (Glaser and Strauss 1967). Grounded theory is useful for formulating theory based on actual world experiences, such as providing explanation of events relating to a social phenomenon. The data collection methods in grounded theory are open-ended and the research questions flexible; the research process is based on, and changes according to the emerging data, i.e., grounded theory concerns building theory according to the data itself (Charmaz 2002). The quality and sufficiency of data for accomplishing the research theories are important (Silverman 2011). To analyse data in grounded theory, the researcher gathers information from the data and compares it to the emerging categories. This process is described as the constant comparative method of analysing data (Creswell 2012). There are three phases of coding used to develop categories: (1) interconnecting the categories (open), (2) building a story that connects the categories (axial), and (3) ending with a discursive set of theoretical propositions (selective) (Strauss & Corbin, 1990). However, the present research did not require the construction of a narrative or the process of coding which leads to the building of theory. Indeed, the aim of the present work was not to build novel theories or develop existing theories but to further understanding of the research context with possible wider application to other hospital settings in various other contexts.

Phenomenology is used to explore meaning with respect to several individuals in their lived experiences of a concept or phenomenon. It focuses on what participants have in common as they experience a phenomenon (Creswell 2012). A number of philosophical arguments have emerged about the use of phenomenology. Two forms of phenomenology are highlighted for discussion by van Manen (1990). On one hand, van Manen (1990) describes hermeneutical phenomenology as an orientation in lived experience (phenomenology) and interpreting the “texts” of life, mirroring the discipline

of hermeneutics. Transcendental phenomenology, on the other hand, focuses less on the interpretations and on the descriptions of the experience of participants (Manen 1990). Phenomenology delivers an in-depth understanding of a phenomenon as experienced by several individuals. It can involve a simplified form of data through analysis of a single interview, or multiple interviews (Creswell 2007). In this approach, the researcher needs to carefully recruit study participants to ensure that they have the required experience of the phenomenon in question. It may be sometimes difficult for the researcher to bracket their own experience when they are interpreting the study data (van Manen 1990). The researcher needs to decide how and in what way his or her personal understanding will be introduced into, or affect, the study (Creswell, 2007). In relation to this study, phenomenology was not an appropriate approach to explore mothers' experiences, because the mothers' roles and experience with regard to their child's postoperative pain care in hospital and at home after discharge was not known beforehand. This study aims to combine the rich experience of the whole paediatric department, and the interaction of mothers and nurses in particular, both of which require observation and interview (Groenewald 2004).

3.5 Types of case study design

Yin (2003) identified two main types of case study research: single-case and multiple-case study. Single and multiple case studies can be categorised as holistic (one unit of analysis) or embedded (more than one unit of analysis). However, Stake (1995) identified three types of case studies: intrinsic, instrumental, and collective. Intrinsic case studies are where the researcher learns about a situated work problem that could emerge. They aim at acquiring better understanding of the particular case of interest. Instrumental case studies are where the researcher uses a case study to provide insight into a particular

issue that the researcher is interested in. Lastly, collective case studies are where the researcher wishes to explore a particular phenomenon from a number of different cases.

Various contextual aspects are taken into consideration when deciding the type of case study that might be suitable. For example, some researchers have argued that it is the focus of a case that needs to be defined – such as in historical case study (Robson 2000). Stake (1995) and Yin (2009) indicated that such studies can comprise single or multiple cases. Therefore, it is important to determine what constitutes the most suitable type of case study for the purpose of the study. Stake (1995) and Yin (2009) also suggested that it is appropriate to use a single case study design when examining unusual, rare, or critical cases, or when investigating a revelatory case, in order to explore an aspect of a phenomenon previously inaccessible to scientific investigation. Indeed, a single case design provides an opportunity to undertake investigations of a more exploratory nature (Yin 1989). In contrast, multiple cases studies examine several cases to reveal and understand differences and similarities between cases. Multiple-case study design arguably provides more robust and convincing evidence than that of single-case study design (Yin 1994).

This study did not use a multiple-case design because it demanded resources and time (Yin 2003) that were not available to the researcher. Conducting this study in more than one hospital required much time and resources, including more investigators and greater funding. This research was a part of PhD program, with limited funding and conducted within a short time period. While an advantage of multiple-case design is that it allows cross-case comparison, permitting the corroboration of evidence (Yin 2003), this study did not aim to provide comparison between cases, aiming only to explore the mothers' involvement in one setting. Yin (2009) argued that multiple-case design can be

considered as multiple experiments. This is also termed “replication” design, “multiple” subjects, and “sampling” design. With replication design the researcher needs to ensure every case is conducted using the same conditions. In this study, if the mothers were to be considered as the case, it would be difficult to make sure that every case was conducted with exactly the same conditions (as was required in multiple case studies), because not all children involved had the same surgical procedure or assigned nurse. This is one reason why the paediatric surgical department was chosen as the case. Sampling design requires covering both the research phenomenon and its context, yielding a large number of cases – too large to permit any statistical consideration of the relevant variables (Yin 2009). However, this study was qualitative. Morse (2000) stated that a small number of participants are required in qualitative study to provide sufficient insight into the research issues being studied.

A single case study design was chosen for several reasons. Firstly, the planned study was conducted in a single hospital in a paediatric surgical department, based in Jeddah. The researcher in the present study was working in the health ministry of Saudi Arabia, and so had access to explore the case, which was the paediatric surgical department (which was the only department for the elective surgery in the hospital). This follows the suggestion of Yin (2009), who posited that a single case design can be used when it represents a distinctive case – such as one that takes place in a specific place. Furthermore, it is justified when the researcher gains access to investigate a case that was previously inaccessible or where it was difficult to conduct a scientific observation (Stake 1995; Yin 2009). It was not possible to observe mothers’ involvement in the hospital without getting approval for access.

Secondly, the purpose of this study was to broadly consider mothers' involvement in their child's postoperative pain relief, and the selected design was appropriate for such an exploratory inquiry, as suggested by Yin (1989). Yin (1989) views the goal of case study as understanding complex social phenomena and real-life events, such as organizational and managerial processes; case study design is defined as an ideal methodology when a holistic, in-depth investigation is required. Thirdly, the case study was arguably unique. There was an absence of studies on the research phenomenon, which is mothers' involvement in pain management in Saudi Arabia. Also, the particular circumstances of the department were unique, i.e., nurses were from different cultures and spoke different languages, and mothers had different accents and backgrounds. According to Yin (2003), one justification for the choice of single-case studies is whether the case in question is critical or unique. Also, Yin (2009) suggested that a single case can be adopted in order to confirm or challenge theoretical propositions. In this study, the researcher developed theoretical propositions, which are one of the five components of a case study research design (Yin 2009). Explanation of the developed theoretical propositions is provided in Section 3.6.3. In sum, the researcher needed to examine a case with a well-defined set of theoretical assumptions in order to explore mothers' involvement.

In addition to single and multiple case studies, Yin (1994) posited that case study types can be exploratory, explanatory, and descriptive. Factors such as the research questions and the research aims influence the case study type chosen. The exploratory type enables the exploration of the phenomenon by defining the question and hypothesis or theoretical propositions of the study. The explanatory type is suitable for undertaking causal studies with the aim of explaining phenomena in complex contexts with multivariate causes. The descriptive case study design tends to provide a comprehensive description of a

phenomenon. When considering Yin's case study typologies, the researcher reviewed the research question and aim of the study, which was to explore mothers' involvement, and how it can be strengthened. Thus, this study was an exploratory case study.

3.6 The case and its unit of analysis

3.6.1 Defining the 'case'

The 'case' in this study was the paediatric surgical department. In case study research, the case can be an individual, a group of people, an organisation, a program, an innovation, a process, a service, or an activity (Stake 1996). Miles and Huberman (1994, P. 25) defined the case as, "a phenomenon of some sort occurring in a bounded context". The case is, "in effect, your unit of analysis". Moreover, Yin (2009) defined the case and its unit of analysis as advantageous for helping to determine what type of data is to be collected, and when to start and end the case study. Two key case study theorists, Stake (1995) and Yin (2009), agreed on the significance of carefully defining the case, although they suggested different ways to achieve this. While Stake (1995) referred to a specific bounded case, Yin (1994) described the importance of defining the case and using units of analysis. However, both ways direct researchers to openly define what the case comprises. Consequently, knowing and identifying what the case consists of, and what it is intended to investigate, is an important part of the case study. Stake (1995) argued that not everything can be considered a case and so it should be both specific and bounded. Consequently, Stake (1995, p. 133) warned researchers against investigating unbounded cases, explaining that without boundaries or limits, the case cannot be studied, it should be "something special to be studied; it is not a problem, a relationship, or a theme". The present researcher defined the boundaries of the case by determining the context of its case, which was the paediatric surgical department and the relevant

groups that were related to the research problem (mothers and nurses). The types of evidence were also determined (observations, interviews, hospital policies, and documents of the department) and how they would be analysed.

Two crucial factors should be considered in the process of case selection. Firstly, the chosen case needs to facilitate access to the study units of analysis; hence, access is an essential factor to take into account when choosing the case (Crowe et al. 2011). Secondly, the case should be informative and have the potential to provide an answer to the research question (Yin 2009). Therefore, having an accessible and informative case was important in this study in order to illuminate the case and be able to answer the research question. The surgical paediatric department (in a teaching hospital) was chosen because it gave access to student researchers. Thus, the researcher in this study could have secure access to various sources of information essential for the exploration of the mothers' involvement. Moreover, the paediatric surgical department selected for this study permitted the researcher to highlight key issues for further understanding of the mothers' involvement. This facilitated the exploration of the context and factors that could strengthen the mothers' involvement by focusing attention on the department system and explanation of events and issues that were associated with this research phenomenon.

Focusing on a single department permitted the researcher to use department documents and target a range of individual mothers and nurses to elicit their perspectives and gather data from a wider context, rather than focusing on one group of informants. The organisation plays a vital role in shaping and influencing a person's commitment (Kim et al. 2007). Nurses' perspectives about the mothers' involvement could be affected by the culture of department (Manojlovich and Ketefian 2002; Nightingale et al. 2018),

organisational resources (Czarnecki et al. 2014), and the education provided for nurses in the hospital (He et al. 2015). Moreover, mothers could also be affected by the conditions of the department, whether it has a suitable environment, and resources and materials to provide her with information about their child's postoperative pain, which would encourage participation (Melo et al. 2014). Thus the researcher could obtain information about the department that could affect the mothers' participation. The researcher could identify ways in which mothers' participation in pain management activities might be strengthened. Each case was bound together and shaped by a set of interrelationships with the external world, such as the influence of other departments, and the external resources available to the department. Therefore, not only would internal elements of the case be revealed in this study, but also outside contexts in which the case was situated. An example of an internal element was that the nurses might have experiences in other departments so they would be in a position to compare the paediatric surgical department with others, or be influenced by other experiences more generally (Ekim and Ocakci 2013). An example of an external element was that other departments might influence the mothers' involvement, such as a nursing education department. The education programs in this department might encourage mothers' involvement (He et al. 2015).

3.6.2 Units of analysis

Yin (2003) posited that defining the unit of analysis is an important step in designing case study research, and noted that the unit of analysis is the main source of information for the case study. Thus, a case study can entail examination of a single unit of analysis (holistic case study) or multiple units of analysis (embedded case study). The research question will guide the selection of unit analysis of the case study (Baxter and Jack 2008). In the present study, the 'mothers' was the unit of analysis, since the study

question focused on mothers' involvement. The researcher would use the data collection to analyse the studied phenomenon, which was the mothers' involvement in their child's postoperative pain management. This study was a single holistic case study design because it involved only one unit of analysis.

3.6.3 Theoretical framework

Case study researchers need to identify the theoretical propositions underpinning case studies. This is helpful for guiding the collection methods and analysis of the study data. Moreover, propositions can help in determining where the case starts and ends (Yin 2009). They help to direct the case study with regard to where to look for relevant evidence. Family-centre care (FCC) considers the combined care of family members on care recipients. A main argument for FCC is the view that holistic care is more coherent and effective. When a child is admitted to hospital or receives treatment outside the hospital the whole family is affected, and so they are in the best position to understand and deal with the requirements of the patient. Accordingly, FCC should consider the healthcare of children in their homes and in other community settings (Shields et al. 2006). FCC thus concerns the care of children and their families inside and outside the health service, and ensures that care is considered in terms of the whole family, not just the individual (Shields et al. 2006). A family-centred approach to children and young peoples' healthcare recognises their emotional and developmental needs, and so the holistic well-being of the family is arguably best achieved when the system supports the abilities and choices of the family in meeting the needs of the child (Shields et al. 2007).

Broadly, while many Western concepts of family-centred care appear to be accepted in principle by paediatric nurses in Saudi Arabia (Alabulaziz et al. 2017), such as considering the rights of the patient and the views and circumstances of both parents and

extended family members, further development towards Western values and the family care model is required. However, a complete adoption of family-centred care, commensurate with Western values and models, is likely not to be appropriate or successful in the Saudi context in the near future, because many nurses and families are from non-Western cultures and may be reluctant to change in the short-term. Indeed, the delivery of services for children's healthcare in Saudi Arabia differs from many other countries in this respect, because nurses, often of Indian and Filipino heritage, and families, of Saudi Arabian heritage, constitute a dynamic where it is questionable to implement a fully FCC system at this stage, owing to the acute differences in language, culture, and values. If it is possible, it may require a considerable amount of time for change to be accepted.

The Western model of family-centred care requires modification and development in order to be appropriately utilised by Saudi Arabian and Middle Eastern culture (Alabulaziz et al. 2017). In contrast to Saudi culture, the family structure in Western societies is more complex, and is becoming increasingly complex and diverse. Families can include blended families, single-parent households, adoptive homes, same-sex couples, and members of the extended family (Carter et al. 2014). In the absence of a well-researched Saudi-initiated theory or model, some practices are guided by Westernised concepts that are adopted into the system and adjusted accordingly (Alabulaziz et al. 2017). Further research into what is appropriate and valued by nurses and families is needed to determine how the use of a Westernised model of family-centred care, in full or in part, could be appropriate in a Saudi context (Alabulaziz et al. 2017).

Child-centre care (CCC) concerns the needs and interests of children and how they may be put in the centre of healthcare thinking and practice (Carter and Ford 2013). A main consideration in CCC is the incorporation and consideration of children and young people as active participators in their own care. Frank and Callery (2004) pointed out that the difference between FCC and CCC is one of emphasis, where CCC gives directed focus on the child, reflecting the child's concerns, actions, and needs in the organisation of care. However, these approaches should not be exclusive of each other because CCC must take into account the social context in which children live and FCC must consider as primary the health of the child (Carter et al. 2014).

The incorporation of FCC at the highest level of government and institutional health policy in both Western and non-Western contexts, including in Saudi Arabia (Alabulaziz et al. 2017), underscores the importance of FCC as a model of care in clinical settings. Implementation, advocacy, and policy of FCC can be grouped into two settings: inpatient, as shown by family-centred rounds (FCR), and ambulatory, as seen in the 'medical home' concept. However, the medical home concept is historically intrinsically connected to the system of care of children with special healthcare needs (CSHCN) (Sia et al. 2004).

Family-centred rounds (FCR) have been described as "interdisciplinary work rounds at the bedside in which patient and family share in the control of the management plan" (Sisterhen et al. 2007). In 2003, the American Academy of Pediatrics recommended that "conducting attending physician rounds (i.e., patient presentations and rounds discussions) in the patients' rooms with the family present should be standard practice" (Kuo et al. 2011). In this respect, family presence, such as for emotional support or in general, is considered insufficient; rather, family members should participate in the

discussion and decision-making relating to the patient. The participation of family members supports the fundamental principles of FCC, namely, information sharing, partnership and collaboration, and negotiation. In practice, however, the finer details about roles and responsibilities of families is often unclear (Shields et al. 2006). Used appropriately, FCR may directly address the principles of respect and honouring differences between individuals and considering care in the context of particular families and communities. Families have expressed a strong preference for FCR: 80–95% of families prefer teaching and care discussions to occur in the hospital setting with the patient. FCR is thus a fundamental part of medical education (Kuo et al. 2011). However, concern has been raised by some medical students and residents in response to the perception that families are uncomfortable with participation, and that FCR undermines the learners' and residents' credibility (Landry et al. 2007). However, FCR may actually enhance learners' credibility with families, and experienced residents often note the benefits of increased communication and teamwork (Aronson et al. 2009; Gonzalo et al. 2009).

Family-centred care is also fundamental for children with complex needs, such as those requiring long-term ventilator support and those needing administration of intravenous medication (Carter et al. 2014), since these cannot be left to the responsibility of the child. Children and young people with complex health needs means their families often need high levels of physiological, psychological, and social care. This can be a complex issue, bringing their families into contact with a wide range of connected services: healthcare professionals are but one group among many that must be utilised (Carter et al. 2007). In a Saudi context, this requires considerable research and planning, since many of the systems used in Western contexts are underdeveloped or do not exist in Saudi Arabia. Casey's (1988) 'partnership model' in a paediatric setting for family-

centred care, while a relatively old model, was used as the theoretical framework of the present study because it suited the study context and setting of Saudi Arabia. Saudi Arabia is currently undergoing rapid development, and while going through transition, is currently at an early stage of this process. Casey's (1986) 'partnership model' is designed in particular to be used in early transitioning health systems that are heading towards Westernised systems of family-centred care.

Casey (1988) defined the 'partnership model' of paediatric nursing as "[t]he care of children, well or sick, [that] is best carried out by their families, with varying degrees of assistance from members of a suitably qualified health care team whenever necessary". An overview of the Casey's (1988) model of paediatric nursing is illustrated in Figure (3-1).

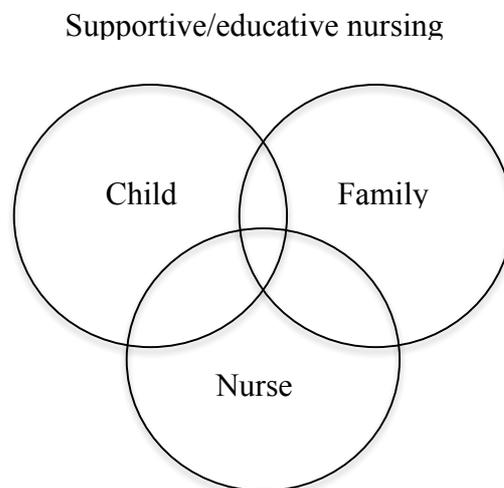


Figure 3-1 Casey's (1988) model of paediatric nursing

Casey and Mobbs (1988) also posited that the 'partnership model' is based on the assumption that parents are able and willing to be effective carers and that the major

responsibility for the healthcare of the sick child rests with them, with varying input from healthcare workers. Moreover, Casey (1993) pointed out that:

The family is not another focus of nursing care, rather the family's central importance to the child is recognised. The paediatric nurse is concerned with the structure of the family, the relationships with it, and the forces affecting it, but only so far as they affect the family's ability to care for the child.

Casey and Mobbs (1988) also noted that the parents' role seems to contradict the concept of partnership, because a partnership implies a relationship that is concerned with both family and nurses. Partnership implies equality among partners, information sharing, negotiation of care, and shared responsibility. This model explains the importance of mother involvement in their child's care. It also encourages the cooperation among the nurses and mothers in the child's care. It supports the propositions given below. In the context of this study, five theoretical propositions were developed based on this partnership model of paediatrics, and various other findings mentioned in the literature chapter (He et al. 2010; Lam et al. 2006; Lim et al. 2012). The theoretical propositions underpinning this study were:

- Better communications between the child's mother and health professionals could improve the mother's involvement in the child's postoperative pain management.
- Providing adequate information about the mother's attitude/response/behaviour towards the child's postoperative pain management could improve the mother's involvement in the child's postoperative pain management.
- Providing emotional support to the mother could improve the mother's involvement in the child's postoperative pain management.

- The mother's perceptions could affect her involvement in the child's postoperative pain management.
- Nurses' perceptions could affect their implementations in mothers' involvement in their children's postoperative pain management.

3.7 Conducting the case study

In case study research, Rosenberg and Yates (2007) noted that the methodology which aims to direct the methods of data collection and answer the research question has to be determined "pragmatically rather than paradigmatically". This section presented the methods for conducting the case study research. It addressed the study context, ethical concerns, how access would be gained, sampling, inclusion criteria for mothers and nurses, data collection methods and analysis.

3.7.1 Justifications for choosing the study setting

The present study took place at a teaching hospital in Saudi Arabia, Jeddah. English was spoken as a foreign language in Saudi Arabia; however, English was used in hospital between the healthcare staff as a *lingua franca*. The hospital comprised a surgical paediatric department, with 47 nurses originating from various countries, including the Philippines, China, and India. Nursing staff had professional licenses from their countries of origin, as well as licenses from the Saudi Commission for Health Specialties. In the present qualitative case study research, the main concern was not primarily about generalising findings to other hospitals, it was to understand the mothers' involvement and identify ways to improve it. Qualitative research is interested in transferability of the findings. Transferability depends on using a study's theoretical framework to establish a logic that might be applicable to other situations or other settings (Yin 2013). Thus, the researcher could use her own justifications as to whether

the setting selected possesses the qualities and characteristics needed for the research question to be answered. The reasons for the selection of this setting were: that the hospital contained a paediatric surgical department (which was not available at all hospitals in Jeddah); it was possible to access the setting as an education hospital (gatekeeper); the hospital organised the work (although a few operations were cancelled); it was a comfortable setting for the student researcher; and finally, the hospital was an important centre for health studies in the Saudi Arabian healthcare system (and so the findings might be used for further investigation of the study phenomenon).

3.7.2 The research setting

Gaining access to the research setting is considered an important step in the research process (Creswell 2009). This study could not commence until the Research Ethics Committee of Cardiff University School of Healthcare Sciences (SOHCS) granted approval (Appendix A). Approval was also obtained from the hospital ethical committee (Appendix B). The initial supervision approval of the research setting was obtained by the 'gatekeeper' before the Cardiff University Ethical committee, approved by Professor Omar Saadah in Saudi Arabia (Appendix C). The approval letter permitted the researcher to gain access to participants and department documents. Data were collected from one hospital in Saudi Arabia over a three-month period (from 10th September to 10th December, 2016). The hospital has 845 standard beds with an additional 157 beds dedicated to the critical care units, and with over 200 general and specialised clinics. Thus, in total, in 2017 the hospital had a capacity of 1002 beds. The hospital has received Canada's Accreditation Golden award (2009-2012) and Accreditation Diamond award (2012-2015), and also the American Association of Blood Banks (AABB) award

(in October 01, 2013–September 30, 2015). It also had accreditation from the Joint Commission International (March 27, 2015–March 26, 2018), and the College of American Pathologists (2014).

The case under consideration was the paediatric surgical department, which included 47 paediatric nurses. The department structure was designed as a complex, in an interconnected design. The paediatric surgical department contained three corridors leading to patient rooms (and two corridors that lead to exits). Each corridor contained eight patient rooms: four of these were single rooms and the other four each contained two beds. Four other rooms were located around the nursing station, each containing four beds. Thus, there were fifty-two beds in the department in total, although only forty beds were available during the study period owing to renovation work. There was a TV and internet screen above some beds on which the children could watch cartoon films. Also, there was a small fridge opposite each bed for the mothers to keep their food and drinks. There was a big glass window in each room which was always locked, and no one could open it. There were comfortable dark red sofas for mothers and visitors in the rooms. In the department, there were two storage rooms, two treatment rooms, a medication room, and a meeting room for nurses and doctors. Figure 3-2 shows photos of the paediatric surgical department. The paediatric nurses were required to have work experience in the paediatric surgical department before they were permitted to work independently on the department. Also, they received an orientation program before they started working independently.



A two-bed room, showing facilities and decorations



A different view of the two-bed room, showing television and refrigerators



An ancillary corridor in the paediatric surgical department



The main corridor of the paediatric surgical department



Nursing station



Decoration in one of the double-bed rooms

Figure 3-2 Photos of study context of paediatric surgical department

A description of the recovery unit is important to better understand the study findings, especially since the observation fieldwork began from this unit. The recovery unit contained ten beds with monitors, and it was not specifically designed for children. The nursing station was in the middle of the room, facing the beds. There was an exit door on the right and an entrance door to the theatres at the front. There was a screen hanging from the ceiling showing the progress of operations in each theatre. Figure 3-3 shows photos of the recovery unit.



Recovery beds area



Recovery beds area



Theatre monitor in the nursing station area



A different view of the nursing station area

Figure 3-3 Photos of recovery unit

The description of the research setting also aids the understanding of the generated themes of the study data. In the beginning, the nurses in the recovery unit and paediatric

department were not cooperative with the researcher. Although the researcher explained the research purpose they were still concerned that the process might negatively affect their career. Some of them were visibly making an effort to show good practice as nurses. However, after a few days they relaxed and became more cooperative, responding more openly to informal conversation. In addition, this was aided because the head nurse was supportive, explaining to them that the observation and interviews were only for research purposes. The following section presents the policies and procedures that assist in explaining the nurses' and mothers' attitudes regarding the mothers' involvement in postoperative pain management in the paediatric surgical department. The structure of the study design is described in Figure 3-4 at the end of the chapter.

3.7.3 Sampling (for interview and observation)

This case study was conducted in one paediatric surgical department. In this qualitative research, non-probability purposive sampling was used. Non-probability sampling does not aim to produce a statistically representative sample or draw statistical inference. Indeed, a phenomenon need only appear once in the sample (Wilmot 2005). Purposive sampling is a technique often employed in qualitative research. With this technique, the number of people is less important than the criteria used to select them (Wilmot 2005). Using purposive sampling for recruit participants allows the researcher to choose participants who are particularly knowledgeable about the issue being studied (Polit and Beck 2008). The aim of qualitative research is to provide an in-depth understanding of the world as seen through the eyes of the people being studied. It is not to impose preordained concepts; hypotheses and theory are generated during the course of conducting the research as the meaning emerges from the data (Conye and Cowley

2007). According to Gillis and Jackson (2002), sample size is not easily predicted in qualitative study and depends on how quickly data saturation is reached.

The number of mothers and nurses selected for observation and followed with interviews was determined by the saturation point: when the same themes continuously reoccurred in the observation and interviews, and no new information was forthcoming. Bowen (2008) notes that data saturation is reached by the number of samples in quantitative studies, rather than the depth, which is usually more significant in qualitative studies. Unlike quantitative research, sampling and data collection in qualitative research ceases when no new themes, findings, concepts, or problems are observed or emerge from the data. Thus, initial analysis was conducted after each observation and interview to ensure data saturation was reached. Data saturation was attained on mother M16, but the researcher included more participants after this (M17–M20) to ensure no new themes arose. Also, data saturation for nurses was reached on nurse N17, but the researcher added N18–N21 to ensure saturation. An example of initial data analysis to determine data saturation is provided in Appendix N. It was anticipated that 20 mothers and 21 nurses would be required for the study. The researcher obtained a schedule of three months for paediatric elective surgery (the data collection period) from the hospital system to recruit mothers for the study. The researcher also checked the hospital system daily for cancelled or postponed admission cases.

3.7.4 The inclusion and exclusion criteria for mothers interviews and observations

This study recruited mothers who met the following inclusion criteria:

- Mothers whose child's age was between 3 and 14 years (14 years is the upper limit of the paediatric classification in Saudi Arabia), because this age group can report their pain to their mothers (Knutsson et al. 2006; Stinson et al. 2006).
- Mothers who took on the main responsibility of caring for their child during the hospitalisation period and at home after discharge.
- Mothers whose children were admitted to the paediatric surgical department for elective surgery with a postoperative inpatient period of at least 24 hours. Based on Lim et al. (2012), this time allowed mothers to become accustomed to the hospital environment and perform interventions to help relieve their child's postoperative pain. Also, the hospital protocol required the patient stay at least 24 hours after elective surgery.

The study excluded mothers using the following criteria:

- Mothers whose children had a critical illness (that required specific care, such as admission to an intensive care unit) or a severe learning disability, because these children would need different care (Breau et al. 2003; Herr et al. 2006).
- Children with an adoptive mother were excluded based on Brinich's findings (1980) that some specific difficulties associated with adoption can make the stability of the relationship more difficult for the adoptive mother and child, especially in the early years. The mother's mental representations of herself and her adopted child can be reflected in the relationships between them. The adoptive mother is frequently unable to accept her adopted child's behaviour. The adopted child experiences knowledge about his or her adoption as a narcissistic injury, and the split in parental images may create problems at each developmental phase. In Saudi society, the adopted child is not officially called son or daughter, and same-sex parents are not permitted in Saudi Arabia. While family arrangements commonly comprise step-parents, and stepsons

and stepdaughters in Saudi Arabia, these were excluded in the present study in order to be consistent in the consideration of mother involvement.

- Non-Arabic speaking mothers were excluded because if they could not speak the language of the country they might not be sufficiently assimilated into Saudi culture.
- Mothers who declined to participate were excluded.

3.7.5 The inclusion and exclusion criteria for nurses interviews and observations

The study involved nurses in the paediatric surgical department based on the following specific criteria:

- An expression of interest to take part in the study.
- One year or more experience working in a paediatric surgical department.
- A registered licence as a nurse working in the hospital.

The study excluded registered nurses that were not able to provide bedside care to paediatric patients, e.g., nurse educators.

3.8 Data collection methods

In keeping with a multi-method case study, data were collected from a variety of sources, which not only enabled a deep understanding of the case, but allowed the triangulation of data. This technique provides the researcher with various and diverse evidence from different sources so that the researcher can look at the area of enquiry from different angles (Stake 1995). This qualitative case study research used three research collection data methods: participant observation, semi-structured interviews, and review documents. Each data collection method is discussed in more detail in the following subsections.

3.8.1 Observation collection method

In this study, the researcher conducted unstructured observations with the objective of identifying the extent to which mothers were involved in their child's pain management activities. Observation is one of the main data collection methods in qualitative research, especially in a case study (Creswell 2013). Observation is defined as “the systemic description of events, behaviours, and artefacts in the social setting chosen for the study” (Marshall and Rossman 1989, p. 79). Observation methods help the researcher in a variety of ways. They allow the researcher to check for nonverbal expression of feelings, and permit understanding about how participants communicate with each other (Schmuck 1997). Unstructured observation attempts to record behaviour with as few preconceived ideas as to what is happening as possible, gradually making sense of what is going on from the experience of being in the setting (Brown and Lloyd 2001). Unstructured observation is usually adopted in exploratory studies. This technique provides a richer and more direct of the behavioural phenomenon under study, and attempts to understand and analyse the complexities of a particular situation without imposing any rigid structure over it. Flexibility and the absence of imposed structure permits the researcher to gain authentic information (Taylor et al. 2006). Using unstructured observation in the present study would permit the researcher to explore information about the mother's involvement in their child's postoperative pain management that might not be explored in previous relevant literatures or personal experiences. The flexibility of this technique allowed the researcher to open informal conversations with mothers and nurses related to the study area, asking them to clarify some interactions or terms that appear in situations related to the research topic.

Schensul et al. (1999, p. 91) defined participant observation as “the process of learning through exposure to, or involvement in, the day-to-day routine activities of participants

in the researcher setting”. Owing to the nature of the present study, the participant observation method was used. Firstly, the researcher establishes rapport within the paediatric surgical department and learns to act in a way that blends into the community. The researcher could then immerse herself in the data to have an in-depth understanding of the studied phenomenon. Secondly, the researcher develops a holistic understanding of the studied phenomenon that was as objective and accurate as possible given the limitation of the method. Thirdly, participant observation helps to answer exploratory research questions, to build theory, and to generate and test hypotheses (Dewalt and Dewalt 2010). The present study aimed to answer exploratory questions. Another reason for using participant observation was that it reduces the incidence of participants acting in a self-conscious or contrived way if they were aware of being observed (Bernard 1994). Also, it provides opportunities for the researcher to view or participate in unscheduled events (Demunck and Sobo 1998). This means the researcher would have a better understanding about the studied phenomenon even in unexpected situations, such as dealing with mothers complaining about their child’s pain and urgent medical procedures for the child.

A further reason for using participant observation methods is that the researcher can include additional aspects into the research; it also allows the researcher to report on natural conversations and to ask context-dependent questions in particular situations (Schensul et al. 1999). Therefore, in this study the researcher could clarify certain cases, terms, and behaviours that might not be clear or understandable. Participant observation methods help the researcher get the feel for how things are organised and prioritised, such as how people interrelate, and to gauge the cultural parameters (Schensul et al. 1999). This means in the present study the researcher could have detailed descriptions about nurses’ and mothers’ interactions, implications of hospital policies associated with

postoperative pain management, and organisation culture in the paediatric surgical department that might affect mothers' involvement. Finally, participant observation methods increase the validity of the study when they are used with additional strategies of data collection within a case study (Dewalt and Dewalt 2010). As discussed above, in this study, interviews and observations were conducted.

Gold (1958) has established four theoretical stances for researchers conducting observations, which include: complete participant, participant as observer, observer as participant, and complete observer. For this study, the researcher applied the observer-as-participant stance. In this technique, the researcher has only minimal involvement in the social setting. Also, the researcher can participate in group activities as desired, yet the main researcher role is to collect data, and the group being studied is aware that the researcher is observing activities for research purposes (Gold 1958). Using this stance for the present study allowed the researcher to observe and interact closely with mothers and nurses without participating in the children's postoperative pain management plan. The stance assisted the researcher to observe participants, have informal conversations, and be close with the child's assigned nurse during postoperative pain interventions (such as pain assessment and giving medication).

A further reason for using the observer-as-participant stance was that it is one of the most ethical approaches for observation. The researcher's observation activities are known to the group being studied, yet the emphasis for the researcher is on data collection, rather than participating in the activity being observed (Kawulich 2005). However, the participant observation method may influence the way participants behave. Therefore, the researcher must aim to build relationships based on trust, and collect, analyse, and display the evidence objectively. Prior to observation, the researcher spent

time with nurses for a few days in the paediatric surgical department. Also, the researcher engaged in conversations with mothers about the research topic on the admission day (a day before the surgery). This helped to build trust and share information about the research, and also enabled the researcher to address any questions about the research and the researcher's presence that participants had.

Establishing a trust relationship with the community helped participants feel secure in sharing sensitive information, and that the information gathered was presented accurately. The researcher was actively listening, and showed respect, empathy, and commitment to the well-being of the community. The personal relationship between the researcher and participants might also influence interactions. Thus, the researcher focused on what she heard, as well as what she observed. She ignored her preconceptions and beliefs during observation (following Burgess, 1984; and Silverman, 2004). Another ethical responsibility was the requirement to preserve the anonymity of participants in the use of field notes and the final write-up. The researcher ensured that the field notebook was secure and with her at all times.

3.8.1.1 Pilot work of observation methods

A number of informal visits, undertaken over several days prior to the pilot study, helped the researcher with regards to making general observations, including establishing the department layout, meeting the staff, learning names, and gaining familiarity with the daily routine. This information was necessary for determining the best times of day to approach mothers and nurses to conduct the main study. It was also useful to check the predetermined topics of observations, such as when and what the researcher might observe, and who the researcher observed. These were important points that provided data which answered the research questions. Robson (2011) pointed out that a pilot study

should be small-scaled and a ‘dummy run’ of the main study, assisting the transfer of the research design into reality, as well as enabling the resolution of potential problems. A pilot study was conducted before the observation of the main study to identify events, suitable times, and relevant information. The building structure of the hospital was complex and the researcher needed time to become oriented with the surroundings. Two mothers were used in the pilot study. The researcher observed two mother and child dyads and the assigned nurse followed the planned study observation methods. The same recruitment and consent pathway was used in the main study, explained in Section 3.8.1.3.

During the pilot work, the researcher tested the observer role for the main study. The researcher also practiced recording observation data in the field notes. Yin (2009) pointed out that pilot work may permit the researcher to refine the data collection plans with respect to the content of the data and the procedures to be followed. Hence, after conducting the pilot study, the researcher revised the procedures of observation and made small amendments needed for the main study. For example, it was determined that in order to save time and avoid waiting for a number of hours in the recovery unit to carry out observation of the mothers, the in-charge nurse of the recovery unit was asked if she could call the researcher 15 mins before a child came out of the recovery unit. Also, the nurse was asked if she could notify the researcher if there were any cancelled procedures or absentees. This was to ensure the rigour of the study findings by confirming each step of data collection. Mouton and Marais (1988) argued that validation is not necessary in qualitative research because concepts already reflect the world of the object of the study. However, one way to ensure the validity is to conduct a pilot study using the instruments, such as those used in this study, which were qualitative

interview and qualitative observation. The pilot study data were included in the main study data analysis.

3.8.1.2 Access and sampling

The researcher gave a PowerPoint presentation at the paediatric surgical department, explaining the research to the nurses. The information sheet was given to all nurses who met the research criteria at least 24 hours prior to the observation to consider whether they were suitable and willing to participate (Appendix D). The head nurse of the department received a memo from the nurse director of the hospital. This was to inform her that the researcher would conduct the study in the department. The head nurse was cooperative and informed the nurses about the study during morning meetings in case any nurses were not able to attend the presentation of the researcher.

At a time deemed appropriate by each individual nurse, the mothers of children who had been admitted for elective surgery were approached and informed that research into postoperative pain management was being undertaken in the department, and asked if they would consider being observed and interviewed. If a mother expressed interest in the research, an information sheet was provided (Appendix E). Each mother was given time to read the leaflet, to ask questions, and consider if she wished to participate. Once a mother had indicated her willingness to be contacted, the researcher spoke to the mother and addressed any concerns and then confirmed participation. Prior to data collection, consent was required for participation in the study (Appendix F). Children aged 10-14 years were asked for their assent for observation.

The participant was requested to fill in the Demographic Data Sheet immediately prior to observation. This included questions designed to elicit information about the child (such as age, gender, and the operation name). Also, the form required information about the

mother (age, number of children, education level, employment status, number of working hours per day, nationality, support sources, and the number of admissions of her children) (Appendix H). Demographic data were taken to provide a description of the participants in the study. The Demographic Data Sheet was collected during observation.

3.8.1.3 The strategy of observation methods

The researcher should determine a plan for observations before collecting observational data. Merriam (1998, P.97) contended that “[w]here to begin looking depends on the research question, but where to focus or stop action cannot be determined ahead of time”. In the present study, the researcher needed to have a description of the requirements of mothers’ involvement in their child’s postoperative pain management in the paediatric surgical department in order to identify the extent to which mothers were actually involved. In every step of the child’s postoperative pain management the researcher observed particular topics based on the literature (Chng et al. 2015; He et al. 2010; Twycross and Finely 2013; Melo et al. 2014), such as the following:

- The interactions between the mother and an assigned nurse.
- Information given to the mother by the nurse.
- Emotional support for the mother from the nurse.
- The mother’s attitudes regarding her child’s postoperative pain.
- The nurse’s attitude regarding the mother’s involvement in her child’s post-operative pain relief.

Since the main focus of this study was the mother’s involvement in the child’s pain relief after undergoing elective surgery, the researcher started the observation after the child was transferred from the operation room to the recovery unit. The researcher observed

only the mother/child dyads in the recovery unit. At that time, the policy of the hospital permitted the mother to stay with the child until the child becomes awake and stable. This step might take 30-60 minutes. Activities that were conducted when the child was in the recovery unit include: pain assessment, pharmacological pain management (giving pain relief medication), non-pharmacological pain management (emotional support, giving comfort, distraction and touches), and measuring vital signs which can be used to predict pain (Bendall et al. 2011). It is necessary that mothers use non-pharmacological methods to manage their child's pain, such as distraction methods (Pölki et al. 2002; Srouji et al. 2010). These activities were considered during the observations, as well as examining how the mother became involved and interacted with the child during this period.

After the child was fully awake, the surgical paediatric nurse came to the recovery unit to transfer the child to the paediatric surgical department. The next step was the transference of the child to a room in the paediatric surgical department. The hospital policy on postoperative pain management required the nurse to check vital signs and measure the pain over two hours (every 15 minutes in the first hour, then every 30 minutes for 2 hours). Therefore, the researcher also observed nurses and mothers for about two hours. The researcher monitored how the mother interacted with her child to manage her child's pain and how the nurse involved the mother in her child's postoperative pain. The interventions that were conducted for the child in this step include: pain assessment, giving medication, mobilisation, and other medical procedures (such as wound dressing). Mobilisation and dressing after surgery could affect the child's experience of pain. Swelling around the wound can make tightness, and movement puts tension on the wound. Thus, a consideration of the mother's involvement was important in the management of the child's pain. The researcher stayed in the

nursing station and followed the child's assigned nurse when she provided care for the child. For the first few days of the child's hospitalisation, the researcher came into the child's room to conduct several observations of the mother during the morning shift. The last step was the discharge of the child. The researcher asked the assigned nurse or the mother about when the child would be discharged to determine when the researcher must observe. Providing sufficient information for the mother assists the mother in giving adequate postoperative pain management at home (Simons and Roberson 2002; Jonas 2003). The hospital policy required the nurse to provide instructions about pain relief methods, involving medication, positioning, nutrition, and follow-up clinic appointments. This step should take 10-15 minutes. However, the preparation for discharge took a long time. Before the child's discharge the researcher arranged with the mother an interview time and date.

This observation method was carried out during the morning shift from 07:00 a.m. to 04:00 p.m. on working days because most relevant events occurred during this period. At visiting time in the evening, mothers were busy with visitors and it was not convenient for them to be involved. At night, mothers were often sleeping so it was generally not appropriate to disturb them. The researcher was not able to observe the mother's experiences in controlling the child's pain care at home because in Saudi culture people generally do not invite strangers into their homes (Kaynak et al. 2014). Thus, the researcher would explore this part of the mother's experience through interviews only. The researcher recorded the observation data in the field notebook, in English, on the day of observation. The framework of Spradley (1980) was used to describe the place, people, objective, and observing time in the observation field notes. The researcher identified participant mothers by the letter M, and nurses by the letter N, to maintain confidentiality. An example from the field notes is shown in Appendix O.

3.8.1.4 Observation data management

An important decision for the researcher regarding observation is how to record data. The field notes generally consisted of two parts, descriptive information and reflective information. Descriptive information is where the researcher attempted to accurately document factual data, actions, behaviours, and conversations. Reflective information is when the researcher recorded their thoughts, ideas, and concerns (Labaree 2009). The researcher recorded observations providing they were accurate, organised, descriptive, and focused on the research problem. Data were recorded directly after the observation in field notes to ensure the accuracy of recording data. The field notes were read back to the participants during the interviews to check the validity of the data (Labaree 2009). All observation notes were kept as field notes and subjected to analysis. Using computer software helps the researcher to organise qualitative data (Yin 2009). The data were typed into Microsoft Office Word 2008. The entered data were checked against the original data to ensure accuracy. The NVivo software (version 11 for Mac, 2015) was used to organise the observational data.

3.8.2 Semi-structured interview collection methods

The purpose of the interviews was to explore the nurses' and mothers' perceptions regarding mothers' involvement in the child's postoperative pain management. This study used semi-structured collection methods for the mothers and nurses interviews. One interview was conducted for every mother and nurse in the study. This type of interview is a prepared interview guide that includes a series of questions. These questions are usually open-ended, and after posing each question the interviewer follows up with probes seeking further detail and description about what has been said (Roulston 2010). Perhaps the most important reason for semi-structured interview technique is that

it permits the researcher to ask specific questions, but does not prevent addressing new and emerging topics (Kvale and Brinkmann 2009).

The paucity of information about this specific research area was aided by an exploratory interview technique. A structured interview technique was not appropriate because this requires the researcher to follow scripted questions in a prescribed sequence. This is technically difficult to do, given that interviewees may not understand some questions and the researcher may have a variety of other interactional difficulties in the administration of surveys (Roulston 2010). Moreover, in structured interview technique, the researched phenomenon cannot be widely explored because there is no scope to ask follow-up questions to responses that warrant further elaboration. Unstructured interview technique is also not suitable because the interviewer and interviewee initiate questions and discuss topics too freely for the present purposes. In unstructured interview technique, the interviewee selects her own terms to participate in free-flowing conversation, which may not generate data relevant to the researcher's interest (Roulston 2010). The type of interviews carried out with mothers and nurses are more fully explained in the following sections.

3.8.2.1 Interview guide for mothers

Based on a review of the relevant literature (e.g., Twycross and Finely 2013; and Melo et al. 2014), the researcher developed a semi-structured interview guide for interviewing mothers (Appendix G). The interview guide consisted of questions that explored the mother's involvement in the child's postoperative pain management. The researcher also used probing questions during the interview. To obtain relevant information from the interview for the research, the researcher needs to be fully aware of the research topic (Kvale and Brinkmann 2009). The researcher considered the issues which required

discussion, such as providing adequate information (Chng et al. 2015; He et al. 2010), communication between the nurse and child's mother (Melo et al. 2014), providing emotional support (He et al. 2010), and respecting mothers' preferences (Twycross and Finely 2013).

These topics were discussed at each stage in which the child was recovering from postoperative pain, including the preparations at the hospital before the child's surgical procedure, the postoperative hospitalisation period, and controlling the child's pain at home. While this study focused on the mother's involvement with the child after surgery, preoperative preparations regarding the child's postoperative pain relief can affect the mother's involvement in the child's pain relief after surgery (Fincher et al. 2012). For example, providing preoperative education to the child's mother helps reduce the mother's anxiety and increases her satisfaction with involvement. Felder-Puig et al. (2003) and Li et al. (2007) found that mothers and their young children that were given adequate preparations before surgery felt less anxiety.

The first question in the interview guide asked the mothers about their child's condition. This question was a general question to give the interviewee time to relax and to become comfortable with the environment. It was also designed to uncover more information about the mothers' experiences of how they were prepared for surgery. The second question attempted to uncover the mothers' experience of their child's admission to surgery. This was a more general question about the post-operative hospitalisation period to give the interviewee a chance to talk about her needs for involvement. Many studies have explored the factors that influence the mother's participation, including the emotional support provided during her child's surgery (Aein et al. 2009; He et al. 2010; Lime et al. 2012). The third question would give the mother a chance to explore her

needs that are specifically influenced by Saudi culture. The fourth question was designed to explore the mother's experience of controlling pain at home after the child was discharged. Involving the mother in her child's postoperative pain during hospitalisation is valued by the mother because she can continue to care for her child at home (Melo et al. 2014).

Kvale and Brinkmann (2009) pointed out that at the end of the interview there may be some tension or anxiety because personal and emotional experiences have been discussed, and also interviewees may be apprehensive about the purpose of the interview, and the use of the data. There may also be feelings of emptiness because the subject has revealed sensitive information about her life. At the end of the interview, the researcher asked the interviewee to provide feedback about the interview. The researcher could use this insight to consider improvement of subsequent interviews. The researcher asked if there were any other issues that the interviewee might like to raise in case any relevant aspects were not covered.

3.8.2.2 Interview guide for nurses

The interview guide was developed by the researcher for the purpose of this study (Appendix I). The interview guide consisted of three topics. The first topic was about the nurses' perceptions of pain management in children. Nurses have variable views regarding pain management. Nurses often do not provide adequate pain management for children (Twycross and Collis 2013; Twycross and Finley 2013). A possible reason for this deficiency is that some nurses believe that children have immature memory of pain and do not remember their pain as adults (Jacob and Puntillo 1999), and so consider pain management of children to be a less significant concern. The second question was about how the nurses prepared the child for discharge. Mothers need to be prepared by

providing information about the child's pain care (He et al. 2010). Nurses often mention in studies how the hospital system can affect their implementations of pain management in children. Some nurses point out that inadequate equipment impedes their ability to provide sufficient pain management (Namnabati et al. 2012). The follow-up calls by nurses can result in improvement of mothers' involvement in managing their child's pain at home (Twycross and Collis 2013). The last question posed was about nurses' perception of the mother's involvement, which was the main focus of the research. One of the barriers that cause inadequate pain management is the nurses' lack of understanding of the mothers' involvement (Czarneck et al. 2014).

3.8.2.3 The pilot study interviews

Patton (2001) has noted that validity and reliability are two factors which a qualitative researcher should be concerned about while designing a study, involving the analysis of results and judgement on the quality of the study. Prior to interviewing, a pilot study was carried out to examine the reliability and validity of the content of the interview guide. The interview questionnaires were tested for reliability and validity before being incorporated into the main study. Another important measurement of reliability and validity is the quality of the findings (Golafshani, 2003; Stenbacka, 2001). In the present study, the pilot study ensured that the questionnaires were comprehensible for the respondent and that the responses were appropriate to the research questions and objectives (as noted in Yeong et al. 2018). Also, to ensure reliability in qualitative research, a consideration of trustworthiness was crucial. Seale (1999) has argued that trustworthiness is one of the most important of the methodological criteria of qualitative research. In the present study, this was achieved through checking transcripts were

correctly transcribed and translated with colleagues, professional translators, and academic supervisors.

The pilot study interview was conducted with two mothers which met the inclusion criteria and which were previously observed in the pilot study. The interview guide was novel to the present work and was established to explore the mother's involvement. Conducting a pilot study helps to improve the internal validity of the study by testing the study instruments (Baskarada 2014) – in this case, the interview guide. A pilot study is also important in many other ways, including addressing potential practical issues that might appear in the study, to re-word the questions in the interview guideline, and to test the research process (Teijlingen et al. 2001). The researcher applied the main study procedure for data collection in the pilot study (see Section 3.8.2.4, The main study procedure for mother interviews). This ensured that the researcher did not miss any topics in the interview guide. Also, it gave the researcher an opportunity to practice using the interview guide in a real-life context and to examine the process of interview data collection. According to Yin (2003), conducting a pilot study as a final preparation is important for data collection because it helps to refine the data collection plans with respect to the content of data and the procedures to be followed. Moreover, issues might emerge with the interview process during the pilot study that could be improved for the main study. Thus the findings of the pilot study were used to make modifications in the interview guide, if necessary. For example, the place of interview was a considerable distance away from the follow-up clinic, so the researcher booked a closer room to the clinic. The nurse interviews were also piloted. It involved two nurses: a paediatric head nurse and a senior paediatric nurse. A nurse interview guide was used in the pilot study. The pilot study followed the main study procedure for nurse interviews (see Section

3.8.2.5, The main study for nurse interviews). The data from the pilot study interviews were used in the analysis of the main study.

3.8.2.4 The main study procedure for mother interviews

Mothers that expressed interest to take part in the study were asked about suitable times for interviews (during the final day of their child's hospitalisation). Interviews took place at the hospital on the set follow-up clinic day for the child, with each previously observed mother (approximately 7–10 days after surgery), following the doctor's examination. Fortunately, all mothers agreed to a follow-up interview after observation, and all attended. This permitted the mother to describe her experiences of controlling her child's postoperative pain at home. The researcher made the environment suitable for interviewing. An appropriate room was used, booked in advanced to avoid interruptions and to put the interviewee at ease, which contained comfortable chairs and a desk and was appropriately ventilated and at a suitable temperature. The room was catered with water, coffee, and biscuits as refreshments for the interviewee, as well as toys for children to avoid the interviewee becoming distracted. The researcher tested the audio recording equipment before the interview in order to resolve any potential issues. At the beginning of each interview, the researcher outlined the purpose of the research project, and explained that the interview would be recorded and later transcribed. Recording interviews helps the researcher to go through the interview as many times as required. Memory can be flawed and selective and what the researcher thinks was said after a large time interval is not a substitute for careful examination of the actual words of the interviewee (Rubin and Rubin 2005). A further opportunity was provided for the participant to ask questions. Demographic data had already been taken during observation.

In order to check the reliability of the interview data, the researcher used probing questions for further clarification. Stake (1995) pointed out that in-depth interviewing via interview questions and probing techniques offers a holistic understanding of the participant's situation and perspective. In the current study, the researcher aimed to establish a good rapport with the participants to facilitate better responses (Jacob and Furgerson 2012). The researcher also followed the recommended six quality criteria for a semi-structured interview in Kvale and Brinkmann (2009, p. 164), summarised below:

- Spontaneous, rich, specific, and relevant answers from the interviewee.
- Short interviewer questions and longer interviewee answers.
- The interviewer follows up and clarifies the meanings of the relevant aspects of the answers.
- The interviewee is being interpreted throughout by the interviewer.
- The interviewer is attempting to verify his or her interpretation of the subject's answers.
- The interviewer is reliably "self-reporting" the interview.

It was anticipated that the interview would take 30-60 minutes. The study was carried out in the Arabic language. This is the official language of Saudi Arabia, which will be more suitable for the interviewees. It can be worthwhile for the interviewer to set aside ten minutes or more after each interview to reflect on what has been learned from the particular interview (Kvale and Brinkmann 2009). The researcher planned rest periods between the interviews to make notes on important concepts, themes, and events before the next interview. The researcher wrote her immediate impressions after each interview based on the meanings communicated in the interview. This provided a valuable context for the later analysis of transcripts. The interviewee's vocal, facial, and bodily

expressions which accompanied the subject's verbal responses might not be apparent in the transcribed texts.

An interview can be influenced by gender, professional background, ethnicity, and age (Rubin and Rubin 2005). In Arabic culture, gender is an important consideration because mothers generally feel more open to talk with a female, rather than a male, interviewer (Rawas et al. 2012). Moreover, in general, participants often respond more favourably to interviewers who are similar to themselves (Fielding 1994). In the present study, the researcher, which was of the same sex and cultural background to the female participants, helped them talk comfortably to convey their knowledge and views.

3.8.2.5 The main study for nurse interviews

Beside the observations, a semi-structured interview technique was used for the data collection. The researcher scheduled the interviews to organise the data collection (Appendix L). Each nurse was approached directly by the researcher to arrange a date and time for the interview. Consent had already been obtained from the nurse to be interviewed before starting the observation collection methods. With the permission of each participant, the interview was audio-recorded. A demographic data sheet was also requested, which includes age, marital status, number of children, academic level, nationality, and the number of years' experience as a nurse or paediatric nurse (Appendix J). The interview took place in the paediatric surgical department. A room was booked in advance to avoid disruptions. The room was prepared for interviewing. The temperature was set at room temperature, and bottled water and tea were provided, with comfortable chairs and a desk. The researcher outlined the research purpose and the participant's rights, as shown in the participant information sheet and consent form. A further opportunity was given for the participant to ask questions.

The researcher was an active listener and aimed to connect the information to the research aims and objectives. The interview can be viewed as an active and interactive process that requires the interviewer to listen and to maintain eye contact to encourage the interviewee. Furthermore, the interviewer should aim to provide a link between the research aims, objectives, the interview questions, and emergent issues (Yin 2009). Every interview took 30–50 minutes. Interviews were conducted in English, which is the standard communication language of health professionals in Saudi Arabia. The researcher allowed enough time between the interviews to listen to the interview and transcribe it. Thereafter, the researcher could focus on possible improvements for the next interview.

3.8.2.6 Recording and organising interview data

I. Transcribing interviews

A transcript is a type of translation from a narrative oral discourse into a written discourse. Issues relating to the hermeneutics of language translations also pertain to transcribers (Kvale and Brinkmann 2009). The researcher listened repeatedly to the recorded interviews and transcribed them. The researcher transcribed each interview as soon as possible after the interview. This helped the researcher to have insights about the interview technique and to ensure that the conversation covered points that were needed to answer the research question. These insights could be used to improve future interviews. Malterud (2001) concluded that qualitative data should be transcribed verbatim because transcription should reflect the data. This ensures that respondents' views and meanings are not altered in the transcription process. In addition, Long and Johnson (2000) suggested using transcription guidelines to ensure that the data transcripts are made efficiently, systematically, and consistently. However, transcription

is a skill that can only be acquired through extensive training (Silverman 2004). So, the researcher read and informed herself about transcribing before starting the present study.

The researcher directly transcribed the interview data into the computer using Microsoft Word software. The researcher followed the same process of transcription for each interview for consistency. According to Kvale and Brinkmann (2009), researchers that transcribe their own interviews learn how to improve their own interviewing style, and also start their actual analysis earlier, which permits the researcher greater familiarity with the data. In the present study, the researcher emailed the interview transcripts to each participant to check their accuracy, in order to make sure that they reflect precisely what was said at the time of the interview (as noted in Hagens et al. 2009). All participants agreed that the transcripts were accurate, and there was no specific feedback.

II. Translation of interviews

Meaning can be obscured or changed in translation in qualitative research due to language differences (van Nes et al. 2010). Challenges emerge when a researcher and participants use the same non-English native language and the research data are in this language, but the study findings are presented in English (van Nes et al. 2010). van Nes et al. (2010) suggested some recommendations that contribute to the understanding and interpretation of the experiences of participants to enhance the trustworthiness of the study. The first recommendation posed that analysing such data enables focus about the thinking and reflection processes, and that talking and reading in English leads to thinking in English. Jackendoff (2009) posited that there is a close relationship between thinking and language, and also that language can be an aid to thinking. Kvale and Brinkmann (2009) suggested that staying in the original language is best to avoid potential limitations and misinterpretations when analysing in languages different to the

researcher's language. Thus, the researcher initially analysed the mother interviews data in the Arabic language.

Following this, the mother interviews were translated into English by two professional translators. Crystal (1991) defined translation as a process of turning the meaning and expression in one language into the meaning of another language – whether spoken, written, or signed. Translation has limitations because it can involve losing key information, or can misrepresent the original contextual meaning (Rubin and Rubin 1995). Brislin (1980) posited that good practice is employing at least two competent bilingual translators that are familiar with the research study to provide objective translations of the interviews. One translates the transcripts to English while the other translates it back into the non-English language, ensuring that the original translation is correct (without seeing the original transcripts). To add rigour to the research, as suggested by Brislin (1980), two translators that were competent in English and Arabic dialects were used. The translators signed an agreement before the interview transcripts were given (Appendix K). The agreement included conditions based on the ethics guidelines of Cardiff University, necessary to maintain confidentiality of participants' information. The transcripts were shared with academic supervisors.

3.8.3 Contextual information: review documents

Merriam (1988, P. 118) noted that “[d]ocuments of all types can help the researcher uncover meaning, develop understanding, and discover insights relevant to the research problem”. Documentation can take many forms and may constitute part of an explicit data collection or provide background information to contextualise the analysis. Documents are considered a valuable data source in qualitative research, particularly in case studies (Creswell 2009). The advantage of reviewing relevant documents is that

they are accessible at any time to the researcher, saving time, money, and effort (Creswell 2009). They can also bring explicit confirmation of evidence, but also might be considered an imprecise and biased source of data (Yin 2009). Yin (2009) posits that reviewing relevant documents is a method of data collection that could provide vital information for case study research. Information could be raised in the interviews or observations that is related to the mother's involvement in their child's postoperative pain management, so reviewing documents could put into context some of the mothers' and nurses' responses.

In this case study, documents were reviewed in order to understand the hospital policy and procedure of postoperative pain management, patient and family education, and patient discharge. The researcher read the files of the policies and procedures in the surgical department. The content of all policies and protocol statements were linked to what participants revealed in the interviews and observations. This was necessary to formulate a picture of postoperative pain management in children and to assist the analysis of mothers' involvement. The hospital policies and procedures were available on the hospital website for medical staff, particularly doctors, pharmacists, and nurses. They were developed locally, by hospital medical staff, and approved by the hospital policy and procedure committee. There was no manual filing system for the policies and procedures on the department. The researcher accessed them with the aid of the head nurse of the department. It was found that four policies and procedures related to pain management and mother involvement. However, two of these were not currently used in the surgical department, which the head nurse clarified, related to chest pain, and analgesia/sedation protocol in mechanical ventilation. After this, the researcher reviewed the policies and procedures on the hospital website to be sure of relevancy, and discussed them with the head nurse. The two other policy documents were directly related to the

research area and used in the paediatric surgical department. The hospital policies were not permitted to be copied into the appendices of this thesis. In addition, the admission and discharge forms were reviewed, which required to be filled out by the nurses on the admission and discharge day.

3.9 Data analysis

Perhaps the most significant aspect of analysing qualitative case study evidence is to seek meaning and identify the subject's experiences of a given phenomenon (Batrex and Jack 2008). Case study analysis is not a straightforward process; it is the most challenging part of conducting case study research. Therefore, having a general analysis strategy can help to ensure data quality, limiting irrelevant explanations and ensuring valid conclusions (Yin 2009). To bring order to a data collection, a computerised database is often necessary to organise and manage the voluminous data (Creswell 2013). The researcher used the NVivo software (version 11 for Mac 2015) to organise the nurse and mother interview data, the observation data, and reviewed document data. The analysis of interviews with mothers was conducted in English because the software does not function in the Arabic language. Demographic data were entered into Excel (version 15.27 for Mac; 161010) and then inserted into SPSS software (Statistical Package for the Social Sciences, version 20.0; SPSS Inc., Chicago, IL) to obtain descriptive statistics of the study participants, including frequencies, percentages, means, and standard deviations (SDs).

In this study, the data were analysed in two phases. In the first phase, the interview transcripts, observation field notes, and documentary evidence for analysing qualitative data were utilised, and in the second phase, an explanation of the building technique was used to explore the case study.

3.9.1 Phase one: analysing qualitative data

Qualitative data analysis is defined as a process of, “working with data, organising it, breaking it into manageable units, synthesising it, searching for patterns, discovering what is important and what is to be learned, and deciding what you will tell others” (Bogdan and Biklen 1982, p. 145). Broadly, the aim of qualitative data analysis is to search for themes, concepts, and meanings.

Thematic analysis can be an iterative, and also a ‘back and forward’ process (Creswell 2013), which is a type of interactive observational technique. Thematic analysis is “a method of identifying and reporting patterns (themes) within data” Braun and Clarke 2006, p. 79). Yin (2009) recommended that when the researcher is focusing on the research phenomenon and aiming for further complexity – not generalising beyond the case – thematic analysis is preferable. The data were analysed using the framework suggested by Braun and Clarke (2006). This framework includes six steps, namely:

- Familiarising yourself with data.
- Generating initial codes.
- Searching for themes.
- Reviewing themes.
- Defining and naming themes.
- Producing the report.

3.9.1.1 Observation analysis

The six steps of the thematic analysis framework, outlined by Braun and Clarke (2006), were followed. The researcher analysed the observation data for each mother/child dyad separately from the other data (interviews and document review). In the observation analysis, the researcher focused on information that identified the extent to which

mothers were involved in their child's pain management activities. The researcher read the field notebook several times to become immersed in the observational data. Initial codes were generated from the data, then themes were developed and named. Themes were reviewed with the researcher's academic supervisors. These themes, which were consistent with the themes that arose from the interview data, were then integrated into the interview themes and linked to the reviewed documents, as shown in Figure 3-4.

3.9.1.2 Interview analysis

Thematic analysis was used to analyse interviewing transcripts data. In order to become immersed in the data, the verbatim transcription of each interview was read several times to understand the full meaning of the research topic. Repeated reading of interview transcripts helped the discovery of essential features of the research phenomenon. Along with repeated reading of each transcript, the researcher listened to the audio recording in order to establish a connection with the participant. Interview data were subjected to thematic analysis, which is a commonly used technique in qualitative contexts. Each transcript was analysed separately and considered as a single unique interview experience.

The researcher coded every two or three lines of text with handles that identified key words, concepts, and reflections. The researcher endeavoured to develop code that was clear and concise, clearly stating what it was, its boundaries, and how to know when it occurred. Code validation was acquired to ensure the integrity of codes. It was also used to guarantee they were not misinterpreted and that they could be free from research biases. Developed codes were reviewed in collaboration with the researcher's academic supervisors. A comparison of the codes was implemented for each conducted interview (mothers and nurses separately). All identified codes were collected and listed. Similar

codes were collected in order to develop themes. Following this, themes emerged from these developed codes. To review the identified themes, establishing the validity of themes arising from the data, ten percent of the data was given to the researcher's academic supervisors. These themes were named to refine the specific nature of each theme. To obtain an overall conclusion about the interviewing data analysis, the emergence of common themes in interview transcripts were identified. In the last step, the researcher finalised the name of each theme, wrote its description, and illustrated it with a few quotations from the original text. Quotations were also used from interviews as illustrations to communicate the meaning to the reader. A technique that might not demand particular systematising is "quote-research" (Kvale and Brinkmann 2009).

3.9.1.3 Documentary analysis

In the analysis of observational data, documents were reviewed in their entirety with the aim of identifying aspects relevant to the research objectives (following Sarantakos 2005). The main purpose of reviewing documents was to determine to what extent mothers should be involved in their child's pain management activities according to hospital policy. The documentary analysis provided a further point of reference for consistency and validity, permitting themes that arose from the interview and observation data to be checked.

3.9.2 Phase two: analysis of the case data

In the data analysis process, there was a need to return back and reflect on the theoretical propositions developed in the literature review. The data collected from all sources, i.e., observations and interviews of mothers and nurses, were integrated in Nvivo (version 11 for Mac, 2015) for further analysis. Yin (2009) presented four general analytic strategies for analysing case study data: relying on theoretical propositions, developing a case

description, using both qualitative and quantitative data, and examining rival explanation. Yin (2009) argued that any of these strategies can be used with five specific techniques for analysing case studies: pattern matching, explanation building, time-series analysis, logic models, and cross-case synthesis. Yin (2009) posited that relying on the theoretical propositions strategy helps the researcher to shape the data collection plan and gives priority to the relevant analytic strategies. This will used be as a guide for the case study analysis, helping to focus on certain data while ignoring other data. Here, explanation building technique was used with the theoretical propositions strategy. The main purpose for using this technique was to explain a phenomenon. In this case, it was to clarify the extent of mothers' involvement, and how it could be strengthened. Yin (2009) noted a good case study is one in which explanation building reflects the theoretical propositions. Hence, explanation building is an iterative process starting with a theoretical proposition and then repeating this process from the beginning (Yin 2009). The process of the explanation building technique includes: making an initial proposition or theoretical statement, comparing the findings of an initial case against an initial proposition or theoretical statement, revising the statement or proposition, comparing other details of the case against the revision, and comparing the revision to the facts of a second, third, or more (repeating this process as many times as is needed). Thus the researcher linked developed themes to the developed theoretical propositions (see Section 3.6.3, Theoretical framework). The findings were presented in the English Language.

3.9.3 Ethical considerations

This section describes the ethical considerations for this study, including aspects of the study sponsor and the ethical approvals for accessing the research setting. Managing

ethical issues associated with informed consent from the participants and maintaining confidentiality and anonymity are presented. Finally, ethical issues related to potential harm of participants and researcher safety are explained.

a) Autonomy and informed consent

Respecting the autonomy of participants by informed consent was a basic ethical requirement for conducting this study. A key British Sociological Association (2002) guideline stated that people should know that they are being studied and should give their consent. In this research, consent was obtained from each participant before starting the data collection. The language of the consent form was Arabic for mothers and English for nurses (Appendix F). Each participant was given a Participant Information Sheet (PIS), in Arabic for mothers, and in English for nurses (Appendix E and D). Participants were fully informed about the nature of the study before obtaining written consent and involving them in the research procedure. The aims of the research were also explained to the participants to ensure that they understood the requirements. Their consent was sought in addition to being assured that any information they provide would be used confidentially, and for research purposes only, without being shared to third parties; assent was also obtained from the children. In addition to the researcher, only the PhD supervisors viewed the study data. Participants and children were informed that their participation would be voluntary and that they had the right to withdraw from the study at any stage. Participants were also informed that the interview would be audio recorded.

b) Confidentiality and anonymity

Confidentiality is another key ethical issue that must be considered. Researchers should ensure the confidentiality and anonymity of participants (Creswell 2009). For this study,

participants were not identified in the reporting of the findings. As noted, the researcher coded participants by letter during data collection: 'M' for mothers and 'N' for nurses. Another consideration was that participants may be concerned about the use of direct quotations in the study. Only with permission did the researcher use quotations (without identifying the participants by name) in the final report and publications, and so the participant's rights were protected. Their personal details were safeguarded to ensure confidentiality. The researcher followed the Cardiff University policy for data security and storage, following the Data Protection Act 2018 (Intranet.cardiff.ac.uk 2020; Gov.uk 2020). A desk with locker was provided from the hospital. Audio-records, observation notes, and personal information were kept in the lockable cabinet with controlled access, with the key restricted to use only by the researcher. Once audio recordings were transcribed they were destroyed in accordance with Cardiff University guidelines. Only the researcher and academic supervisors of Cardiff University accessed the transcripts and observation data. The researcher ensured that data would not be shared with other organisations. The electronic data were securely locked and password-protected to ensure that only the study researcher accessed computer data. When using a personal laptop, all electronic information was encrypted, password-protected, and saved securely to the Cardiff University server. Only the researcher had access to the laptop.

The researcher used a translator to check the interview transcripts of mothers, so the translator and researcher signed a confidentiality agreement (Appendix K). The researcher backed up the data by uploading copies of the sound files from the audio recorder onto the computer. The researcher also made backups of the observational data files and reviewing documents. The researcher sent the data to Cardiff University using direct data transfer via a secure web server. The data will be stored securely for fifteen years.

c) Minimising harm

The manner of approaching participants should show both respect and promote a philosophy of safety in a non-threatening environment (Armitage and Knapman 2003). Haverkamp (2005) noted ethics must also consider the effects of the research on participants. Therefore, extreme caution is necessary when the research requires direct human contact. Talking to mothers about their experience of their child's postoperative pain management might cause emotional distress. To minimise the risk of psychological harm to the participants, a working relationship was established with the multidisciplinary team at the hospital setting who were aware of the research process and that they needed to provide either psychological or social support to participants. For example, if a participant disclosed information relating to serious harm caused to the child, herself, or others, such as abuse, the researcher was required to report it to the appropriate healthcare team, following Section 4.5 of the Cardiff University Policy on the Ethical Conduct of Research Involving Human Participants, Human Material or Human Data (2018). Similar safeguarding measures were required in the study hospital context, as shown in the hospital policy documents. Talking to nurses about children's pain could also be a sensitive issue because they might remember the particular child or the situation (Dempsey et al. 2016). Thus, they might require support by the staff counselling clinic in the hospital. This counselling clinic can provide psychological and social support for the staff. The researcher is also required to report to a manager if there was poor nursing practice observed that could cause harm for the child (following Section 4.5 of the Cardiff University Policy on the Ethical Conduct of Research Involving Human Participants, Human Material or Human Data (2018)). The researcher ensured that no intrusive interventions took place and a professional relationship was established between the researcher and the participants. Dingwall and Murphy (2003)

argued researchers must promote a more open approach, avoiding any implications of blame regarding their behaviour or action, and eliminating the potential for stigmatising participants if they discussed sensitive topics. Any possible events concerning child safeguarding, such as harm from nurses and mothers, would be reported to the managers of the department (following Section 4.5 of the Cardiff University Policy on the Ethical Conduct of Research Involving Human Participants, Human Material or Human Data (2018)). Also, to ensure safety and confidentiality, the researcher would not provide any care without the permission of the assigned nurse.

d) Maintaining the researcher's safety

The safety of the researcher is a critical issue for the design of the study methods. The Cardiff University policy on health and safety in research was adhered to through a risk assessment following the guidelines in the Cardiff University Policy on the Ethical Conduct of Research Involving Human Participants, Human Material or Human Data (2018): the interviews were located at the hospital to minimise the risk of physical harm; the interview environment was assessed, making sure the building was safe before conducting the interview; fieldwork activities were carried out under supervision; and a suitable time was assigned for interviewing, appropriate for the interviewee and supervisor. The assigned supervisor in Saudi Arabia, Professor Omar Saadah, was provided with relevant information and the appropriate plans for the recruitment of participants (for observation and interviews), including scheduled date, time, and place (Appendix L). He was informed when the interview started and finished. To reduce the risk of psychological harm of the researcher, after completing the interview and observation a reflective journal or diary was kept by the researcher to express thoughts and emotions about the research, and an opportunity was made to be able to talk with

trusted people about these feelings for counselling and debriefing (as suggested by Kvale and Brinkmann 2009).

3.10 The quality of empirical research design

Yin (2009) reported that four tests have been widely used to enhance the quality of case study, including constrictive validity, internal validity, external validity, and reliability. Constrictive validity can be achieved by using multiple sources of evidence, maintaining a chain of evidence, and key informants review the draft case study report (Yin 2009). Stake (1995) and Yin (2009) defined triangulation, which is often equated with combining different methodological approaches as a way of enhancing the confidence of the findings, particularly when the researcher uses large and diverse data or follows an explicit data analysis technique. Patton (2002) discussed four different types of triangulation, namely: triangulation of data, triangulation of theories, investigator triangulation, and methodological triangulation. In this study, data triangulation was used, which combines data from various sources, individuals, or places and times. Hence, the researcher collected data from observations, interviews, and documentary review to examine this phenomenon. The goal of using triangulation is to converge multiple sources of evidence as a method of corroboration and evaluation of the phenomenon of interest, therefore adding depth, richness, and validity to the analysis (Yin 2003).

Maintaining a chain of evidence through the research design was considered in this study to permit the reviewer to trace between case study conclusions back to the initial research question. The researcher organised collected evidence sources in a hard copy filing system and made electronic files for every source in a separate file, ensuring the original evidence could not be lost. Also, a detailed description of the case informants

(without compromising the confidentiality of their identity) was provided. A description of the physical context of the case study was given along with photos to familiarise the reader with the environment.

The last tactic to enhance the construct validity was that the draft case study report was reviewed by the case informants to check their content. The researcher aimed to avoid missing information (during the observations and writing of the field notes) and tried to clarify unclear terms, words, or actions. This was to make certain the accuracy of data before analysis. Hence, the researcher liaised with nurses about reviewing the draft case study report, and discussed with mothers who were interested in gaining further information. After analysing the separate data stands and identifying themes, in order to ensure the validity of the themes, ten percent of the data analysis document was reviewed by a second researcher with expertise in qualitative research. In addition, the case study report was discussed with the supervisors for their comments and advice.

In qualitative case study research, internal validity is important to understand the nature of reality. The reality is constructed, multidimensional, and ever-changing; there is no such thing as a single, immutable reality waiting to be observed and measured. Thus, there are a multiplicity of interpretations about reality; in one sense, the researcher offers his or her interpretations of someone else's interpretation of reality (Merriam 1995). Thus, the researcher provided a plausible causal argument with logical reasoning that explained how the conclusions of the case study were developed. Yin (1994) posited that internal validity refers to the data analysis. The framework of data analysis will demonstrate how data collection leads to outcomes. The theory of triangulation enables the researcher to verify findings by adopting multiple perspectives (Merriam 1988). The researcher linked together the data of observations and interviews, and evidence

documents to provide conclusions and develop logical reasoning. First, the observational data analysis themes were linked to the interview themes. Then, evidence documents were linked to the observational and interviewing themes.

External validity deals with the problem of knowing whether the findings are generalisable or transferable to other cases. Transferability is the likelihood that the findings of the study can be applied to a similar population or situation, and how significant they are to others (Speziale et al. 2011). Transferability is described by Yin (2009) as analytic generalisation. Lincoln and Guba (1985) defined external validity as the extent to which the research findings are generalisable; that is, whether they can be replicated beyond the proximate research case studies. One aim of qualitative study is to determine the context in which findings could be shared and applied, as opposed to generalising the results to all populations (Malterud 2001). Survey research relies on statistical generalisability whereas case study research relies on analytical generalisations in which particular findings are contextualised into a broader theory (Yin 2009).

Gomm et al. (2000) argued for alternative ways of thinking about generalisability, suggesting that thinking about single-case studies may be far more useful than has traditionally been believed. Other techniques that can be used include ‘thick’ description for a case regarding the study context, setting, sampling, intended interview protocol, cross-case analysis, and the use of procedure for coding and analysis (Lincoln and Guba 1985). A rich description was given wherever possible for the reader about the surgical paediatric department context and thus some of department’s contextual factors might be applicable to other surgical departments. This contextual data could also be transferred to paediatric nurses working in Arab states in a similar situation, such as where nurses speak different languages and are from a different culture to the child’s mother. The

findings could be transferred for mothers who have the same criteria in the researched study, such as when their child is between 3-12 years-old and undergoing elective surgery.

Finally, the reliability of the case study can be tested by the extent to which other researchers can carry out the same study and achieve similar results (Miles and Huberman 1994). Reliability in case study research demands in-depth description about the case study design for the reader to understand the methods and their effectiveness (Merriam 1988). It is posited that reliability in realism research is based on the assumption that there is a single reality, which is studied repeatedly (Merriam 1988). In qualitative research, different researchers that use different methods at different times can collect data about the same real-life situation. However, the different data sets may not come together into one conforming picture (Neuman 1994). Therefore, a clear research question has been provided in this chapter, congruent with case study design, to guide the data collection and analysis. Moreover, the defining of the case and units of analysis are explained through providing justifications. The process of the design and conducting of the research have been explained by outlining the techniques adopted to analyse and synthesise the data. The use of digital recording to record interviews and the transcription of interviews enhances the reliability of the data obtained, minimising systemic bias (Tuckett 2005).

3.11 Reflexivity of the study

Reflexivity concerns the self-critical examination of the researcher's beliefs and assumptions about the research process. This enables the researcher to be more self-conscious regarding the type of relationship with study participants, the data, and with the study itself (Brayman 2012). Thus, a reflexive researcher uses critical thinking skills

to analyse the research process and to challenge her own beliefs, while considering how the research was conducted and influenced by the researcher's own perceptions (Mason 2004). In the current study, the researcher was aware of the challenges of her position as researcher and nurse educator, and thus she employed strategies to minimise, as much as possible, unconscious and conscious bias or subjectivity. The researcher was aware of her professional status, therefore restricted any possibility of influencing participants by her own beliefs or views. The researcher built relationships before collecting the study data so the participants were ensured that the data were for research purposes only, and so may not be influenced by being observed. The researcher gave participants enough time to express their viewpoints during the interview. The researcher did not use leading questions during the interview or direct the participant's responses through active listening. Judgements were not made, nor were responses defined as being "right" or "wrong" during data generation. Since the researcher had not been working in the research setting, she did not have an influence on the participants which might lead them to believe that the researcher might affect, or judge, their work.

The researcher developed a reflexive journal or a diary during the research process to reflect on her own values and interests (for examples of entries in the reflexive journal see Appendix M). Designing research that includes multiple investigators can foster dialogue and lead to the development of complementary, as well as divergent, understanding of the study situation. It provides a context in which the researcher often hides beliefs, values, perspectives, and assumptions that can be revealed or contested (Eisenhardt 1989; Yin 2009). In this research, it was not possible to apply investigator triangulation to minimise the subjective influences of individuals, since this study was conducted as part of a PhD program and so was constrained, to an extent, by restrictions of time and budget. The researcher aimed to secure the accuracy of the case study report

by checking with a research colleague at each step of the data analysis. The researcher aimed to limit her own subjective views during data interpretation, aiming to objectively review what participants said about mothers' involvement. It was important to think critically and consider the possible effect of the researcher's beliefs on the data. This was done after each interview and observation event. It should not be possible to detect influence of the researcher's personal views or experience in the research data (Mason 2004). Regular updates with the supervisors, through meetings and emailing during data collection and analysis, assisted the researcher in gaining broader perspectives.

3.12 Summary

This chapter described the study design and methods used for data collection. The data of mother interviews were translated from Arabic to English. Thematic analysis was used to analyse data from observation and interviews. Nvivo software (version 11 for Mac, 2015) was used to integrate the data collected for a comprehensive analysis of the case study. Justification for each step of the study process was provided, and ethical considerations were addressed. The quality of the empirical study design and the reflexivity of the study have been illustrated. The following chapter presents the study findings.

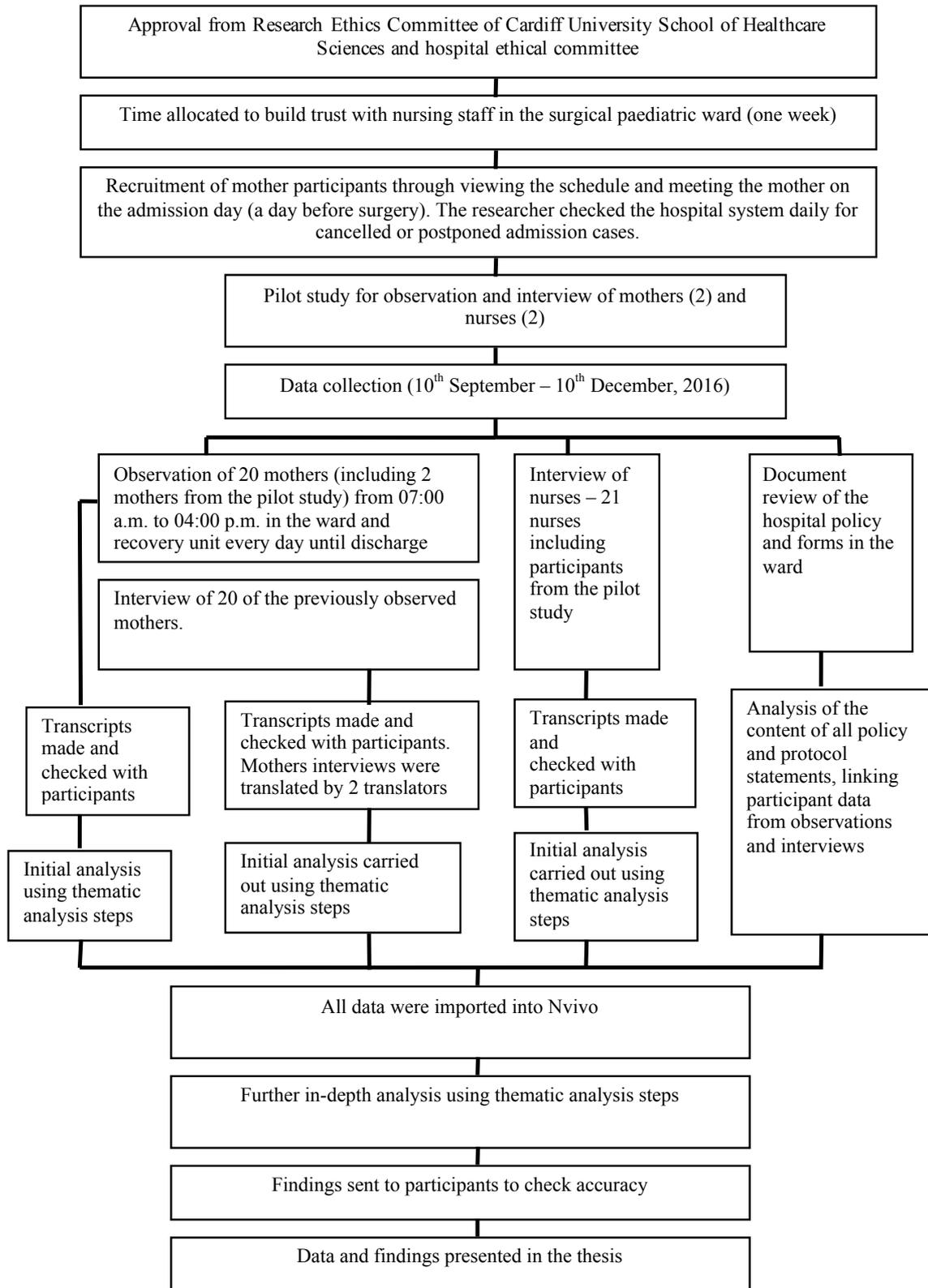


Figure 3-4 Flow diagram of the study design

CHAPTER 4 : FINDINGS

4.1 Introduction

This chapter presents the study findings from the data collected, including: 1) interviews of mothers and nurses, 2) observations of child-mother dyads, and 3) a review of documents of the hospital policies and orientation, as well as discharge checklist forms from the paediatric surgical ward. In the beginning of this chapter, the participants' demographic characteristics (mothers and nurses) are described. The reviewed documents are elucidated and the developed themes and sub-themes explained, addressing each research question. Following this, the model of the study is illustrated. At the end of the chapter, a summary is provided.

4.2 Demographic characteristics of participants

This section presents the demographic characteristics of the mothers, including their age, gender, nationality, working status, number of previous admissions, number of children in their care, educational stage (based on the country system), and age, gender, and surgical procedure of the child being treated. The second section identifies the demographic characteristics of the nurses, showing their age, nationality, education level, the number of years of experience as a nurse, the number of years of experience as a paediatric nurse, and the number of children they have personally. Information about the mothers and nurses who participated in this study helps to understand the data.

4.3 The backgrounds of mothers and nurses

The study includes the observations and interviews of twenty mothers. Every mother and child dyad were observed for between 7 to 11 hours at different sessions during the hospitalisation period. Each mother was interviewed a week after their child was discharged from hospital. All mothers that took part in the study and were observed accepted to have an interview in the follow-up clinic appointment. High acceptance and attendance may be accounted for by the mothers' concern for the well-being of their child after surgery. For mothers that had limited time for interview, the researcher organised the appointment directly, and also collected their medication from the hospital pharmacy in order to save time for the interview. To ensure attendance, the researcher called the mother by phone in the morning before the follow-up appointment for confirmation.

Most of the mothers were married, and two mothers were widows. Only one mother was divorced. All mothers had previous admissions to hospital with their children. Twelve mothers had help from family in their child's postoperative pain management at home after discharge. Many children had tonsillectomy or hypospadias repair procedures. Other procedures that children had in the study included repair of cleft palate, removal of a lesion in jaw, pharyngoplasty, insertion of grommets, claw foot correction, removal of tissue scar on the face, and appendectomy. The mean mother age was 32.9 years ($SD\pm 6.9$) and the mean child age was 6.9 ($SD\pm 3.7$).

The total number of nurses that participated in the study was twenty-one. The mean nurse age was 38.1 years ($SD\pm 7.9$). Most of the nurses had three years or more of working experience as a paediatric nurse. Most of them were non-Saudi Arabian. Table 4-1 presents the background of the mothers and nurses. The comments section explains

in more detail some matters that the mother faced during observation at hospital. A comments section is necessary to show if mothers' circumstances interfered with caring for their child following surgery.

Table 4-1 Background of mothers and nurses

Participant code	Gender	Age	Nationality	Education level	Number of children	Working Status	Child's age	Child's age	Comments
M1	Female	47	Saudi Arabian	Bachelor	4	Yes	3	Boy	
M2	Female	38	Non-Saudi Arabian (Ethiopian)	Bachelor	5	No	7	Boy	
M3	Female	35	Saudi Arabian	Diploma	3	No	4	Boy	The mother was ill during managing the child's pain after surgery at hospital.
M4	Female	32	Saudi Arabian	Bachelor	4	No	6	Boy	
M5	Female	32	Saudi Arabian	Bachelor	1	Yes	4	Boy	
M6	Female	30	Saudi Arabian	Diploma	5	No	10	Boy	
M7	Female	39	Non-Saudi Arabian (Yamani)	Diploma	2	No	10	Boy	The mother was pregnant and it was difficult to manage the child's pain after surgery.
M8	Female	48	Saudi Arabian	Bachelor	7	Yes	10	Boy	The mother could not get days off work and it was difficult to manage her child's pain at hospital all the time.

M9	Female	23	Saudi Arabian	Diploma	4	Yes	4	Boy	
M10	Female	32	Saudi Arabian	Diploma	1	Yes	12	Girl	The mother's husband died a few months ago, therefore, she was psychologically not well during managing her child's pain after surgery.
M11	Female	28	Non-Saudi Arabian (Yamani)	Diploma	3	No	3	Girl	
M12	Female	25	Saudi Arabian	Diploma	3	No	3	Boy	
M13	Female	31	Saudi Arabian	Bachelor	5	No	7	Boy	The mother was pregnant during managing the child's pain after surgery. She was feeling tired most of the time.
M14	Female	33	Non-Saudi Arabian (Palestinian)	Diploma	1	No	4	Girl	The mother was pregnant and tired. She could not stand up when her child needed her.
M15	Female	28	Saudi Arabian	Bachelor	3	No	3	Boy	The mother's husband died a year ago. She felt lonely and needed her husband to be with her in managing the child's pain after surgery.

M16	Female	35	Non-Saudi Arabian (Yamani)	Diploma	3	No	5	Girl	
M17	Female	30	Saudi Arabian	Diploma	7	No	8	Boy	
M18	Female	40	Saudi Arabian	Diploma	6	Yes	12	Girl	The mother has a phobia of closed spaces. She could not stay in the child's room all the time to manage the child's pain.
M19	Female	23	Non-Saudi Arabian (Broman)	Diploma	5	Yes	7	Girl	The mother was concerned about financial status for managing the child's pain after surgery.
M20	Female	28	Non-Saudi Arabian (Yamani)	Diploma	2	NO	7	Boy	
HN	Female	35	Saudi Arabian	Bachelor	0	Working as a PN (8 Years)	NA	NA	
N1	Female	44	Non-Saudi Arabian (Philippine)	Bachelor	2	Working as a PN (1 Year)	NA	NA	
N2	Female	30	Non-Saudi Arabian (Indian)	Bachelor	1	Working as a PN (5 Years)	NA	NA	

N3	Female	47	Non-Saudi Arabian (Indian)	Bachelor	4	Working as a PN (13 Years)	NA	NA
N4	Female	39	Non-Saudi Arabian (Indian)	Diploma	3	Working as a PN (10 Years)	NA	NA
N5	Female	38	Non-Saudi Arabian (Indian)	Diploma	2	Working as a PN (10 Years)	NA	NA
N6	Female	38	Non-Saudi Arabian (Indian)	Diploma	0	Working as a PN (12 Years)	NA	NA
N7	Female	40	Non-Saudi Arabian (Philippine)	Bachelor	2	Working as a PN (12 Years)	NA	NA
N8	Female	41	Non-Saudi Arabian (Indian)	Diploma	2	Working as a PN (14 Years)	NA	NA
N9	Female	23	Saudi Arabian	Diploma	0	Working as a PN (1 Year)	NA	NA
N10	Female	54	Non-Saudi Arabian (Philippine)	Diploma	3	Working as a PN (20 Years)	NA	NA
N11	Female	42	Non-Saudi Arabian (Indian)	Diploma	3	Working as a PN (11 Years)	NA	NA

N12	Female	41	Non-Saudi Arabian (Indian)	Diploma	4	Working as a PN (8 Years)	NA	NA
N13	Female	25	Saudi Arabian	Bachelor	0	Working as a PN (2 Years)	NA	NA
N14	Female	27	Non-Saudi Arabian (Indian)	Diploma	0	Working as a PN (3 Years)	NA	NA
N15	Female	40	Non-Saudi Arabian (Philippine)	Bachelor	2	Working as a PN (20 Years)	NA	NA
N16	Female	34	Non-Saudi Arabian (Indian)	Diploma	1	Working as a PN (10 Years)	NA	NA
N17	Female	33	Non-Saudi Arabian (Indian)	Diploma	2	Working as a PN (10 Years)	NA	NA
N18	Female	40	Non-Saudi Arabian (Indian)	Diploma	2	Working as a PN (11 Years)	NA	NA
N19	Female	46	Non-Saudi Arabian (Indian)	Diploma	2	Working as a PN (11 Years)	NA	NA
N20	Female	50	Non-Saudi Arabian (Indian)	Diploma	2	Working as a PN (20 Years)	NA	NA

HN Head nurse NA Not applicable
PN Paediatric nurse

4.4 A review of the hospital documents

The documents used at the surgical paediatric ward assisted a response to the research questions, comprising policies and procedures and orientation and discharge checklist forms. These are described in the following two sections.

4.5 Policies and procedures

It was found that two policy documents were directly related to the research area and were used in the paediatric surgical ward. They were developed locally by hospital medical staff and approved by the hospital policy and procedure committee. The first policy was titled 'Pain Management' and coded (CLI-NU-084/last revised May 2014). One of the policy purposes was to make sure that pain, agitation, and delirium evaluation and management practice for the patient was standardised and properly supported by health professionals. Another purpose was to provide evidence that pain, agitation, and delirium management is practiced. A further purpose was to ensure that patients and relatives received adequate education about pain, agitation, and delirium. The final purpose was to make certain that healthcare professionals' knowledge about pain and culture is up-to-date. This policy included postoperative pain management. It was organised by the nursing department.

The second policy was about patient discharge and coded (ADM-HA-045/last revised June 2014). The research question focused on the mothers' involvement in their child's postoperative pain management in hospital and following discharge. Therefore, this policy was related to the research area with respect to understanding the discharge plan in involving the mother in the child's pain management after surgery, at home. This policy ensured that the potential discharge plan for the patient is assessed and coordinated by the multidisciplinary team members involved in the patient's care. Also,

its goal was to effectively communicate discharge plans with the patient or family throughout the planning process. The other aims of the policy were to facilitate timely and appropriate patient discharge, and to improve bed utilisation, preventing unnecessary readmission. This policy was established through the hospital administration department. However, these policy documents were applied to all healthcare providers in the hospital, not only to the paediatric surgical ward.

4.6 Orientation and discharge checklist forms

The researcher identified two forms which were used in the ward by nurses. They clarify nurses' tasks regarding mothers' involvement in their child's pain management. The first form was titled Patient Orientation Checklist – Intermediate Care Services. It was revised in 2013, and developed and approved by the nursing department. The form contained five parts which nurses must explain to the patients and family (especially mothers). The parts were: 1) the physical environments, such as room facilities, and emergency call system; 2) an introduction to the roles of key persons (consultant, head nurse, primary nurse, and nutritionist); 3) routine timings (for instance, the monitoring vital signs, including pain); 4) services available, e.g., social worker, dilatation, patient affairs; 5) hospital policies, e.g., patient and family rights, visiting regulations/sitters, child abduction, fall prevention, and pain management.

The second form was the Nursing Discharge Checklist. It was developed and approved by the documents committee. It contained three sections: 1) discharge information; 2) belongings; 3) that the nurse ensures that the patient and family are discharged properly, checking that patient education, care giver education, medication administration instructions, medication prescription, and appointments and follow-up instructions are given, as well as removing lines and discharging with particular devices or lines, as

needed. These two forms help to determine what nurses should do to involve mothers in their child's postoperative pain management at hospital and at home after the child is discharged.

4.7 Themes and subthemes

Five main themes were raised from the research data from the interviews, observations, and documentary evidence. They describe the mothers' involvement in their child's postoperative pain management, both in hospital and following discharge, and how these can be improved (see Table 4-2). These themes include sub-themes, which are described in the following sections.

Table 4-2 Themes and sub-themes of data analysis

Themes	Sub-themes
Acquisition and provision of information about pain	The expected experience, frequency, and duration of pain after surgery. Pain intensity score and pain relief medication Child's pain management methods
Communication deficiency	Language barrier Communication between health professionals Other communication issues between mothers and health professionals
Emotional and physical influence	Family company Mothers' concerns Comfortable environment Sleep and meal requirements
Social and culture factors	Patriarchal society Cultural beliefs Work status
Hospital facilities, provision, and services	Entertainments and environment Follow-up programs after discharge Pain management courses for nurses Materials and services

4.8 Theme 1: Acquisition and provision of information about pain

Acquisition and provision of information about pain was a key theme that arose from the findings. It is shown that mothers needed more information than that provided by health professionals. Mothers were not given sufficient information about what they desired to know about their child's pain after surgery. They needed preparatory comprehensive information that allowed them to involve themselves in their child's postoperative pain management. The findings of this theme are relayed under three sub-themes: 1) the expected experience, frequency, and duration of pain after surgery, 2) pain intensity and

pain relief medication, and 3) pain management methods, explained in the sections that follow.

a) Sub-theme 1: The expected experience, frequency, and duration of pain after surgery

In the study, most of the mothers experienced a lack of preparatory information about the expected experience and duration of pain after surgery. They needed to have an active role in their child's pain care and to contribute their opinions about pain care to support their child. They pointed out that they felt ignored by doctors and nurses on the ward. Furthermore, mothers wanted also to know the duration of their child's pain after surgery to know how long they ought to manage their child's pain at hospital and at home. They needed this information to develop a detailed proposal and arrange their thoughts how they involve actively in the care.

No one explained to me how long the child would experience pain after surgery and how the pain would be. I tried to find my own way. Also, no one gave me information about pain and the duration of pain when my child's was discharged from the hospital. So I tried to find my own way at home to know how I could support my child. (Interview mother M5)

Nurses just did their work and did not explain anything to me. They might think there is no need for me to know about my child's pain. They asked me to just monitor my child. They came and asked about his pain without telling me anything, just said that he is fine. I felt that they ignored me. The doctor told me that he will not feel pain after surgery, but he did not give me details. My child still feels a little bit of pain... I tried to do what I feel I should. (Interview mother M12)

Mothers often said that doctors focused on the preparatory information only, such as the surgery procedure that the child would have and the parents' decision about this. However, mothers felt doctors often did not give them enough information in the clinic about the child's pain, and set a pain relief goal. Mothers said they were very unclear about what to expect regarding pain following their child's surgery.

The doctor did not provide me with complete information about the recovery process and the expected duration of the child's pain. I was not sure how many days my child might have pain and how long I was required to monitor him. The doctor just explained in the clinic that the operation would only require stitches, so I came to the hospital with the expectation that the child would not experience intense, frequent, or long-lasting pain. (Interview mother M13)

Mothers desired to understand what techniques or procedures their child could experience after surgery that may cause pain physically and emotionally, such as IV cannula and catheter. To take an example from the observations data, mother M13 looked surprised when she checked the child's surgery site after surgery and saw the catheter, showing visual signs of being upset and giving overt emotional responses (sighing, rolling her eyes, and shifting in her seat). The child had a hypospadias procedure, which required a catheter to be inserted. It was observed that the child cried loudly to his mother, saying that he is feeling pain in the surgery site, and pointed to the surgery site. The mother then called the nurse and informed her that he had pain. The nurse came and evaluated the patient, but without using any pain-scale tools. The nurse also did not explain to the mother about her child's pain after surgery, she just gave the child medication for the pain. The child continued to complain that he did not feel comfortable with the catheter after this. The mother was exasperated throughout this period, and looked like she did not expect the reaction of the child, and presumably she did not realise that he would go through this experience.

Nurses also supported the view that mothers needed to have preparatory information about the child's pain and what devices might be attached. Many nurses highlighted in the interviews that mothers needed information from doctors about the intensity, frequency, and duration of pain, what procedure(s) will be undertaken, what device or line will be attached, and what mothers should do for their child's pain. Nurses felt this

information should be given prior to surgery, but they reported that many doctors did not provide it at this time. One of the nurses expressed this point:

The mothers need information from the doctors prior to surgery. The doctors should discuss the discharge care plan with the child's parents and explain everything related to the surgery, including the procedure, pain relief goal, what device or line will be attached, and the pain relief methods. We [nurses] only follow the doctor's instructions. (Interview nurse N9)

The finding that mothers needed information from health professionals regarding their child's pain after surgery is supported by the hospital policy on pain management (CLI-NU-084), which requires that every child should have a goal for pain relief on admission day:

All patients shall have a goal for pain relief (comfort goal) established upon admission by the physician in charge of the patient.

In another passage in the pain management policy (CLI-NU-084), it is suggested that mothers need information from doctors and nurses about the child's pain relief goal, treatment options, evaluation, and the effectiveness and risks of treatment:

Patient education should include providing information to the patients and the patient's family/significant others about:

- Pain control is a primary goal of patient care.
- Treatment options, goals, the likely benefits, and probability of success.
- Evaluation of pain, tool used, the effectiveness, risks, and side effects of the treatments.

Observation and interview data showed that mothers were shocked owing to the difference between expectations (during the preoperative decision-making process) and reality (after surgery). If the outcomes contradicted projections, they expected doctors and nurses to update them during and after surgery, especially if they do not have preparatory information and do not expect that their child would feel pain continuously.

A specific example from the observation data highlighted these findings. A few hours after surgery, the child told his mother, M3, that he felt pain. She tried to calm him down by sitting close to him and massaging him. She also promised him that she will give him a new toy. The mother was feeling unwell and looked pale. It was apparent that she was pushing herself to stand and monitor the child because she appeared to be tired (bent over and pale). The child did not stop saying to his mother that he feels pain, frequently, over a period of about two hours.

From the observation data, during the next day of observation, the mother (M3) reported to the nurse that the child was crying frequently throughout the night. She asked the nurse when the doctor would examine the child, to which the nurse replied that she did not know exactly. Later, the doctor came and the mother informed the doctor that the child was irritated and in pain because of the surgery site, and she asked the doctor about the expected duration of pain. He told her that the doctor team could not determine how long the child would be in this condition. However, it appeared that this information did not address her concerns because she looked confused and later told the researcher that she did not understand him. The doctor was not the main doctor in charge of the surgery, but a resident doctor, so it is possible he did not know the exact details of the case. The mother had explained to the doctor that she needed to discuss with the surgeon about her child's pain because she was concerned the child might take the catheter out if he felt more pain. During the observation, the mother was observed checking the surgery site and catheter frequently. She explained to her child simply that he should be careful that the catheter did not fall out.

The findings show that mothers generally felt ignored by health professionals. Also, they were not sufficiently updated about their child undergoing medical procedures during the

hospitalisation period after surgery, such as that certain procedures and actions could cause pain.

The surgeon and his team member did not give me enough information, such as what exactly they wanted to do for my child and a treatment plan. I felt I was ignored by them. That made me frustrated and confused. (Interview mother M3)

To take an example from the observation data, a couple of days after surgery, a different doctor and nurse checked the surgery site for the child of mother M3. It was observed that they did not explain to the mother what they would do for the child and if the child would feel pain. (The doctor wanted to take out the urinary catheter and check the surgery site.) The child started screaming saying that he felt pain, and the mother held his feet. The nurse prepared the equipment to take the urinary catheter out. Then the doctor suddenly stopped and did not explain to the mother the reason why he would not take the urinary catheter out. He walked out quickly without explaining anything to the mother. The mother looked at the nurse and said that she thought that the doctor had ran away because he had done something wrong to the child. She also complained that he did not explain how they intended to treat the child. The mother comforted her child and cuddled him. The mother seemed like she was worried and scared about what had happened.

From the interview data, mother M3 said that she had previously assumed that the surgery would be simpler than that it actually was, and that she thought that the child would not feel frequent pain. She said that every time a different doctor discussed with her about the recovery process and duration of expected pain, and that there was a lack of information about her child's pain which made her confused:

The doctor initially said the surgery was simple ... I did not have information about my child's pain, pain relief goal, and the pain relief methods after surgery. Everything was unexpected for me. I tried to find my way to manage my child's

pain; however, the doctors did not update me with information about my child's pain and how long my child would be in pain. Every time a different doctor checked my child. It's really confusing and stressful. (Interview mother M3)

Another example, mother M9, supported the point that mothers had a lack of preparatory information. This could cause confusion and negative feelings for mothers, such as the feeling of being ignored in her role. From the observation data, mother M9 looked anxious in the recovery unit. When she saw the tonsils in the bottle she started walking around her child's bed. She asked the nurse if the doctor had carried out an adenoidectomy and a tonsillectomy, as the doctor had agreed, or only a tonsillectomy. The nurse was busy and did not answer her. When the child had difficulty breathing and felt pain in his throat, she commented that if her child had had the correct surgery, as agreed by the doctor, he would not be in as much pain. The researcher observed that the recovery nurse and the paediatric nurse did not explain to the mother about the child's pain after surgery. During observation, when the child was transferred to the room on the ward, the mother held the bottle and asked the paediatric nurse again why the child was screaming and if the doctor had carried out the correct surgery. Again, the nurse did not answer her and told her only that her child was fine. The nurse did not explain to the mother about the child's pain and why he cried loudly and kicked her. The mother looked like she was very tired (she had bags under the eyes, was stooping, and had slurred speech). In the interview, this mother clarified that she needed more information about what her child would feel after surgery. The lack of information led to misunderstanding and confusion for her:

The doctor did not give us [parents] time to discuss our concerns about what my child would feel and how long the child would be in pain after surgery. The clinic was very busy with medical students. ... After the surgery the nurses also did not explain to me about pain and I did not feel confident enough to ask them. I was confused and thought my child did not have the right procedure. (Interview mother M9)

Another example from the observation data concerned a child that had had a tonsillectomy procedure. He woke up crying and pointing to his throat. Mother M20 called the nurse and informed her that her child was in pain. She told the nurse that her child had had surgery but he should not have pain because the issue should have been resolved with the surgery. The nurse measured the vital signs of the child (who was five years old), which included pain assessment (Face Pain Scale) and recorded the information in the child's medical notes. She did not explain to the mother that it is normal to feel pain after surgery, and set a pain relief goal with the mother. The mother gave her child the mobile phone to distract him. The nurse gave the child medication for pain and did not explain to the mother about the medication, such as what type, the dose, and any possible side effects. After the nurse left the room, the mother said she required the doctor to discuss in more detail about her child's pain, since the nurse had not explained this fully.

b) Sub-theme 2: Pain intensity score and pain relief medication

Most of the mothers had a lack of provided information about their child's pain intensity score and pain relief medication. They wanted to know how much their child would feel pain and wanted to be involved in setting up their child's comfort goal. It was observed that when mother M12 came to the child in the recovery unit the nurse was measuring the vital signs (including pain score), but she did not provide the mother with information about the child's pain score. The mother asked the assigned nurse how much the child felt pain and said that she wanted to have an active role, but the nurse ignored her. The mother's facial expression showed agitation. The mother looked at the nurse when the monitor alarm sounded in the recovery unit and the nurses attached the oxygen mask to the child. The mother asked the nurse if her child feels pain and how severe it

was. The nurse continued working without answering the mother. The mother started crying and asked the nurse to give the child pain relief medication. She asked the nurse about why the child needed to be attached to the monitor with wires and why he needed an oxygen mask; she was particularly worried about whether he was experiencing severe pain. The nurse just replied that the child was okay and continued writing in the observation notes in the child's medical file. When the head nurse realised the mother was asking the nurses about the child and that the assigned nurse was busy, she came and told the mother that the child was not in pain but the oxygen level is low in the blood so it was necessary for the nurse to put on the oxygen mask. The lack of provided information about pain score was also highlighted in the interview of mother M20. She said that she needed information about the child's pain intensity. She was very concerned when she saw her child was attached to the monitor with wires, as well as the nurse's face expression, which gave clues that the child was in pain:

I needed to know if my child is in pain or not and how much he feels pain. In the beginning, I was worried in the recovery unit. I thought my child was feeling pain when the nurse attached the oxygen mask. I did not know it was because his oxygen level became low. He could not breathe normally. No one explained to me and I could see in the nurse's face that my child was in pain. She looked serious. (Interview mother M20)

Mothers felt they needed to be kept informed about the treatment of their child's pain and be involved in decisions about pain relief medication. To take an example from the observation data, one nurse came into a room on the ward and wanted to give the child pain relief medication. She did not explain to the mother, M10, about the medication and asked her if the child feels pain. After she administered the medication she left the room. The mother looked confused when the nurse left the empty bottles of saline in the intravenous hanger. The mother asked the researcher why the nurse had left the empty bottles in the hanger. Later, the nurse came and asked the child if she was feeling pain.

The child said quietly that she does not have any pain. However, the mother asked the child why she did not tell the nurse that she actually was feeling pain, since the child had previously complained to her that she was feeling unwell. Following this, the mother told the nurse that her child was indeed feeling pain. The mother also pointed out to the nurse that she was worried that the nurse did not tell her what the medication was for. The mother argued with the nurse that she did not take her report seriously when she told the nurse that her daughter feels pain. The nurse left the room without answering the mother after the mother asked again whether the child feels pain or not.

Another example taken from the observation data supported the argument that mothers needed more information about pain relief medication, such as how long it would last, to be actively involved in pain medication management. In the morning, when the nurse came to the child's room and checked the child's vital signs, mother M4 told the nurse the child did not sleep well and she had not slept well because the child was feeling pain. The nurse asked the mother why she did not inform her about this. The mother explained that the child was given pain relief medication a few hours (about four hours) before he felt pain so she thought it was enough for the night, until morning. The nurse said that the pain relief medication should be given when needed, and it was fine to give more if the mother asked for it. The mother told the nurse that no one had provided her with the information that the child might feel pain after the influence of the medication had worn off.

During observation of mother M9 it was noted that the nurse transferred the child from the recovery unit to a room on the surgical ward where she measured the child's vital signs and pain rate. However, the nurse did not explain to the mother about the child's pain intensity. Also, the child received medication for the pain but the nurses did not

provide her with information about how long the medication would last. The researcher left the room to give the mother and child opportunity to have rest after the surgery.

Later, about three hours after surgery, the researcher came to the room to continue the observation. The child was crying and the mother was sleeping on the sofa. She woke up and went quickly to him. She stayed on the middle of the child's bed. She tried to calm him down but he continued crying and screaming. She raised her hand as a threat to slap him across his face. Then she pulled his hand strongly because the child wanted to run away from the room. The researcher helped her to hold him, and told her to ring the bell to call the nurse. The child was attached to an IV line. They tried not to let him pull the cannula out from his hand. He continued crying and kicking his mother. The researcher explained to her that the child might feel pain after the influence of the medication had worn off (the anaesthesiologist had given the child an analgesic in the theatre room). The mother responded that she had thought that the child was being stubborn and that he did not want to do what she asked. The nurse came and administered the child's pain relief medication. The mother cuddled the child until he fell asleep. After this situation, the researcher reported what had happened to the head nurse in order to have a record of any possible physical or emotional abuse that may have occurred to the child.

A few of the mothers highlighted in the interviews that they desired to have more information from nurses about their child's pain intensity and pain relief medication.

Nurses just check my child's pain and they did not tell me how much my child was in pain. They did not explain to me which tool they used to measure pain. I felt this is strange! However, they explained that if my child feels pain I should tell them. They also give my child medication to take. Some of them just said this medication is for pain, or this is an antibiotic. But others don't say anything. I think they should explain everything about my child's pain at the start. I would be less stressed if I was provided with this information at the outset. (Interview mother M16)

Nurse interviews also supported the point that mothers required adequate information about their child's pain intensity and the pain relief medication from doctors. Nurses highlighted in interviews that they were busy and did not have enough time to provide such information to mothers, they just followed the doctor's prescription. They pointed out that this is not their responsibility.

We [nurses] have many patients. At a minimum, we have five patients. We are too busy to take patients to the X-ray department and theatre. We don't have time to provide the mother with information about medication, and some mothers are not interested to ask us about their child's medication and pain relief ... Providing information about the medication is not our responsibility, it is the doctor's responsibility. Mothers should get this information from doctors. (Interview nurse N14)

We [nurses] explain to the mothers that pain is a normal feeling, and the doctor should explain to the mother about the pain relief medication and how she should manage her child's pain. We gave only medication for pain following the doctor's prescription. We don't explain the side effects of the medication and the doses. The mother should learn this from the doctors. (Interview nurse N8)

While other nurses believed that mothers needed information about their child's pain intensity and pain relief medication, some mothers did not show any interest to be involved in the child's pain medication decision process, therefore the nurses could not provide any information. In interview, nurse N20 said some mothers did not ask about their child's pain intensity and pain relief medication, so they were not explained to them. She said that mothers were often busy on their mobile phone, such as texting messages using "WhatsApp".

It is normal that the mothers needed information about the pain and medication. Here, the mothers want to relax. They want their child to sleep most of the time. They don't want to make any effort to manage their child's pain. For example, in India, the mother does everything for her child. The mothers in India think about their child more, even the medication they give their child. They take care of their child. Here, mothers don't ask us [nurses] about their child's pain level and medication. They want us to provide the information without asking. They don't

even want to help the nurse to give the medication. I don't know if they are afraid to touch their child or are lazy. However, I think they are lazy even to ask us, and they think the nurse must do everything at hospital and explain everything. (Interview nurse N20)

This passage from the policy of pain management (CLI-NU-084) supported the view that mothers required preparatory information from doctors and nurses about pain scales and treatment. Doctors and nurses should collaborate with mothers to determine their child's pain's rate so that the child might be able to have an acceptable quality of life.

The physician and/or the nurse shall collaborate with the patient or guardian [the mothers] to determine the rating on the pain scale/sedation scale at which the patient would be able to function or have an acceptable quality of life. (Pain management policy, code: CLI-NU-084)

Mothers had some information about their child's take-home medication for pain after discharge from hospital. From the observation data, mothers were given the medication information from the pharmacist before the child was discharged (e.g., how it should be given). However, they often did not have enough information, such as how they could assess their child's pain if medication was needed. Ideally, nurses would go with the pharmacist to the child's room to check if the mother has been given the medication and information. For example, when the pharmacist gave the take-home medication to mother M7, he told her this medication is paracetamol and that she should give it to her child every six hours for three days, then she should give it to him when he needs it. He also gave her antibiotics and explained to her how she should administer it. The nurse asked the mother to repeat the information after the pharmacist left the room. The nurse asked the mother if she understands and if she needs anything else. The mother interview data also supported the point that mothers need sufficient information about the take-home medication for pain. They mentioned that the pharmacist gave them the medication and explained to them what they needed to know.

After the doctor told me that my child is ready for discharge, the pharmacist came and only explained to us how we can use them [the medication], such as how many every day, for how long, and the dosage. (Interview mother M8)

Nurses also reported that mothers were given information before discharge. The pharmacists should give mothers the take-home medication and explain to them how they should use it. This is the pharmacist's responsibility. Nurses said that they should just check if the mother was given the medication with sufficient information. They also checked if the mother understands the provided information and she is satisfied.

In the past we [nurses] gave the mother the take-home-medication and explained how she should use it. Now, with new system, the pharmacist gives them the medication and explains how the patient should use it at home. We only check if the mother has the medication and understands the provided information or needs further explanation. (Interview nurse 20)

Also, the patient discharge policy and procedure (ADM-HA-045) indicated that nurses should check and document that doctors have provided the patient or family with appropriate written or verbal instructions on prescribed treatments, take-home medications, activity level, and scheduled follow-up appointments upon discharge. Therefore, the patient or family are given the take-home medication and explained how to use it before discharge.

c) Sub-theme 3: Child's pain management methods

The study data showed that mothers needed preparatory information from health professionals about how they can manage their child's pain at hospital, and their child's activity level. They also desired to increase their role in the child's pain care. During observation, when mother M13 walked with her child out of the room into the corridor, after a few steps the child screamed and his face grimaced. The child told his mother that

he felt pain and then they returned to the room. The researcher went with them and asked the mother what had happened. She responded:

He's in pain. The doctor told me that I should walk him a short distance but he did not tell me that if I hold the catheter in this way [the urine bag up] it would cause pain. I felt sorry for him [the child] because he was feeling bored. I thought that it would be good for him to take a walk. When I tried to walk with him he felt pain, so I returned him back to the room. The doctor and nurses should have explained to me earlier how I can better manage my child's pain after surgery. Not waiting for me to make a mistake and then they explain. (Observation mother M13)

After returning to the room, the child of Mother M13 stayed on the bed and his face expressed that he was in pain. The mother rang the bell to call the nurse. The nurse came to the room immediately. The mother informed her the child was in pain after he had walked a little bit. The nurse told her the following:

Mother, because the urine backflow into the child causes pain! You need to hold the urine bag down like this, otherwise it causes discomfort. Let him lay on the bed and get some rest. He will feel much better. If there is still pain I will give him medication. (Interview mother M13)

Following this, the nurse did not give the mother any further information about pain relief methods, and she left the room. The mother turned the light off and asked her child to calm down. The findings showed that mothers needed more information about their child's postoperative pain management methods from health professionals:

The nurse and doctor had not explained to me at appropriate time how I can manage my child's pain after surgery. For example, the urine bag should be held when I walked my child. I did not know that the child should walk with a special technique, such as holding the catheter in such a specific way. I was not given clarification about how to deal with my child after surgery, and that my child would experience pain if he did not walk carefully. The child was with a catheter and so the mother should consider the backflow of the urine. Every time I need to ask the nurse specifically how I can comfort my child. (Interview mother M13)

In interview, mother M10 explained that the doctor did not provide an opportunity for parents to discuss their concerns in the clinic before surgery. One of the concerns was about the pain management methods after surgery. The reason for this is that the clinic was busy and full of medical students, so the doctor did not explain to them about what they should do for the child's pain. Also, no one explained to her what she should do after the surgery had taken place. She mentioned that she needed this information; she tried to find her own approach, such as giving her child books to distract the child. It was also observed that this mother (M10) give her child a book to read to distract her when she was feeling fatigue and pain.

I don't not know how to relieve my child's pain after surgery and I tried my best to use my own knowledge. My child was given medication for pain but she was still irritated because of the surgery and not feeling comfortable. At that time, I felt I needed such information about how can manage my child feeling of pain physically and psychologically. (Interview mother M10)

The observation data supported the point that mothers need preparatory information to help their child using non-pharmacological methods for relieving pain. The child of mother M15 grimaced and told her mother that she did not feel comfortable and was bored. The mother phoned the doctor and asked him if her child can play because she felt uncomfortable and unhappy emotionally. The mother explained to the researcher that the doctor had told her that the child can play, but that she should be careful. The mother told the doctor that she wished he had told her earlier because she was having difficulty caring for her child, such as how she could distract her and stop her feeling irritated. The mother asked the grandfather on the phone for toys that the child could play with at hospital. Later, it was observed that the child was playing with toys on the bed. She looked happy and smiled, and asked the researcher to play with her.

Most of the mothers highlighted the point that nurses did not provide any information about pain management methods on admission day or during the hospitalisation period. They also said that nurses gave them information on the admission day which only concerned the environmental surroundings, enabling them to be familiar with their child's room and facilities on the ward. Also, some safety advice was given to the mothers, such as not leaving the child alone in order to avoid the child falling down. They also pointed out that nurses did not give them enough information about postoperative pain management methods.

The doctor did not tell me about how I can manage my child's pain. On admission day, the nurse showed me around the room to familiarise us with the surroundings. I found it was nice to let the mother understand how she can call the nurse if she needs something for the child or the child feels pain and how she could use the facilities in the room. However, she did not give me any information about the pain management methods. The doctor also did not provide me with information about pain management methods either at the clinic or at hospital. I tried to find my own way. (Interview mother M5)

In another example, mother M6 said that she was well-prepared in terms of an understanding of the environment and surroundings, but not about how she could relieve the child's pain. She explained also she felt lost about what she should do for her child's pain, and she wished someone had explained it to her:

The nurse showed me the room and explained to me only about the room and what I need to do to my child, such as not to leave him alone, not to go to the restaurant and leave the child, and ring the bell if I need anything. However, she didn't tell me about the pain management methods after surgery. I felt I need information about methods to manage my child especially the emotional pain. I tried to search on the internet how could support my child. (Interview mother M6)

Most of the nurses mentioned in the interviews that they provided the mothers with information about the room facilities on admission day and basic instructions about child safety. Many nurses pointed out that mothers should receive information about the pain

management methods from doctors. They often argued that providing this information is the doctors' responsibility. Also, they explained to the mothers what they should do for their child's pain during the hospitalisation period, only when the mother was confused about managing her child's pain. Nurse N12 said that if she felt that the mother did not understand how to deal with her child's pain, or something significant happened to the child to put him or her in danger, she provided further information for the mother:

Giving information about child pain management methods is the doctor's responsibility. We explain to the mothers on the admission day about basic things, such as not to leave the child alone, and that she should inform us if she needs anything for the child. I explain to the mother if I realise the mother is confused about how to manage her child's pain. For example, if the child was feeling irritated and crying. I told the mother to use distraction methods for relieving her child's pain. Sometimes I demonstrate how to do this for mothers. (Interview nurse N12)

In interview, nurse N4 said that she believes that mothers need more information about pain management methods for children after surgery. She also explained that some nurses give information to the mother when they realise the mother needs it; not all mothers are given this information. She said nurses do not have enough time to explain all requisite information for every mother, although sometimes information is given. She gave the following example: if the mother realises that the child has gastric pain after surgery because of a gastric problem, the nurse explains to the mother that she should encourage the child to walk and she should put the child in a comfortable position to relieve pain.

Here on the ward, we don't have time to explain everything. We do provide information when we realise the mother really needs it. For example, if I see the child has a gastric pain I explain that the child needs to walk and that she should put the child in a comfortable position. (Interview nurse N4)

The documentary evidence (patient orientation checklist form) likewise supported this point that mothers needed information about pain management methods. This form required nurses to explain to mothers about pain management methods on the admission day (as presented in Section 4.3.2).

The observation data showed that only a few nurses explained to mothers that the child should be fasting before surgery and until the nurses inform the mother and child after surgery that he or she can eat. This is because if the child eats immediately after surgery and is still under the influence of the anaesthetic this might put the child in pain or danger. They also advised mothers that they should comfort the child after surgery since this helps to relieve pain. However, nurses did not give mothers information about activities that the child was able to engage in (such as to go to the toilet or for a walk), and the level of comfort they should provide for the child. During observation, when one nurse received the child from the recovery unit, she told mother M9 that she should not give the child food or water until instructed otherwise. However, there was no formal written instructions in the hospital documentation about what information the nurse should provide for the mother (including pain management methods after surgery), such as when the nurse transferred the child from the recovery unit to the paediatric surgical ward.

4.9 Theme 2: Communication deficiency

Communication deficiency is the second theme generated from the observation and interview data. It was observed that communication between mothers and health professionals in the paediatric surgical ward was often poor. This theme comprised of three sub-themes: 1) A language barrier, 2) Communication between health

professionals, and 3) Other communication issues between mothers and health professionals. These are presented in the following subsections.

a) Sub-theme 1: Language barrier

It was found that mothers experienced difficulties in understanding the nurses during their child's hospitalisation period. Mothers pointed out that the use of the English language by the nurses was one of the main reasons for not understanding them. For example, one of the interviewees, mother M19, explained that she could not understand the nurse when she wanted to ask about the child's pain after surgery. Therefore, she asked another mother in the next room to translate for her, to explain to the nurse what she would like to say regarding her child's pain care. Also, during observation, a mother in the other room came to ask mother M19 if she needed her to translate anything further, because she might not be available for a few hours. Mother M19 thanked her and told her that she was fine at the moment, and didn't need any translation.

Mother M8 said that she did not speak English and so could not understand the nurses when they wanted to inform her about her child's postoperative pain care, which was in English:

I don't speak English but I could understand them when the nurse used a few Arabic words and used body movements, such as actions with her hands.
(Interview mother M8)

A further example of the language barrier was observed. When a child woke up and screamed in the recovery unit, mother M11 asked the nurse in Arabic if she could put the child on her lap to make her feel more relaxed. The nurse consented, in English, but used one or two Arabic words in the sentence. However, the mother was confused and silent; indeed, her facial expression showed confusion, and she did not put the child on her lap.

She then asked the researcher if she knew what the nurse meant, because she did not speak English. The researcher translated the nurse's communication to the mother, confirming that the child could be put on her lap. Further evidence from the observation data demonstrated that the language barrier sometimes obstructed mothers' understanding of health professionals. Mother M17 asked the nurse in the recovery unit, in Arabic, when her child would wake up, and if it would feel pain. At this, the nurse's face seemed to express anger — she was not smiling – and asked for the mother to repeat herself in English. The mother repeated her question slowly, using her hands to explain what she meant. The nurse answered in Arabic that he would wake up in a few minutes.

In the study, some mothers did not feel confident to receive information from non-Saudi nurses, even when the nurses used some Arabic words within an English sentence. Mothers asked the nurses to bring a Saudi nurse in order to conduct the communication in Arabic. They expressed that they feel this is easier and enables greater trust. Mother M1 reported an instance of this type of situation:

A Saudi nurse came with them [the nurses]. It made communication easier because I could talk to her in Arabic, and she interpreted for the other nurses. I asked them to bring any nurse who can speak Arabic. (Interview mother M1)

One mother, M4, said that most of the time she was able to understand the nurses when they used a few Arabic words and explained themselves through the use of hand gestures. However, the mother said she could not understand them when they were speaking only English. For this reason, sometimes mother M4 also asked the mother in the next bed to translate for her.

I don't speak English. However, I tried to understand them [nurses] when they used a few Arabic words. However, there was another mother in the room, she helped me to communicate with nurses when I needed it. (Interview mother M4)

In the ward, the nurses also agreed with mothers' reports about the difficulties in communication. In the interviews, the nurses said that language is the main barrier against successful and appropriate collaboration.

Language is considered as a barrier for us [nurses]. Some patients and mothers do not understand the nurses, even if the nurses try to talk in Arabic. You know we are from different countries, and also Arabic contains different accents. (Interview nurse N13)

There is a communication barrier. I ask my senior staff to explain to mothers when I realise that they cannot understand me. Also, the doctors explain to the mothers when necessary. (Interview nurse N14)

The observation data also highlighted some issues in communication. One nurse wanted to provide information for mother M10 about why she wanted to give pain relief medication to her child. The assigned nurse asked a Saudi nurse (an intern) to explain to the mother in Arabic what she would like to say to the mother. The assigned nurse had also previously explained this to the mother in English.

From the study data, many of the mothers preferred to speak with nurses that were able to speak Arabic. They often did not feel confident to communicate with non-Saudi nurses about their child's pain care. Also, from the field notes of observation, many mothers did not ask the assigned nurse about their child's pain, and they often asked the researcher about pain. In the recovery unit, when the child came from the theatre, some mothers were worried and wanted to make sure that their child was stable and not in pain. Then these mothers discussed this with the researcher. The mothers expressed that they felt relaxed and confident when they spoke with nurses that speak the Arabic language. Mother M2 said to the researcher:

Most of the time, I could understand them [the nurses], but not all the time. I understood them when they spoke a few Arabic words. I understood them but I cannot ask them about specific things because we speak different languages. I

cannot speak English. I asked my relative to explain things to me. She understands a little bit of English. Again, I prefer to communicate with a nurse who speaks Arabic. (Observation mother M2)

The observation and interview data showed that when the nurses spoke English with mothers they spoke with various accents and dialects. For example, Indian nurses spoke English with an Indian accent, and Filipino nurses spoke English with a Philippines accent. During observation, some mothers said that they could not understand the nurses even though they could speak some English, but because the nurses had various accents which they were not used to, they could not fully understand them. Mother M16 reported the following to the researcher:

I cannot understand these nurses. Their accents are not clear for me. They eat most of the letters. I really find it hard to communicate with them, especially when they talk fast. (Observation mother M16)

Another mother expressed that when the nurse came to the room and gave medication to the child the nurse told her what she would do to the child. This mother said the following:

I speak simple English but they [nurses] speak with a different accent. It would be easier for me if they spoke a few Arabic words, rather than speaking entirely in English. (Interview mother M13)

The study data illustrated that many mothers did not understand the nurses because of the language barrier. However, these mothers often used their previous experience of hospital routine and processes to anticipate what the nurses might require from them. An example supports this finding. Two mothers reported the following:

The nurse was speaking English. She tried to use a few Arabic words. I did not understand her all the time, but I have experience with hospitals so I managed to get an idea about what she was saying. I have had many admissions with my son so I know what I needed to do for my child when we were at hospital. (Interview mother M18)

I don't understand them [nurses]. However, I feel I have experience with being treated in hospitals. Therefore, I expected, to a large extent, what the nurses were going to say. (Interview mother M4)

Most of the nurses also pointed out in interview that mothers often did not understand them owing to language difficulties. Many nurses asked Saudi nurses (there were only three Saudi nurses on the ward), including senior nurses, to communicate with mothers. It was observed that nurses did not use any technological devices to aid communication with mothers. During observation, the researcher found the nurses often did not explain to the mothers in enough detail about what they will do to manage the child's pain. For example, when the nurse wanted to give medication to the child she did not explain to the mother what it was for, give information about the dose, or describe any possible side effects. In the interview extract below, the researcher discusses this with the nurses. The following extract data typifies the nurses' responses:

There is a communication obstacle in explaining to the mothers ... I asked my senior staff to explain to them because they can speak some Arabic words. However, doctors should explain in Arabic. I only provide the care for the child. (Interview nurse N14)

I cannot speak Arabic; I only know a few Arabic words. Sometimes they do not understand me, so I ask the health educator to come and talk to them. (Interview nurse N16)

Mothers should ask the doctor directly because of the language barrier. It is better the doctor provides the mother with information to avoid any mistakes that might put the child in danger. (Interview nurse N17)

The observation field notes also indicated that the nurses often did not provide the mothers with the necessary information. The researcher asked the nurses why this was the case in interview. Most of the nurses said that they are not responsible for providing information to mothers about the child's condition and postoperative care, saying that

they think that this is the doctors' responsibility. Also, they reported that they were concerned about the language barrier. Explanations given to the mother about what they should do for the child's pain were simplified. Some of the nurses avoided describing complex tasks to the mother because they wanted to avoid potential misunderstanding, although this may have actually put the child in danger:

Explaining to the mother has become the doctor's responsibility. This is the hospital system. The doctors do this to try to avoid any mistakes owing to the language barrier. (Interview nurse N20)

Despite the culture of doctors having the main responsibility for providing information, the researcher did not find any hospital policies and procedures, or any documentation in general, that stipulated how mothers and health professionals (nurses and doctors) should communicate when they speak different languages.

b) Sub-theme 2: Communication between health professionals

The interview and observations data showed that communication between health professionals was insufficient to manage the child's postoperative pain, causing difficulties for mothers and nurses. Mother M5 highlighted in interview that the nutritionist brought food to the room before surgery, but before and after surgery the child was required to fast. The nutritionist was not informed by the nurses which patients were fasting and which were not. When the food was brought in, the child started to cry because he was hungry. This led to the mother arguing with her child before surgery, which meant the child screamed and cried until surgery time. This mother faced the same issue after surgery.

I had a problem because the nutritionist was not informed that my child had surgery and should not eat. She brought the breakfast meal before the surgery which made my child cry until the surgery time. She also repeated this after the surgery. (Interview mother M5)

During observation, mother M1 was surprised when her child was discharged without antibiotics. The child had a tonsillectomy procedure, which required antibiotics. The mother asked the nurse why she was only given paracetamol, since the main doctor (the surgeon) had explained that when the child was ready for discharge he would be prescribed antibiotics. The nurse answered that the resident doctor only entered paracetamol into the hospital system. In this hospital, the resident doctor should have finalised the discharge process by prescribing take-home medication. Thus, the pharmacist did not dispense the required medication for the child. In interview, mother M1 expressed how she suffered at home for two days owing to this misunderstanding. The wound did not heal, therefore the child was crying and screaming during this period. At this time, the father went to the pharmacy in the hospital and explained the situation. They told him that only paracetamol was entered onto the hospital system and this has already been dispensed. The mother took the child to another hospital where antibiotics were prescribed for the child. The mother said that the child felt better when he was given these. The communication between the main surgeon and team members, such as the residents and specialists, was insufficient.

The observation data echoed this finding. The resident doctor came to the room and checked the child's surgery site. He asked the nurse to prepare the equipment to take the urinary catheter out. Mother M3 asked him whether he would take out the catheter and remove the stitches. She also pointed out that another doctor had said that it is too early to remove them. The resident doctor tried to take them out for two minutes but eventually let them in. He went out of the room quickly without explaining anything. The mother looked at the researcher and nurse and said that she thought he might have made a mistake and left without correcting the problem.

In interview, mother M3 stated that many different doctors checked her child's condition and pain after surgery, during the hospitalisation period. They checked if the child was experiencing pain and judged the success of the surgery. However, they had different opinions regarding the child's postoperative treatment. The mother mentioned this caused extra discomfort for the child because he felt pain when the doctors touched the surgery site. This also resulted in confusion for the mother. The specialist doctor (one of the surgical team) explained to the mother that the child was ready for discharge. She waited for the doctor to come and explain what she should do for her child at home. The nurses paged the surgical team many times but no one came for quite a long time (approximately eight hours). Later, one of the doctors called a nurse and requested that the mother speaks with him. He wanted to talk to her to see if she needed anything. The mother expressed in the interview that she felt surprised and annoyed because no one came to explain about her child's condition and the management of pain. She said that there might be a misunderstanding because they thought that the other doctor had already provided her with the required information, although he had not done so.

The interview and observation data illustrated that the communication between the nurses and doctors was, broadly speaking, poor. Some doctors did not update the nurses about the child's pain care, and some of them did not enter changes to the child's treatment in the hospital system. One of the nurses, N13, expressed that some doctors prescribed pain relief medication or changed the treatment plan, such as putting the patient on NPO (nothing by mouth), without informing the assigned nurse. Nurse N13 confirmed this in interview:

Some of the nurses cannot interact with doctors. Non-Saudi nurses are especially afraid to ask and discuss with doctors about the patient's condition and pain after surgery. For me, I discuss these things; I'm the one facing the patient most of the time. For things I'm not sure about I will ask the doctor team in order to get a

better understanding. I must know everything about the patient. For example, if the doctor tells the patient or his family to start a liquid diet, and I know this patient is on NPO after surgery, if I see the patient start a liquid diet I would be shocked. We have to communicate about what we do for the patient. If the doctors tell the patients anything, they must come and tell me also. The doctors have to write everything in the Phoenix [the hospital system], and if they tell the patient they also have to tell me. This way, even if I'm not available to attend with the doctor, I would still know through the Phoenix. For example, if other nurses handle this patient they will know that this patient had started a liquid diet. This is better than putting the patient through extra suffering. (Interview nurse N13)

The documentation was insufficiently descriptive about the continuity of child's treatment after surgery, including pain and its interventions. Many nurses explained in interview the importance of documentation to enable better communication; however, many did not follow the hospital policy of keeping this up-to-date in practice. They merely documented in the child's file if something was considered serious, which was observed by the researcher. In the interview, a nurse acknowledged this:

In the department, we [nurses] have to write in the patients file whatever we provide for the patient, but we often do not do this in practice. Rather, we write something if there is a serious situation for the child. (Interview nurse N14)

In interview, nurse N5 pointed out that documentation is essential for communication between health professionals, so it should be completed more carefully than currently practiced. This includes updating the nurses which come for the next shift about the patient's condition. They must read the documentation to check how frequently the patient has complained or has been in pain:

Documentation should be better than what we have on the ward. The nurse in the next shift needs to be updated about the patient's pain care after surgery, such as pain assessment, medication, and what the patient has complained about. (Interview nurse N5)

The hospital policy on pain management (CLI-NU-084) indicated that documentation of pain assessment and management should be completed to facilitate regular check-ups of the patient.

c) Sub-theme 3: Other communication issues between mothers and health professionals

The data showed that some mothers often felt that they were uncomfortable communicating with male doctors. During observation, when a surgeon came with medical students to examine the child of mother M19 after surgery, the mother quickly covered her face and explained to the surgeon that her child feels pain and could not sleep and play as usual. The mother kept her voice very low and kept her head down. After the surgeon went out of the room she explained her experience to the nurse and researcher:

Every time the doctors came and checked my child's condition I felt shy. Therefore, I could not discuss my actual concerns. Then, when they left the room, I continued to dwell on those concerns. (Observation mother M19)

This mother highlighted that she felt shy because there were a lot of medical students with the surgeon, and they were also males. This made her confused and not focused on her immediate concerns. Some of the mothers felt more secure if there was a male from their family with them when they discussed their child's condition, even with male doctors present. Mother M19 expressed in interview that since she was alone with her child at hospital this made the communication with doctors difficult. She said she felt more comfortable to talk in previous admission experiences, when her husband was with her:

I was not feeling great because I was alone in the hospital without my husband. I did not feel confident to talk with doctors, since most of them were male. I wish

my husband was with me. In the previous admission he was with me and I felt more relaxed to ask about my child's pain. (Interview mother M19)

To take a further example from the observation data, when the doctor came to the room and examined the child of mother M12, she asked him if it was possible for him to come when her husband was with her. The doctor said that the child is ready for discharge and that he would not feel pain. Then the doctor left the room. The mother said to the researcher that she did not like to talk to the male doctor without the presence of her husband.

Another type of communication issue occurred when girl children felt shy in front of male doctors. For example, it was observed that a child (a girl of eleven years) complained to the mother that she felt pain and had a headache. The doctor came with medical students and asked the child of mother M10 whether she felt any pain. It was the day after surgery. The child looked shy and her face became red. She said that she did not feel pain. The mother questioned her, pointing out that she had just previously complained of pain. Nevertheless, the doctor did not take the mother's report as seriously as if the child had described her pain herself. After the team had gone, the mother asked the child why she had made her appear to lie about feeling pain, and why she did not tell them how she actually felt. The child confirmed that she did indeed feel pain before the doctors came but felt shy and stressed so she could not express this. The mother advised her to tell them everything in future; this was important for her to feel better.

Another communication issue for mothers was the result of a perceived lack of respect from doctors to mothers. A few of the mothers said in interview that they felt the doctors did not appreciate their needs when discussing their child's pain and general condition. For example, mother M10 said that when she asked the doctors questions about her

child's pain they sometimes responded as if these questions were naïve or unnecessary. The mother felt doctors should understand that not all mothers are educated, or have the same level of understanding as them. Therefore, they should answer them fully, even if they think the question is very simple. The mother pointed out that when doctors communicate with mothers they should consider the different levels of education. She said that she needed to understand her child's condition, how to alleviate her child's pain, and to learn steps to avoid her child feeling pain. The mother was afraid that something might happen, and if she did something this could be dangerous for her child (especially after discharge from hospital). Even if the doctors found discussing simple concerns with mothers excessive, the mother takes care of the child at home and so it is logical to have comprehensive answers to questions.

Similar communication problems were also voiced by nurses in interview. Some nurses reported that they realised that some mothers feel shy around health professionals. For example, nurse N1 reported that in her experience, many mothers wanted to ask the doctor certain things regarding her child's condition and pain but only expressed this when the doctor had finished examining the child and left the room. Nurse N1 said when I asked these mothers why they did not ask the doctor questions when he was in the room, they say that they had felt shy. This nurse pointed out that health professionals should respect mothers' opinions and feelings when they communicate with them. Also, they should use simple, easy-to-understand language in order to be more transparent. The general view was that if mothers feel more relaxed with nurses and doctors, they can more easily discuss their concerns, without feeling intimidated. Accordingly, they would be better equipped to follow the nurses' and doctors' instructions. Nurses noted this in interview:

Mothers feel shy to talk to male doctors. I encourage them to ask the doctor any question about their child's pain. However, they still keep their concerns inside them. I asked them why they don't ask the doctor. They replied they feel shy. Doctors should understand that some mothers are not confident to talk with male so they should explain to the mothers and encourage them to rise up their concerns to manage the child's pain after surgery. (Interview nurse N1)

I always remind them [the mothers], but they still forget. I don't know why. Even if I explain to them in Arabic and say "if you need anything ask the doctor before he goes". But they still forget. I talk to them in Arabic in case they cannot understand English. Sometimes I call Saudi nurses to explain it. I realise they keep quiet and understand ... However, they might not be confident enough to ask male doctors. (Interview nurse N15)

Another communication issue is the conflict of expectation during the child's hospitalisation period. These conflicts can result from having overly optimistic or incoherent expectations, which affects the interaction between mothers and nurses. For example, from the observation data, mother M1 explained that the nurse asked her to give the medication to her child, but the mother told the nurse she did not want to do that. The nurse exclaimed to the mother that she thought the mother should administer the medication, because it was not her child. The mother said that she argued with the nurse about her role in managing the child's postoperative pain. The mother expressed her fear to touch her child because he had a cannula, and that giving medication should be a nurse's responsibility. Both thought that giving medication to the child [a suppository] was the role of the other.

During observation, the family of mother M15 phoned the surgeon and asked why he did not check the child's pain immediately after surgery. (This was possible because doctors sometimes give the family their personal contact details.) The mother expressed annoyance to the assigned nurse because she expected the surgeon to meet her (and the father) to explain the child's condition, in case the child experiences pain. The mother

told the nurse that she felt that every doctor should check the patient after surgery, and have a conversation with the family. This mother looked like she had built her expectations from the experience of other mothers. The nurse said that the doctor should come and examine the patient after surgery in the ward. However, in the hospital system, the surgeon finishes the surgery list in the theatre where they check the patients. Some surgeons are busy so they cannot go to the department.

Another example from the nurse interviews also showed that there was sometimes conflict of expectation. While most of the nurses expected mothers to know what they must do for their child without being explicitly told, nurse N20 said they have issues with mothers because they waited for them to do everything for the child. The researcher asked the nurse if she had voiced her expectations to the mothers. She replied that they should know that what they are required to do is everything they would do for the child at home. Also, nurse N13 likewise said that mothers must know their role at hospital is the same as their daily responsibilities taking care of their child. She said also this would be helpful for the child and contribute to ensuring a shorter stay at hospital. Otherwise, if they stay longer at hospital, the child could experience more pain.

4.10 Theme 3: Emotional and physical influence

This theme is about the emotional and physical influence on mothers while managing their child's pain after surgery. This includes four sub-themes: 1) Family company, 2) Mothers' concerns, 3) Comfortable environment, and 4) Sleep and meal requirements, which will be discussed in the subsections below.

a) Sub-theme 1: Family company

Many mothers maintained that they did not have enough family support at hospital. The visiting time was from 4:00 p.m. to 8:00 p.m., and children could visit only on Fridays.

The following example from the observation data illustrates that a lack of family support exacerbated mothers' feeling of boredom at hospital. Mother M3 was laying down on the sofa and expressed that she was bored. She said to a mother next to her that no one talked to her and that she needed to release her stress by having conversations unrelated to her child's condition and pain. However, the hospital system did not allow family to stay with the mother. She mentioned her child cried because he missed his twin brother.

Some mothers pointed out that they needed to divert their child's attention by meeting and playing with the children of relatives during the hospitalisation period. Thus, they were disappointed that the hospital system did not permit children to visit, excepting Fridays. This is especially problematic with children whose surgery required a long stay at hospital. Mother M3 said the following in interview:

The visiting times are not suitable. The child needs to enjoy the time with family and cousins. My child was sad because he could only see his twin at hospital. Seeing your family supports the child and mother, especially with long hospital stays. I stayed fifteen days and we often felt bored. (Interview mother M3)

It was observed that one child often asked her mother, M16, about her cousins. The mother replied that they came yesterday to see her and that the security man did not allow them to come up. The mother said that they would be returning home the next day, in any case. The mother said to the researcher that her child needed her cousins to play with them. She felt that her daughter would forget the pain and feel better emotionally then, because the surgery wound was on the child's face. This was affecting the child's psychology; it was observed that the child asked the mother why she looks different, not like other children.

It was observed that mother M17 told her child that his grandfather would come to visit him in order to make him feel relaxed when he was in pain. The child also asked about

his siblings. The nurse heard the child and replied that the hospital allows children to visit only on Fridays; the child seemed to be unhappy upon hearing this.

From the observation data, it was found that mother M1 had the same feeling of boredom, and also became tired. She likewise wanted more family support at hospital. When her child was crying most of the time she carried him and paced around the room with him when he felt pain. She indicated that he was heavy. She mentioned to the researcher that if someone in her family was with her at hospital they could have helped her. In the interview, mother M9 reported that she was annoyed and felt sorry for her child because he was used to being at home with his brother and playing with him. Her child was alone at hospital and being with his brother would have reduced the stress of being at hospital. The mother said it was hard to manage her child's pain while alone; she needed one member of her family to help her.

It was observed that some mothers experienced a hard time with their child at hospital because they could not control them after surgery. For example, mother M19 said to the nurse that she wanted the father to be with her in the recovery unit and that she could not manage the child's pain by herself. She also said that the child wanted her father so she was crying and shouting loudly. The child also kicked the mother away and did not want to be touched. The mother looked like she was confused about how to relax the child. The mother thought that the father might have been able to provide support:

If her father was with me, he could have helped me. My child did not stop crying and screaming until the doctor gave medication to her. (Observation mother M19)

In this study, mothers often expressed that they wanted the father to support them when they were at hospital. They could not manage their child's pain alone, especially when seeing their child experience pain. The hospital system did not allow two family

members or friends to stay together with the child in the recovery unit. In the observation of mother M13, such a situation occurred. When the parents were in the recovery unit, a nurse said to them that only one of them can stay with the child. The father said to the mother that she can go and get some rest in the waiting area and come back later, and that he would stay with the child. The mother said that she was worried that if the child wakes up and does not see her, he would cry. The mother was pregnant and not feeling well and she could not stand or sit. She felt dizzy but she felt that she could not leave the child because he feels irritated when he needs her. She said to the researcher that this is the child's typical reaction if he did not find his mother with him. After a few minutes, when the nurse repeated that only one parent can stay, the mother said to her husband that she would go to get some rest for ten minutes and return later.

The following example from the observation data also showed that some mothers could not manage their child's pain by themselves, and often needed their husband's help. A nurse gave an instruction to mother M18 and her husband that only one person can stay with the child. The mother asked her husband if he could stay and that she would wait for him at the hospital reception. The mother looked at her child and then left the recovery unit. The father sat on the chair, watching his daughter. He asked the researcher why the mother could not also stay with the child. He said that she has a phobia of closed areas; she feels dizzy if she is in confined places. She is not confident to stay with the child and something might happen to her if she did stay alone with her. The mother had claustrophobia, which made it difficult for her to be with the child all the time. She was afraid that if something happened to the child, she would require her husband to help her. She did not trust herself to manage her child's pain alone. Since the hospital system only permits one parent to be present, she thought that the father was best suited to stay with the child to manage his pain.

It was found that some children needed their father because they could not calm down with the mother alone. Mothers often had more difficulty relaxing the child when the child felt pain or stressed, such as when the child cried or screamed loudly. It was observed that mother M9 tried to calm her child down, but the child cried continuously, so the father carried him around the room until the child relaxed, and he put him on his lap and sat on the chair. He touched him and massaged his back and legs. It was observed that mother M8 also preferred the father to stay with the child in the recovery unit. She explained that her child had a close relationship with her father and that when she wakes up she would want to see her father. However, it might have been better for the child in terms of her emotional relaxation if both parents had stayed with her. When the nurse told them that only one person could stay with the child, the mother left.

Mother M8 said to the researcher that her child felt relaxed when the family visited her at hospital (two days after surgery). The mother was worried because her child was not feeling well and she felt she was not psychologically stable. The researcher asked mother M8 how her child was feeling on the weekend. The mother gave the following reply:

We had a lot of visitors during the weekend. My child was feeling much better than during the previous days. My family invited me to stay. I felt sorry for my child, I did not want to leave her at hospital. However, they surprised us – they came here after the party to see her and we celebrated together. She enjoyed the time with them. The doctor said that she can go home today. She's very happy!
(Observation mother M8)

Mothers needed support from their husband to manage their child's pain, as well as to deal with stress-related pain in the recovery unit. It also enables the burden and stress to be taken off mothers when their child behaves roughly, or if he feels pain, physically or emotionally. It was observed that mother M7 was pregnant and looked tired in the recovery unit. Her child was moving quickly and roughly after he woke up and the

influence of the anaesthetic had gone. The child was feeling pain and the mother could not hold him. She also could not stand close to the child to manage his pain, so the father was helping her. However, the nurse came and told them that only one person can stay with the child at any particular time. The mother said that the child would cry if she went out. The nurse insisted that only one person stay, so the mother told the father that she would wait outside the room and come in from time to time. The child was screaming when he realised his mother had left, but the mother felt she could not manage her child's pain, so preferred the father to stay.

The following example from the observation data also showed that mothers might require the presence of the father. There was one relative of mother M10 waiting outside the recovery unit. Mother M10 asked the nurse if she would allow her relative to come and see her daughter because she would feel happier to have him close to her. The nurse replied that she was sorry, but only one person can stay with a patient at any one time. The mother later explained to the researcher how important the presence of the relative was. She said that her husband had died six months ago and she was feeling depressed, and she had not fully recovered from her loss. The mother said she needed family support during her child's hospitalisation period, especially since she did not feel psychologically stable. Indeed, it was found that the mother was crying most of the time during the observation period. She relayed to the researcher about her home and family life, how they are living in another city and that no one was with her in the city where she lives.

An additional example showed that many mothers had a lack of family support at hospital. In interview, mother M12 said that she wished she had her family with her at

hospital. If they were with her she would feel more empowered to handle her child's postoperative pain management:

Actually, my husband and daughter came and stayed with me for a certain time. They talked to me and I felt more relaxed. But then they needed to go. I told them you can go, but at the same time I wanted them to stay with me. (Interview mother M12)

A few of the mothers did not want the father to stay with them at hospital. The researcher asked mother M20 about her experience at hospital. She said that she did not want the father to be with her. She clarified this:

I didn't want anyone to come with me, even my husband. This was better for my child. If his father came the child would cry and refuse to listen to the doctors' and nurses' instructions. It would have been harder for me. I have already some experience with hospitals. Most of the time when my children are ill I took them to hospital myself, not with their father ... My family was often talking to me on the mobile phone when I was waiting for my child, until he finished the surgery. They phoned me most of the time. They supported me. They helped me to be patient. This support made me feel better. At that time, I needed my family to support me. (Interview mother M20)

This mother preferred her family to support her by phone, not requiring their physical presence. In another example, mother M17 explained that she did not want the father to be with her because he had a short temper:

His father was not with me. If he was with us he would get angry. He could hit him and punish our child. He does not have the patience to deal with him. I do not want my husband to stay with us. It is better without him. (Interview mother M17)

During observation, the child of mother M7 did not obey her mother, and screamed loudly. The mother looked bored and tired of trying to control him, especially because it was a difficult task since the child should not move much after surgery. The researcher asked the mother if she had anyone in the family that could come and help her. She replied that her sister could not come to hospital because she was busy with her own

children. The researcher reported this to the head nurse to inform the social worker towards supporting the mother.

During observation of mother M14, it was found that family support for mothers at hospital is sometimes vital if the mothers' own health is compromised. In this case, the nurse asked the father to wait outside the recovery unit. The father looked briefly at his child and then waited near the exit door; he did not wait outside. The child was quiet on the bed and looked at her father when he was going towards the exit. The mother was pregnant and not physically and mentally strong enough to stay alone with the child. The mother went near to her husband and told him that she would wait outside and that he should stay with the child. The mother left the recovery unit. The child's father stayed on the chair and monitored the child. The father was on the chair close to his daughter and massaged her legs; he was talking quietly to her. He promised her that he would do everything for her when they got home. The father remained with his daughter and he was talking to her to make her smile. He encouraged her to be quiet by giving her promises of rewards. He said that when they got home they would play with her new toys.

In observation, mother M13 looked worried and phoned her family to ask them about her other children. The researcher asked her if she had anyone who could help her during her stay at hospital. She replied she has only her mother-in-law, but she is old and obese and not feeling well, so she cannot help her. The mother was pregnant and ill, but no one could help her to get rest. She had a follow-up appointment to check her pregnancy and why she was feeling dizzy during her child's hospitalisation. At that time, her child had a catheter and he frequently felt pain and irritated. She asked the nurse to take care of the child for an hour so that she could go to her appointment.

The study data led the researcher to the conclusion that mothers needed support from the family when they were at hospital with their child. Most of the mothers reported that they required one of the family members to stay with the other children when they were at hospital, such as to care of them at home. In this study, many of the mothers seemed to be mentally preoccupied when they managed their child's pain; it was clear that the experience affected them emotionally. They explained to the researcher that they were concerned about their other children at home, and so they wanted the time at hospital to go quickly. However, it is possible that if the mother dwells on responsibilities at home, it might divert thinking about managing her child's pain. Mothers also expressed that they might feel less stressed if they knew that one of the family is helping her when she is at hospital.

I am thinking about my other children at home; what they would feel without me. I asked my mother to stay with them. Anyway, I still worry about them. Especially since my mother is old. I would be less stressed if there was someone I trust who could take care of them. (Interview mother M11)

b) Sub-theme 2: Mothers' concerns

In the study, mothers conveyed that they had concerns about the hospitalisation process, including complications during and after surgery, the use of anaesthetics, the child's age, the child's behaviour, and medication. These concerns and preoccupations may affect their involvement in the child's pain management after surgery. Thus, many mothers expressed a desire to discuss these aspects before surgery to know how to deal with them. These are elaborated in the sections below.

I. Complications during and after surgery

Some mothers reported in the interview that they were concerned about unexpected issues that could arise during and after surgery. Mother M5 said the doctor explained that

the surgery would be simple and would not take much time. However, she was actually waiting in the room for three hours. During the waiting time, she was afraid that something might not go well in surgery. Mother M4 said in interview that she was also nervous about complications. She thought that these might appear after surgery at home, and that she may not realise that they had occurred. This might make the child's condition worse. Also, she was concerned about whether these complications might come on quicker than expected. She specified that if other complications occurred and she needed to take the child to the emergency department, they might not be able to respond immediately, and the child would wait a longer time and feel a lot more pain. In observation, mother M10 was crying and explained her fears to the researcher:

I am really worried about what I will do with her at home if she [the child] is discharged tomorrow and something happens to her, and what can I do for her if she feels pain. I do not have transportation. It is not like when her father was alive. I am responsible for her now. (Observation mother M10)

In interview, mother M1 also expressed similar fears about complications during surgery. She said that she was worried that she would not see her child again. Also, she said that she finds it difficult to see him in pain. Many nurses pointed out in interview that they felt that mothers often feel worried about their child during surgery, but that they expect this response. Nurse N16 highlighted in interview that she could often perceive the fear in mothers when she provided care for their children. She understood this feeling and explained this in the following:

All mothers feel worried and have fears regarding the surgery and pain. It is normal and a natural feeling. I am a mother, so I do understand this fear. If my child has surgery I would have the same feelings. They are worried about everything in the surgery: complications, childcare, and pain after surgery. Therefore, we [the nurses] should support the mother. And we give her emotional support. (Interview nurse N16)

II. Anaesthesia

Anaesthesia was one of the mothers' main concerns about surgery. Many mothers mentioned in interview that they were anxious about their child having general anaesthesia. They did not have chance to discuss their concerns with a surgeon or a nurse. Mother M7 reported her fears:

Most of the time I refuse to let my child have surgery. I do not think anaesthesia is easy for children. (Interview mother M7)

Mother M15 said to the researcher that she could not sleep because she spent the night thinking her child would have general anaesthesia and he could have issues because of this. This mother mentioned a story that happened to one of her relatives. The relative had general anaesthesia and died because of a medical error. Likewise, mother M18 reported in interview that she did not like surgery that uses general anaesthetics. She said she would prefer to opt for any treatment instead of surgery. It was observed that mother M6 was worried and looked tired in the recovery unit. When the researcher tried to calm her down, she explained her concerns:

Why did the surgeon take such a long time to do the surgery? He told me the surgery should be three hours, but he took more than four hours. I was so worried. How much anaesthetic did he give my child? (Observation mother M6)

III. Child's age

In the present study, children of a young age (toddler age, 1-3 years, and preschool age, 4-6 years) were the most common concern for mothers. The mothers generally expressed in interview that they believed that young children cannot tolerate pain as well as school-aged children (6-11 years) and adolescents (12-14). Also, young children might not understand their condition, which makes their experience worse. In interview, mother M1 speculated that her child would not be able to tolerate surgery and pain at a young

age (three years old). Likewise, mother M4 felt the experience of pain and these medical procedures are too severe for a child of six years. This mother believed that young children should be cared for carefully by health professionals to ensure they avoid feeling pain:

Children who are young, like my child – only six years old – might not tolerate surgery, medical procedures, and pain. Therefore, these children are required specific care in order that they do not feel pain. (Interview mother M4)

Mothers that had older children also expressed their experience of managing pain after surgery. They said that older children are more cooperative as they can better understand their own condition. Mother M18 thought that her child (who was 12 years old) could manage her pain by herself. She did not need the mother to give her pain relief medication, and the mother felt she could trust her to take it:

The pharmacist came and gave us the medication. He explained to her father how we should give it to our child. But I do not know what the pharmacist said to him. The pharmacist explained it to her father. Then her father told her how she should use the medication at home. This is not the first time she's become ill so she knew how to use medications. (Interview mother M18)

This mother had the view that her child is adult enough to understand what she should do without her help. The mother also added the following:

She [the child] managed her pain by herself at home. She is a mature girl, not a child. She needs to take care of herself ... I should take care of them [her other children]. I wish if my daughter would be ill, she could take the medication by herself. No need for her father and I to tell her to take the medication all the time. Her brother, when he is ill, takes his medication by himself. He does not need us to remind him every time. I am working and I do not have enough time to make sure she takes her medication. (Interview mother M18)

Mother M8 said during observation that her child was quite cooperative after surgery, during the hospitalisation period. The child could understand the mother, and this made the mother's tasks easier. The mother needed to go out to work in the morning. She said

her child was mature for her age (eleven years old) and could organise herself when she needed to leave the hospital. The mother prepared everything for her before she went to work and would come back later.

Mother M10 found her child could understand her condition and the fact of being at hospital, and could face the medical procedures. In interview, the mother said that her child could understand this because she was a reasonable age. (The child was ten years old.) The mother said that her child had undertaken surgery before the current operation, so she could expect much of what she would go through at hospital. In interview, many nurses confirmed that mothers feel afraid, especially when their child is very young.

Nurse N7 reported the following:

Mothers look afraid when the nurse wanted to do anything to their child, such as insert a cannula. They do not want their children to feel any pain. Some mothers cannot endure the thought that their child feels pain, especially when they think children are too young to feel pain. (Interview nurse N7)

IV. Child's behaviour

During observation, four mothers (M6, M8, M10, and M15) reported that they were worried about their child's behaviour after surgery. Mothers did not have enough information about whether their child's behaviour could change after surgery and the process of having surgery. Mother M6 said that she was feeling sorry for her child when the child asked her why he felt fatigued. He did not have enough energy to play and move after surgery like he usually does. The child was feeling disappointed and crying because of being scared about surgery and also being limited to a few activities. The mother felt she was not fully prepared about what she could do for her child, but she did what she could. She said that she did not expect she would not be given enough information about what would happen. This child had a cleft palate repair procedure:

I could see this experience had an effect on him psychologically. In the second day, he was much worse than the first. He was feeling ill. He said that he didn't have enough energy to play. He also said he felt weak, not like usual. He could not move like he could before the surgery. (Observation mother M6)

In observation, mother M8 noted to the researcher that she was anxious about her child's long-term psychological status because the child had experienced a significant period of severe pain before surgery. The mother said that her child was behaving differently – not her normal self – so she was worried that she might remain in this condition for an extended period. It was observed that when the mother talked to the child, she often did not respond; the child was silent and did not react to the mother. Also, when the mother touched her, she pushed her hand away.

In interview, mother M10 explained that she was worried about her child's psychology because she had previously had surgery when she was just five years old. (The child was eleven years' old during the observed surgery.) During the previous surgery, the nurses and doctors took the child from the mother without giving the child anaesthetic. They did not give it to the child in the patients' waiting area before going to theatre, which would have made the child more relaxed before surgery. Indeed, the mother said that the child was focused on her and screaming loudly before surgery. After this experience, the child had grave fears about surgery, and did not like hospitals. The mother said that shortly after that experience, the child often woke up in the middle of the night with nightmares, screaming loudly. The mother was worried that during the present surgery, or after her current hospitalisation, her child would have a similar experience. The mother said that she knew that her child was sensitive but was not able to express her feelings.

Another example from the field notes supports the above points. Mother M15 explained to the researcher that she felt her child had started behaving like a younger child, not like

a child his age. (The child was actually nine years' old.) She said she was confused why he behaved this way. The mother repeatedly emphasised this point in the interview. She said that her child became afraid and asked her to sleep next to him in the bed. In this study, it was also found that the experience of pain had an influence on children's psychology and behaviour. Most mothers expressed that their role in managing their child's pain after surgery was hard because their child's behaviour had been changed, especially since children that had severe pain often experienced it for long periods.

In interview, mother M8 said that her child had experienced pain for about two weeks. The child needed to have braces so the dentist said she needed to prepare all teeth before putting the braces in. A few days after the first session to prepare the teeth, the child started to feel moderate pain. The parents took the child to the doctor and the doctor said it was normal, and prescribed medication for the pain. However, even when the child was given medication, she said she still felt severe pain. Her face became puffy, so then the parents took her to another hospital. The doctor said the child needed to wait to be seen, and that she should take antibiotics and medication for the pain for two weeks. The mothers said she could not do anything to relieve her pain. She felt it was a long time to suffer pain. The child remained in this condition for these two weeks until the doctor in the hospital in the present study examined her. He said that there was a lesion and it has reached her lymph node close to her ear, and so it was important to do the operation. However, after the child had had the surgery she became aggressive, kicking and screaming. The mother explained how she had changed:

The experience of pain had a negative influence on her. She behaved very aggressively. She pushed my hand away in the recovery unit and also when we went to the room ... I could not forget how she behaved in hospital. She was not herself. I do not know how I could have managed if her father had not been there [in the recovery unit]. (Interview mother M8)

This mother needed psychological support after the child treated her aggressively. The mother said the child also behaved abnormally after discharge from hospital. The child refused to sleep on her bed alone. She wanted one of the parents to sleep with her.

Another mother had a similar experience. From the observation data, mother M19 was with her child in the recovery unit. The child kicked the mother and shouted swear words at her. When the child was transferred to the room on the paediatric surgical ward, the child refused to talk to the mother or allow her to touch her. The mother described this to the researcher the next day during observation. Sometimes the child kissed her hands but other times she shouted at her and used bad language. The mother said that her child's experience of pain lasted about a month. Her child had a lesion and swelling on her tongue. Since she had this swelling on her tongue she could not eat or drink. She felt pain when she wanted to eat or drink. Even when the mother gave her soft food, such as fruit yogurt, the child could not eat it. The mother also tried to give her water, but the child could not drink water; when the mother gave her water, she cried loudly. The child was afraid that she would feel pain. The mother also said that the lesion was very big. At the time, the mother could not do anything for her child. The child remained in this condition until the mother could arrange an appointment with a paediatric surgeon. During the hospitalisation, and with changes in the child's behaviour, the mother felt it was hard to control the child by herself. Since the child behaved unusually, the mother felt confused because she could not recognise if the child was crying because of pain or for other reasons.

The interview data showed that some children took advantage of being in pain, becoming badly behaved. In interview, mother M15 said she felt that her son behaved like a small child after surgery. She thought he took advantage of being in this situation. At home,

when she told him not to play this way, he stopped for a few minutes and then did the same thing again. When she told him not to carry heavy things he first stopped, and then carried on. She said he was not behaving like this before the surgery. One of the mothers, M17, reflected in interview that she knew her child could be difficult, but he became even more stubborn after surgery. She did not know what she could do about this; she tried to tolerate his attitude as much as possible. She wanted her child to be given medication at hospital so that he could sleep as much as possible during the hospitalisation period. This was because the mother was worried that he might hurt himself, so she preferred him to be relaxed and be asleep.

In interview, a few mothers highlighted that they should be patient with their child when they have surgery. They should expect that the child may become stubborn and more demanding. Also, they have to prepare themselves to work hard with the child after surgery. One of the mothers relayed her story:

I realised my child became spoiled and asked for anything her siblings had, such as a toy. She tried to take advantage of her condition. I said to her that she should not do that. And I also explained the situation to her siblings, that they should be patient with her. I involved them in her postoperative care. (Interview mother M12)

The nurses also noted in the interviews that children can take advantage of being in this situation. They do this because they want their mothers' attention. Nurse N13 said:

After surgery, some children cry and report that they have pain but they just desire their mother's care. When we assess their pain we find that they do not really have pain. (Interview nurse N13)

Nurses also believed children could be affected psychologically because of new things happening to them, such as medical procedures. They might not feel pain physically, but

may feel it psychologically. This made some mothers worried during their involvement.

Nurse N17 described this type of situation:

Children behave in many different ways when in hospital. When the children are not aware about their condition they become especially scared. This is so when the children experience certain medical procedures, such as inserting the cannula or having an injection. The first time this is done the child is not scared. However, later, when the child realises a nurse is present and it could mean that she will insert a cannula, give an injection, or administer medication, the child becomes visibly scared and cries. When the nurses take the child to the treatment room for the first time the child still does not know what will be done. However, the next time she does this, he might cry when we tell the child that we will go to the treatment room, because the child has already experienced pain in this room. Some mothers could not handle the situation of her child crying. In fact, one mother actually fell down [fainted]. (Interview nurse N17)

V. Medication

In this study, some mothers were concerned about giving their child medication after surgery. This is possibly a result of a lack of preparatory information about pain relief medication and mothers not being involved in the process of decision-making about their child's treatment. Mothers thought giving medication would affect their child's health later in life. One mother expressed her anxiety about this:

I was so worried that something could happen to my child if she took a lot of pain relief medication. I know that giving too much medication is not good. (Interview mother M8)

Mother M4 highlighted in interview that the main thing that made her anxious was that even though her child took what she thought was a lot of medication there was still pain. She was also worried that these medications could affect her child long-term, even though the surgery was a simple procedure. Nurses said that some mothers think that giving a lot of pain relief medication for the child had side effects, so they preferred not to give the child excessive medication. One nurse reported the following in interview:

Some mothers prefer not to give their child regular medication. They think that giving pain relief medication could negatively affect their child's health later. They try not to report their child's pain to the nurse. Other mothers prefer giving pain relief medication to help the child sleep. They believe sleeping is good for the child to recover. (Interview nurse N15)

In interview, nurses reported that they often did not provide information about medication and did not involve mothers in the decision-making process about administering medication for their child:

When the mother informs us [nurses] about her child feeling pain, we examine the child; we do not depend on the mother's report about pain. Then we decide if the child needs pain relief medication. Mothers just monitor the child and inform us if there is any problem. (Interview nurse N6)

Some mothers asked for pain relief medication for their child, because they did not want to spend a lot time monitoring their child and want to let their child sleep most of the time. (Interview nurse N20)

c) Sub-theme 3: Comfortable environment

The data indicated that most of the mothers did not feel comfortable in their room at hospital. They often expressed that it was not appropriate to be with other patients in the same room. They felt they did not have privacy or a quiet environment for the child. For example, it was observed that mother M3 did not feel comfortable after the child had had surgery because the child's room was not private (two-bed room). Her child cried and screamed on the first few days after surgery. She said during observation that she felt worried because there was another patient in the next bed. She blamed herself that this might have annoyed or disturbed that child. Also, this mother and her child felt bored sitting at hospital in the same room for a long time. This negatively affected the child, resulting in him being nervous and crying a lot. It seems this made the mother's managing role harder.

In another example, mother M6 explained to the researcher during observation that she felt uncomfortable because the child's bed was near to the room door. This concerned her because in this culture she is required to wear a hijab all the time in case a male hospital staff should come in. The hijab was long and uncomfortable for her, and made it difficult when she needed to move around the child's bed and do various things for her. She had limited movement around the room to manage her child's pain, and also felt that she did not have privacy. She elaborated on this:

My son wanted to watch the TV but it was out of the curtain area so I needed to open the curtain to let him watch it. However, I was worried that a man might come in. Also, I was feeling uncomfortable with the previous mother and patient because the mother was making noise. (Observation mother M6)

The interview data showed that the hospital environment is often considered an unusual place for mothers and children. Many mothers said that they and their children felt uncomfortable because the hospital environment was new. For example, mother M1 said that her child felt strange when he arrived at hospital. He found that the hospital was unfamiliar and so he was unhappy. Thus he did not behave normally. The mother worked hard to relax him, but there were not many toys available, or things to keep the child occupied when he was in bed. The mother did not bring toys herself to distract him.

Mother M17 explained in interview that the room was too warm for her and her child. She thought this was because the patient in the next bed was a small child, and so his mother wanted the room to be warm. But she did not feel comfortable. The mother also said she was arguing with her child most of the time when he felt irritated or in pain because of the surgery and the catheter. She felt sorry for the other patients because of this. She was also limited in her movement in the room. Moreover, being in hospital involves many people, such as cleaners, nutritionists, and health professionals. Their

work naturally demands that they come into the patient's room, and may disturb patients through making noise. Also, visitors could be a source of noise in hospital that can disturb patients. Mother M10 also explained these issues:

All hospitals are the same. It was irritating when the cleaners, nurses, and visitors came in the room, especially when your child wants to sleep. (Interview mother M10)

This mother wanted her child to sleep because movement would cause pain. However, her child was very active. He wanted to play and he did not care about the surgery site and the doctor's instructions. When the child was disturbed he woke up and started arguing with the mother. In interview, mother M4 expressed her wish that they had a room without other patients because she did not want to bother anyone when her child was in pain or making noise, and wanted to be able to talk freely if she needed to comfort him. She sensed that it might be annoying for others to listen to.

A few of the mothers said in interview that they were satisfied and felt comfortable in the rooms. For instance, mother M19 said that she did not expect the room would be so comfortable (a single private room), and she felt relaxed:

The room was very nice and big. Actually, I didn't expect the room would be so good — since I am not Saudi. My child and I slept well before the surgery. (Interview mother M19)

The observation data showed that some facilities were not provided in the room, so mothers felt uncomfortable. For instance, mother M9 wanted to close the blinds. She did not like that the light came into the room. She wanted to make sure that her child would feel comfortable after surgery and would not wake up too many times. She said to the researcher that the light would annoy him, and he would not sleep. However, it was not possible to close the blinds completely due to the way they were constructed. In

interview, another mother, M5, clarified that she and her child were feeling cold and she had asked the nurse to increase the temperature. The nurse tried to increase the temperature, but still the room was very cold. The nurse told her she could not increase it more than this because the room contained a central air conditioning system, which was controlled by the hospital maintenance unit. The mother said that she was not feeling comfortable. Also, she was worried that her child might become ill because of the temperature.

d) Sub-theme 4: Sleep and meal requirements

More than half of the mothers highlighted in interview that lack of sleep and lack of meals could be barriers that might affect their involvement in postoperative pain care. Mothers were already exhausted before surgery because of a lack of sleep and food. This caused mothers to feel unwell. Mothers spent long hours beside their children to constantly monitor them and provide companionship. As a result, mothers were feeling very tired. For example, it was observed that mother M5 could not stay with her child in the recovery unit because she had a headache. The mother clarified the reason for this during the observation: she did not eat and drank only coffee. Her child was crying most of the time until surgery. The mother said that she did not have enough energy to manage her child's pain after surgery because of this. Therefore, she asked the grandfather to stay with the child and she went out of the recovery unit twice to get rest. However, the child cried more when she left him.

In observation, mother M3 sat on the chair again and held her head in her hands. She said that she was tired and feeling dizzy, and that she could not stand up. The researcher asked her how she could help. She said that she did not sleep properly yesterday because she was not feeling well, and that she has not eaten properly. Also she took medication

for the headache on an empty stomach. Her child was NPO so she could not eat in front of him. When she wanted to eat he cried and asked her why she is eating and he is not.

The data showed that some mothers often had difficulty in managing their child's pain because they did not eat and sleep properly. In addition to this, they might have a health condition, such as they are pregnant or ill, which exacerbates the situation. One of the mothers, M7, said that her child did not allow her to sleep because he could not sleep. Moreover, the other child in the next bed was also crying, so her child kept asking her if she could help the child in the next bed because he was in pain. Therefore, the mother and child remained awake until surgery time and the mother was exhausted when the surgery was finished. This was very stressful for the mother, who was pregnant and seemed very tired.

A further example from the observation data supports the finding that mothers often did not eat properly because they were worried about their child's condition, and became exhausted or unwell, such as having headaches, feeling dizzy, or nausea. Mother M13 explained this to the researcher:

I feel unwell because I did not sleep yesterday. I am used to sleeping in my home; now the place is new for me. I have difficulty in sleeping in new places. When the nurses came to check the other child and my child they distracted my sleep. Now I will get rest. (Observation mother M13)

On the first day of observation the mother was pregnant and looked pale, and on the second day of observation she still looked pale. When the child complained to the mother that he felt pain, the mother stood up with difficulty and went to the child to distract him, such as giving him an iPad or showing him cartoons. Also, when the child was hungry and needed food, which would help heal the surgery wound, the mother fed

him. It was clear that the mother was making a lot of effort during the time she was ill.

She summarised her experience to the researcher:

Yesterday, I did not feel comfortable to be able to monitor my child continuously; I could not sleep. I was just watching him when he was sleeping. I did not want him to touch the catheter or the surgery site ... I could not sleep any day since I came to the hospital. I feel tired and bored. I lost weight because I could not eat proper food and am worried. I wish I could go home and get some rest. Then I can come back to hospital. (Observation mother M13)

The observation data showed that mothers did not have enough sleep because they were required to monitor their child after surgery. For example, mother M16 said to the researcher during observation that her child should not be allowed to touch her own face (the surgery site). The mother spent the night watching her because she was worried that she might touch it; thus, the mother did not have a restful sleep. An additional example from the observation data supports this finding. One of the mothers, M3, was looking very tired. The researcher asked her if she was okay and she answered with the following:

I'm so tired. I could not sleep. He [the child] slept from 15:00 until 21:00. He did not go back to sleep until the surgery time, which was this morning. I spent the night watching him. If I fell asleep he woke me up and asked me not to sleep. (Observation mother M3)

Some mothers had a lack of sleep because their child had a condition that required them to manage their child before surgery. Mother M9 described such a situation in a conversation during observation:

I couldn't sleep yesterday. I was worried when the doctor said that the anaesthesia could be difficult for my child. Therefore, I spent the night doing a cold compression and monitoring him until he felt better. Also, he was coughing a lot. (Observation mother M9)

The mother felt tired primarily from a lack of sleep. In sum, from the data it is clear that of the many difficulties that mothers face during managing their child's postoperative pain, perhaps the most significant are a lack of food and sleep.

4.11 Theme 4: Social and cultural factors

The study data demonstrated how social and cultural aspects affect the mothers' role in their child's postoperative pain management, such as limiting their involvement in the child's care. This theme includes three sub-themes 1) Patriarchal society, 2) Cultural beliefs, and 3) Work status. They are presented in the following paragraphs.

a) Sub-theme 1: Patriarchal society

The data identified there is a strong male influence on the mothers' involvement in their child's postoperative pain management. Some mothers feared that they were not able to make decisions about their child's care; they depend on the fathers for this. For instance, in interview, mother M2 declared that the decision to have surgery is the father's responsibility and she should not take part in the decision-making process. Thus, the father organised the surgery and she physically took care of the child in hospital. He managed specific aspects of the hospitalisation process, such as taking care of the hospital paperwork and discussing with doctors about postoperative pain care, as well as overseeing the general progress of the child's health.

Actually, his father is the one responsible about the surgery and finishing the paperwork [for admission and discharge]. He then told me what should I do. In my culture, the man does everything and talks with other males, even doctors. My husband arranged the stay at hospital because it was private. The hospital allowed my husband to be with me most of the time. (Interview mother M2)

Another example from the interview data showed that mothers were influenced in their involvement in the child's postoperative pain management by the cultural expectation

that a man (the father) carries out the main decision-making tasks, such as taking care of the child's treatment. In interview, mother M1 also said she believed that decision-making about surgery and treatment and discussing the child's health with doctors is the father's responsibility. She added that she is not strong enough to deal with such serious matters. She pointed out that she is a divorced woman who does not have a male relative, and so she needs extra help from the hospital; she is vulnerable and does not have a man to take on these responsibilities.

The hospital should be cooperative and kind with divorced mothers when they bring their child to hospital for surgery. They need more support to manage their child's pain after surgery. They don't have a man with them to support and help them. In our culture, we need the father to make decisions and support the mother at this difficult time. I cannot take all the responsibility. (Interview mother M1)

Observation data highlighted that fathers did not accept other men interacting with the mother. Moreover, the father avoids involving mothers in some aspects of their child's pain care after surgery. Thus, some mothers do not discuss with male doctors about their child's pain relief, such as her concerns and what they should do for her child. It was observed that when the pharmacist (a man) came into the room of the child of mother M2, the father went to him and took him to the corner of the room to have a conversation. The mother had her face covered and kept her distance. The pharmacist gave the take-home medication to the father (including pain relief medication) and explained how he should use them. The father told the mother that he would explain to her how to use this later. In interview, the mother said that it is the child's father who should talk to the doctors about the child's pain care after surgery. Indeed, she added that he did not allow her to talk with the doctor about her child's pain management.

My husband used to talk with doctors and explain after to me. He does not like me to discuss anything with the male doctors or nurses. (Interview mother M2)

Mother M18 also said that she was not able to communicate with men. She noted that the father took her to hospital appointments and that it was his responsibility to make decisions regarding surgery and pain:

To be honest, I don't have enough information about my child's surgery and pain. This is her father responsibility. I cannot take this responsibility. This is what we have in our culture. He went with her to all the hospital appointments, not me. I asked her father why the doctor didn't prescribe medication for her pain instead of doing surgery, and why the doctor decided on surgery. He said that he didn't know, since the doctor didn't explain this to him. Anyway, I would do the pain management after surgery in the way my husband would tell me.... Her father took the pain relief medication at discharge time from the male pharmacist and he told me how to use it at home. (Interview mother M18)

The observation data supported the above finding that many mothers have limited involvement in organisational matters. Mothers were not permitted to mix freely with men in Saudi Arabia, such as sharing information with male doctors and male nurses, because they are restricted by their husbands. For instance, the surgeon checked the child of mother M6 in the recovery unit and he wanted to provide the parents with information about postoperative care. However, the father took the doctor to one side and asked him to explain it directly to him, and that he would later explain it to the mother. It appears the father wanted to keep distance between the mother and the male doctors. Nurses mentioned in interview that some mothers do not want to talk with male doctors and male nurses; they prefer to ask nurses after surgery about their child's pain. The nurses understand that freely interacting with non-relative males is not part of Saudi culture. However, nurses often reported that they tried to encourage mothers to discuss their concerns with doctors but the mothers often do not take their advice. For example, nurse N10 explained this point:

The problem with the mothers is that they don't question the male doctors. Usually they bring up their concerns with the nurse when the doctor has left the room; perhaps because they are afraid to talk to the male doctors directly. When

the doctors discuss with them their child's condition and pain, they sometimes don't ask the questions that they have in their minds; and don't explore fully their thoughts during the discussion. I think it is part of the mothers' culture that they don't feel confident to talk to male doctors. (Interview nurse N10)

b) Sub-theme 2: Cultural beliefs

In the study, most of the mothers were Muslim, and held a strong religious belief that God protects their child. This faith affects mothers' attitudes and approach to pain care. The observation data shows that most of the mothers prayed to God, asking for protection from pain and complications during surgery. It was observed that mother M4 prayed to God asking that her child's suffering would end. The mother was kneeling on the prayer mat, crying and asking God for help. In interview, this mother explained her conviction that if she prayed consistently and deeply, and followed the doctors' instructions, everything would work out fine. In another example from the observation data, mother M2 was reading the Quran through most of the observation time; in interview she said why she does so:

I like to read the Quran. I believe that I should infuse the environment with religious feelings in order to be closer to God. He will help my child to feel better and relieve his pain. (Interview mother M2)

Cultural beliefs affect mothers' involvement in their child's postoperative pain management. Some mothers did not listen to music when they are in serious situations, such as when their child has surgery because they do not think it is appropriate. Mother M6 said in interview that she read the Quran to her child to reduce stress before going to surgery. She prayed and hoped that God would protect her child. This mother did not like to listen to music at such times. Therefore, when another mother played music in the room on the night before surgery she said she found this distressing. She believed it is

disrespectful to listen to music in such situations, since she believes that she should be close to God during these times through quiet contemplation:

When my child was in the hospital. I was worried. I prefer to be close to my God at that time. I like to listen to the Quran and pray for Him to protect my son. I don't like to listen to music. (Interview mother M6)

Another example from the interview data shows how many mothers are influenced by cultural beliefs. Some mothers use Zamzam water (holy water from Mecca) to treat their child. They use this water to manage their child's pain. They believe that drinking it and washing their child with it helps to relieve the pain and treat the underlying health condition. In interview, mother M12 said that she gave her child Zamzam water and read him the Quran. She hoped this would protect her child from harm and pain. This mother reflected that mothers should believe in God, and that only He protects their child.

Many mothers believed that everything happens to their child because of God, and they accept what has happened to her child through these principles. Reading the Quran helps the mother to feel relaxed so she can impart more energy to her child at this time, rather than feeling powerless. Mothers need to pray to God during these times:

I gave my child Zamzam water. As you know, we have strong beliefs that it is blessed water and can help my son to be cured. I will pray to God to take care of my son and relieve him from pain. God has the power to do everything. Besides this, I would keep doing what the doctors say. (Interview mother M4)

Mothers have considerable restrictions in various situations due to religious beliefs, since women cannot freely leave home in particular domestic circumstances. For instance, after her husband has died, a widow is not permitted to go outside her home for forty days. In a conversation during observation, mother M10 postponed her child's surgery in order that she would be able to attend surgery at a later date. The mother said she knows that her child needed her and that she would not feel relaxed if had surgery without her.

Also, she would not be able attend follow-up appointments and leave the house in an emergency situation. That the mother's family did not live in Jeddah and so could not provide help exacerbated the situation. She described her closeness to her daughter after her father died, saying that she preferred to do surgery after forty days and recover from the loss with her daughter.

In interview, mother M6 said that she initially could not stay with her child at hospital when the doctor told her that her child needed surgery. Her child was supposed to do the surgery three years prior to the observed surgery, but did not because the mother could not stay with the child; she had to go with her husband to the United Kingdom where he studied for his PhD. She said that in her culture women should follow the husband in his career and life. The mother said at the time her child was feeling pain psychologically, but she could not stay with the child because she had to be with her husband.

In interview, many nurses pointed out that mothers keep food for extended periods of time in the ward. They complained that it is not good for the patient to do so because it might create an unhealthy environment (as well as a bad smell) or could poison the mother or child; this could have negative effects on the child's recovery and experience of discomfort and pain. The nurses said that the immune system of the patient after surgery is weak, and so keeping food for a long time might make this worse. In such cases, a child might experience pain for a longer time than normal. Indeed, during observation, the researcher noticed that many mothers were keeping food on the bedside table for long periods. At the time, the researcher asked them about this. Most of them replied that they did not like to throw the food away because this is immoral in their culture, and also against their religious principles. Two nurses elaborate these points in interview:

Some mothers want to keep the food. We tell them if they do not want the food to throw it. But they say that is “haram” [which describes actions or thoughts against a religious principle]. If they are not given food at a particular time, they ask where the meal is. Then they give it to the cleaners. (Interview nurse N15)

If I found food is still on the table on a morning shift, I tell mothers if they do not need the food, they can remove it. However, if they need it, they can keep it in the fridge. They said it is bad to throw food away. (Interview nurse N20)

It is suggested that while they understood the mothers’ beliefs, the nurses preferred that the mothers keep the child’s surroundings clean for hygiene reasons. This would help the child to recover from surgery in a short time and that the child would not suffer pain.

c) Sub-theme 3: Work status

In this study, it was found that a few of the mothers had difficulty managing their child’s postoperative pain management full-time, owing to their work status. Often, they said in interview that they could not get enough time off work to be properly involved in their child’s care. They felt working and managing their child’s pain care after surgery is too demanding, and said they were often exhausted.

I could not be with my child all the time when she was at hospital. I am working as a teacher. Now it is the end of term. During this period, it is hard to take days off. Also, I felt the school director would not accept giving me days off. Therefore, I could not totally take care of my child’s pain. Indeed, it is tiring to work and manage my child’s care. (Interview mother M8)

It was observed that mother M8 checked her child’s pain and whether she needed medication for pain. The mother prepared everything for her child, such as giving toys, providing snacks and juice on the bedside table, and an iPad to avoid feeling bored and dwelling on her experience. She asked her child if she felt pain or needed anything, because she had to go to work at school for a couple of hours. The mother looked tired (she had bags under her eyes) and expressed that she was tired and seemed to be under

stress. The mother told the nurse that she would go and come back quickly. She said the following to the researcher during observation:

I made sure that my child was okay. I made sure that everything she needs is close to her so that I can go to the school. It is important to give the student these lessons. I will come back quickly. I did this yesterday many times when I went to pray in the prayer room. (Observation mother M8)

In interview, another mother described her difficulty in managing her child's pain care:

I was not feeling totally free to manage my child's pain when he was at hospital. I have to work some hours and manage some phone calls at work. I felt it was really stressful for me, and I felt my mind needed to be free to manage my child's pain care. When he was crying I felt I did not have enough energy to deal with him. (Interview mother M12)

4.12 Theme 5: Hospital facilities, provisions, and services

This theme considers whether mothers needed more support from hospital to provide better facilities, materials, and services for their child's pain management. It also looks at whether nurses required better facilities to aid mother involvement. This theme contains four sub-themes: entertainment and environment; follow-up program after discharge; pain management program for nurses; and materials and services.

a) Sub-theme 1: Entertainment and environment

The study data showed that mothers and nurses required entertainment at hospital to support them in managing children's pain, making their interaction more effective. They believed entertainment might help divert children's attention. Mother M17 suggested in interview that the hospital should provide more entertainment for children in the paediatric surgical ward. She wanted to have more children's channels on the television in her child's room at hospital. Also, she preferred to have a more comfortable and welcoming environment: the room could be better decorated, which might give the child

more energy and happiness. The mother suggested that the temperature of the room should be suitable for the particular circumstances of the child. She listed the following recommendations that might permit her to more effectively manage her child's pain:

The hospital could provide better entertainment for children at hospital. There was only one channel on the TV for children. I think the decorations in the room were not really nice. The room should be coloured and with nice paintings for the child. These things could let the child feel more relaxed and energetic. Indeed, most of the time I was arguing with him. Also, the room was very warm. I think because the next patient was a small baby, his mother wanted the room to be warm (Interview mother M17)

In interview, many nurses noted that mothers often requested a play room and play therapist for their children. A play room could be provided with various different toys for children to engage with, so that mothers can use them when their child feels mild pain or is bored.

I don't know what happened. Before we [the department] had a play therapist. There should be various activities for children. Mothers asked me about the play therapist because they struggle with their children when they want to play and the children are feeling bored at hospital. (Interview nurse N10)

I think we need to have more toys to divert the child's attention. The child will forget his or her pain if such methods of distraction are used. By engaging his or her interest, they will not feel pain. Maybe some toys could be in the children's room. For example, the children can draw pictures in this room. (Interview nurse N1)

There is only one playroom here, which does not include things such as toys and colouring books or pens. I think these things would make children happy, and they can possibly forget their pain, particularly if the pain score is mild. (Interview nurse N12)

Some nurses also highlighted in interview that the playroom should be available for a longer period, and should not be closed at 4 p.m., as it is currently. They argued that mothers and children need to use the room after this time, and that some mothers were upset when they found that the room was closed.

The playroom is often closed and it's only open when the play therapist is here. Some of the postoperative patients cannot play there, so it is better to bring some play materials and stay with them in the room. Before we used to have a play therapist, but nowadays I don't know what happened. They used to make parties, although not for postoperative patients. Children need these activities, especially for long stay patients. They would be very happy with these activities. (Interview nurse N13)

Children cannot play at night. Most children here are awake during the night time and are asleep in morning. The playroom is closed at night and there's nowhere for them to play after this. At 16:00 p.m., the playroom closes. It is good to let the children play because it helps their mind to be refreshed and diverts their pain. (Interview nurse N6)

In observation, mother M16 supported this point. The mother wanted to take her child to the playroom but found it was closed. The child was crying loudly and sitting on the floor next to the room. The mother tried to tell her that it would be open tomorrow. The mother took the child back to the room. The mother said to the nurse that if the playroom activities were open it would have served as a diversion; she was worried that her child would damage the surgery on her face and this could have helped her.

The nurse interviews showed that mothers needed extra facilities from the hospital to help them manage their child's pain, such as having social workers read stories and the provision of small gifts for the children:

Actually, I just today saw the social workers read stories to the children. I realised they were enjoying it. With this, mothers could feel relaxed. Then she could monitor and take care of her child successfully. It is better that the hospital should also activate the playroom. (Interview nurse N9)

During observation, it was seen that the child of mother M6 smiled at the researcher and asked the researcher to play with him. The child showed the researcher the gift he had been given. It seemed that he was happy and more relaxed than he was two days previously, immediately after surgery; the mother confirmed this point. Two days

previously, he had asked his mother why he was feeling pain, unlike other children. Now she said he was in less pain and that she was also less stressed. She offered coffee and biscuits and talked positively about her experience and with her child's pain management. The mother told the researcher that today her child was happy because a hospital team came and gave him the toy, and that they had had a good conversation. The mother said that he had become more relaxed and so was she. She felt that her child had become more responsive to her and that he was learning to tolerate the experience.

b) Sub-theme 2: Follow-up programs after discharge

The study data illustrated that mothers often struggle in managing their child's postoperative pain at home. They need follow-up programs after discharge so that they feel confident and less stressed about possible complications after surgery. In interview, most of the mothers said they faced issues after discharge from hospital, and they wished a nurse or doctor had checked the child as well as answered their previous concerns. In interview, some mothers said that specific follow-up programs are needed.

The hospital should follow-up on the child's condition even when the child is discharged. The doctors should consider the child's circumstances individually. Some children might have other underlying medical health issues. They should put this in the treatment plan and provide extra support for the mothers after discharge. (Interview mother M1)

The doctor told me that if anything happened to her at home, I should bring her to the emergency department – such as if she feels severe pain. I asked him what about if something occurs that is urgent. He told me that I should still bring her to the emergency department. He told me that I'll examine her in the follow-up clinic. I was so worried that she might bleed at home. I was confused about what I should do in that situation ... They should provide a follow-up plan after discharge. And the doctor should give the parents his direct contact number. If there is something urgent parents could call him and ask questions. This would be faster than going to the emergency department and letting another doctor examine the child, or waiting for the follow-up appointment ... I would like the doctors to follow the case until the end, even when the child is discharged. If the

mother needs further consultation, the doctor should be available, and her questions should be answered. It is okay to answer by text message or WhatsApp. This is very important. If the doctor could not do that the nurse might do it instead. (Interview mother M10)

Mother M4 highlighted in interview that she had many fears when she knew her child would be discharged. She faced many issues at home that needed advice from the doctor or nurse. However, the doctor said if anything happened to the child she should take the child to the emergency department. The mother said that her child had fever on the day of the follow-up clinic. She came early in the morning to the emergency department and waited for the emergency doctor to examine him. However, no one came until 12:00 midday. She expressed that all that time her child was in pain and crying. She felt sorry for him. She wished if she had the doctor's contact number she could discuss with him about what she could do. She was worried if further complications might occur, and if she would need to take him to the emergency department. She said that is not good for children and mothers when they let them feel a lot of pain and wait for a long time. The mother said that she was stressed and crying. She said that she was upset because she saw her child in pain and he was very young – only 6 years old.

In observation, mother M4 described a friend who was a mother that did not give her child the proper dosage of medication. She did not realise that her child had undergone some changes in his body and she did not take him to the hospital or the emergency department. Owing to this, the child's situation became more complicated than it might have been. In addition, the child also had an allergy, which exacerbated the situation further. Mother M4 was now worried that she would not realise if the child's condition changed. She said that she did her best but was not sure it was enough for him. She said that after her friend told her about the experience, she would take her child straight to

hospital if there was anything wrong, and she would take him to the required follow-up appointments. However, she was still worried that these changes might come quicker than expected; this made her worried and afraid. She wished the hospital had services that made sure the mother is doing fine with her child and answered her questions.

Mother M5 said in interview that she had some issues after discharge. Her child was crying and feeling pain longer period than anticipated. She said she had the doctor's phone number but she was nervous about phoning him to ask him what she should do. She recommended that the hospital have follow-up programs to make sure the mother is doing fine with her child. She said this would save time and effort for both mothers and doctors instead of having to phone the doctor many times to ask advice, such as asking questions about changes in the child and how she should respond. Mother M7 likewise noted in interview that she believed that having follow-up programs after discharge would be helpful, especially since admission to hospital and the emergency unit is not an easy process and puts the mother under stress, which could, in turn, put the child in danger, as well as increasing the problem of having to cope with pain for longer. She described her situation:

I was worried about any complications that might appear in my child and how I could help him. It is a long process to admission in hospital, even in an emergency. If something happened, and there was an emergency, he would not be seen by the same doctor. I think there could be better follow-up procedures than this. This is really important and could reduce the mother's stress. For example, nurses can come to the child's home to see if the mother needs to know anything. Sometimes the mother could face a situation she did not expect and she would not know how to deal with it. Once, the doctor told me, "*Your child will feel better after two days*", but it took more than two days for him to get well, so I was so worried. I wished the doctor had called me and explained to me that it might take longer than this. This would have reduced my stress considerably. (Interview mother M7)

Many nurses also claimed in interview that the hospital should provide extra help for mothers to improve their involvement following discharge. They believed that mothers urgently needed follow-up programs after the child has been discharged. For example, nurses could do home visits, and this is important for all mothers, not only for specific cases; it should be standard for all postoperative children.

In the hospital, nurses are not doing home visits for the child after discharge. Also, they do not do follow-up phone calls. However, there is for some cases the need for the doctor to refer them. Then the home health care staff arrange to visit the patient at home. But it is not routine for all children who have surgery. The home health care staff continue their follow-up care with the patient at home if the doctor has ordered this. They will call the patient or the family to arrange a time to visit and evaluate the patient's condition. I think follow-up home visit or phone calls could help the mother. (Interview nurse N1)

We [nurses] do not have follow-up phone calls. Once the patient is discharged, we explain everything for mothers. For example, when they should go to the follow-up clinic appointment, and how they should give the medication. Also, if the patient needs a dressing, a dressing appointment will be given to the patient. (Interview nurse N10)

They [children] will come back here just for a follow-up appointment. Once they have the follow-up appointment, they will go to the clinic. If any complications occur at home, such as vomiting and bleeding, they will go to the emergency department. (Interview nurse N7)

Some nurses pointed out that some doctors gave mothers their phone numbers. Therefore, if the mother has a concern she could phone the doctor or text him, and he would respond as soon as possible.

Some doctors give their phone number to patients. Otherwise, mothers just wait to discuss her concerns with the doctor in the follow-up clinic. But they could be worried until the next meeting with the doctor. (Interview nurse N3)

We [nurses] do not have home visits for surgical cases. We only have these for medical cases, such as diabetic patients. The surgical cases are just given a follow-up appointment. If there are complications, the mother can take her child to the emergency department, or phone the doctor if she has the phone number. Some doctors give their phone number to their patients. (Interview nurse N2)

The hospital policy and procedure of patient discharge (ADM-HA-045) did not show any follow-up program for patients after discharge, only follow-up appointments in the clinic.

c) Sub-theme 3: Pain management courses for nurses

Study data illustrated that mothers agreed that more education courses are required for nurses about pain management in children and how they could work with mothers. During observation, mother M12 felt that the nurses had a lack of experience about how they could deal with the child when they provide pain care. She said to the researcher that when the nurse wanted to give her child medication or change the IV medication she shouted to the child and told her to stop crying and explained how to hold his hand. The mother told the nurse that she should be nice with children, and that children will be nice when they are treated nicely. However, she reported to the researcher that the nurse ignored this and continued the same behaviour. In interview, mothers generally agreed with this assessment. If nurses increased their knowledge of pain management their performance would also advance. In interview, mothers said they believed that nurses might understand how to work with mothers through pain management courses. This would include understanding how nurses can work with mothers through partnership, which would be beneficial for nurses, mothers, and children. Mother M16 said that she thought nurses did not explain to the mother her role in caring for her child:

I felt nurses do not know how to deal with children. Some of them are tough. They treat the child as an adult. Some of them ignored the mother and expected her to know what she should do without telling her. I dealt with many nurses during my child's hospitalisation; everyone had different approaches. I think this was confusing since you don't know the mother's role. They're supposed to have thoughts before starting to deal with children. Helping the mother to take care of the child after surgery would be better for the child. (Interview mother M16)

Mothers pointed out that nurses needed to know how to improve their attitudes in dealing with mothers. Their performance of pain management and how they involve mothers in the pain care should also be evaluated. It was observed that one nurse came to check the child of mother M11's vital signs and brought a monitor. The nurse was making noise and the child was sleeping. The mother looked at the researcher and pointed out that her child had awoken because the nurse was making noise. Indeed, the child had his hands over his ears. The mother said that nurses should be soft and joke with children, to an extent, but she said that some of them were rude. It was observed that a nurse was abrupt when mother M15 rang the bell to call for the nurse to empty the urine catheter bag. The nurse did not respond. The mother wore her hijab and went to the nursing station to tell the nurse what she wanted regarding the child's care. One time the urine spilled out of the bag. The urine bag was full, and the urine went onto the bed and the floor. The nurse had only previously changed the bed sheet. The mother told the nurse she needed the nurse urgently. Then the nurse shouted in the mother's face and came to the room and saw what was going on, and continued to shout. The next day, the mother said to the researcher that the child's wound dressing had become wet with urine, and that the doctor needed to change it. Later, the doctor told her that he would change it to avoid infection in the surgery site.

Other examples from the mother interviews supported the point that nurses need to have educational support:

Nurses were too busy to answer my concerns or responses immediately. I do understand that they're busy. Sometimes I ask them that I need milk for my daughter. Some of them take a long time to bring it; others just ignore me. They need to manage these things through programs and evaluations. (Interview mother M19)

Not all nurses did their work properly. However, they should smile at the child. Children are afraid of nurses and doctors. They look as if they don't have enough knowledge about this. (Interview mother M17)

Mirroring many of the mothers' views, most nurses agreed in interview that they needed to improve their knowledge of pain management. They felt they needed to refresh their knowledge, and update it from time to time. Also, the contents of the course should not be superficial, but must involve useful information. Moreover, the course should be scheduled for a convenient time, considering the nurse's circumstances, such as shifts and other responsibilities, as noted in the following examples from nurse interviews:

We do not take enough classes for pain management. There is only one and it does not cover many topics about pain. It covers only scoring, and so it is not an elaborate class. They concentrate only about scaling and the hospital forms. There are also some other subjects needed. Now we can implement and do everything, such as patient identification, giving medication, and giving correct information, but it would be better to provide deep knowledge ... The classes should be very thorough and include good information. It should be at a convenient time for nurses. This will encourage them to attend. I can attend only if I am off duty. This is hard for us. (Interview nurse M12)

The hospital provides courses about managing pain. However, we [nurses] do not have enough time to attend all courses. They do not give us a day off to attend courses. They arrange them on our days off; but we need these days to get some rest – not to attend courses. It is really difficult. Also, people are responsible to arrange the courses. They should consider that the nurses need to get some rest on days off. They could develop a plan without compromising our days off ... Sometimes even basic information might be forgotten, so these courses are helpful. (Interview nurse N17)

The nursing education department provides pain management courses for the nurses. They are quite good. They give general information to refresh nurses' knowledge about the policy and procedures of pain management. However, these courses provide only basic information, and do not include topics which could solve issues that we faced here. (Interview nurse N2)

Nurses' attitudes could be improved. When the nurse sees a patient is in pain, she should take it seriously and carry out the proper course of action. Also, nurses' attitudes should be evaluated from time to time. Strategies can be established to

improve this. Here we have the quality management department. They come and check patients' files, but it is not enough. They can be directed from the surgical ward manager. She should check every morning shift. If all the nurses gave the medication, and they documented it, then the nurses will care more about managing their patients' pain. (Interview nurse N20)

Also, the policy and procedure of pain management (CLI-NU-084) supported the point that nurses need continuing programs in order to incorporate pain management.

d) Sub-theme 4: Materials and services

It was found that materials and services are required to improve mothers' participation in their child's pain management after surgery. Nurses discussed in interview that they desired to have materials for non-pharmacological pain management in the department:

We need some materials for non-pharmacological pain relief methods. A hot water bottle is not available. This is used mainly in the adult wards. (Interview nurse N4)

The hospital needs to improve the non-pharmacological methods. (Interview nurse N9)

Also, the policy and procedure of pain management (CLI-NU-084) supported the point that nurses need to use non-pharmacological methods, such as the application of heat or cold compress, massage, distraction, or imagery. However, these materials were not provided in the department.

The observation data supported this finding. Mother M18 became upset during the process of procuring a wheelchair for her child who was not feeling well. The child was about to be discharged, so the mother asked the nurse for a wheelchair. The mother waited for her for a long time then the nurse came and said that one was not available on this ward. The mother could not understand why she did not know that and say something from the beginning. The mother did not like seeing her daughter in pain.

The hospital policy and procedures on patient discharge (ADM-HA-045) indicated that patients requiring a wheelchair to transport them to their mode of discharge transport will be accompanied by a porter. However, the wheelchair was not available in the department.

In interview, some nurses suggested that they might have more interesting uniforms to divert the child's mind as well as relaxing the child so their mother would not struggle with them when they wanted to give care.

It [the uniform] means for them that the person who enters with the white uniform will give them an injection [laughing]. So it's good that we have a new uniform now. It instils positive psychological effects for children. This could also help the mother. (Interview nurse N3)

I do not like our uniform because red is symbolic for murder – and makes the eyes tired. It could be annoying for children, and so should not be red. Colour printing is good – but not red. Blue is better, and its reflection is good. It was a nice idea to change the uniform. Since nursing began in the old times, the only colour used was white. (Interview nurse N8)

Some mothers expressed in interview a desire to have psychological support for their child because they were struggling with unusual behaviours of the child after surgery. Some examples of this were discussed in Section 4.4.3, Child's Behaviour. In interview, mother M8 said the following:

I think that the child needs psychological support. I know some children might not need this kind of support, but some do, especially certain cases where the child has had a difficult experience, such as what happened to my daughter. Doctors and nurses should understand that children act in different ways. The other things were good in the hospital. (Interview mother M8)

From the data, it appeared that mothers required educational materials to strengthen their participation in their child's care. In interview, nurses often stressed that it might be helpful for mothers to have a digital display or Internet available to access different

topics that can improve their understanding about children's diagnoses, treatment, and roles. However, a computer or any sort with digital display was not available for patients.

Internet screens are not working. There are education materials available on these screens for mothers. There are applications for education, such as fall prevention methods, patient safety, and other things.... It should be available for all patients ... Mothers need education, educational materials and educators to help and educate themselves. There should be somebody around to explain to them about their role during hospitalisation. (Interview nurse N11)

In interview, some nurses recommended other services be provided on the ward, such as a pain management team, which should be standardised and include routine visits. They should be available when the nurses and mothers need them. Nurses argued that they had more complicated issues when they did not have the pain management team. The team should involve doctors working alongside nurses, therapists, and even social workers as part of a larger team. They could monitor the child's pain after surgery and explain management to the mother. With this, they make nurses tasks easier and help the mother by explaining to her what she should do for the child.

There is such a thing as a pain management team; which is a group of doctors and nurses. They do daily rounds for postoperative patients – but we do not have this here. There is a pain management team, but we have to refer them, which is not the best way. It should be routine. When the child feels pain and the pain relief medication is not the right dose or a suitable medication, the mother starts ringing the help bell. Then we try to contact doctors. They might respond late. Also, she might complain and show unwanted actions. This is wasting time. (Interview nurse N11)

Nurses often mentioned in interview that they desired doctors and pharmacists to check the child's pain together, not separately. Then they could prescribe the right dose and medication for the child based on the individual child.

When I was working at another hospital, the pharmacists attended and participated during the doctors' rounds. And they are the ones clarifying the

order. There was no delay. If medicine is needed to be discontinued, they are the ones who do it. If they need to start new medication, they also do that. They advise the doctor team regarding medication, and when it's needed.... It's much better than before. However, I prefer the system in my previous hospital. Here, the doctors are still prescribing... Here, the pharmacists come separately without the doctors. If the doctor wants to discontinue the medication, the doctor will come to discontinue it. But supposedly it is the pharmacist's job description. The doctors are busy; if they have a round together as a team, it would be much better. The pharmacists and doctors come to the ward and do these things. I am not seeing that here. (Interview nurse N8)

In the nurses' opinion, combined pain assessment by doctors and pharmacists could provide the child with appropriate and standard pain management and help nurses by avoiding extra stress caused through pain management complications. This would enable doctors to better understand and manage the details of the medication prescribed, such as permitting the child to be given the appropriate dose of pain relief medication.

Another service that was considered desirable by nurses at the hospital was the translation of Arabic into English. They recommended that translators be available on the ward to ease communication with mothers. Nurses often said in interview that they felt that language was a barrier to the improvement of the mother's role in managing her child's pain.

We [nurses] need translators, because only two nurses on the ward can speak Arabic. The non-Saudi nurses speak a little bit of Arabic, but still can't speak fluently. Especially here; there are different accents in Saudi Arabia, so mothers could easily misunderstand them. This could affect the child's care. (Interview nurse N9)

Observation data supported the point that other services are required on the ward to aid partnership with mothers. While being observed, mother M12 said to the researcher that she struggled to understand a non-Saudi nurse when she wanted to say that her child did not feel well and she was worried about allowing him to move. The nurse did not

understand the mother and asked her to wait until she brought a Saudi nurse. The mother said that they should put translators on the ward because she finds it hard to communicate with the nurse, and at present she is avoiding the nurse because of language difficulties. The study data showed that mothers need to share information with other mothers who have the same experience. They feel that they could encourage and support each other. The following show how some mothers thought about this in interview:

When the doctor told me that my child needed more surgery, I felt sorry for him that he would be in pain again. I am so worried that he will have to undergo surgery again and again. Parents are curious to obtain more information about their child's condition. I understand this from parents with children that have the same condition.... I found a mother in the hospital whose child had had the same surgery as mine. It's helpful when parents meet with other parents whose children have the same condition. They can share their experiences. Her child was only one year's old but I went to her room. Also, my cousin's child in Jordon had the same surgery as my child. My cousin told me that I should come to Jordon and for my child to have the surgery there. His child underwent surgery only one time and it was successful... I wish I had found others who have had similar experiences so that I could discuss my concerns. (Interview mother M13)

Sometimes I went to talk with other mothers when I was at hospital. We had a chat and supported each other. I feel this made me see what other mothers faced, and gave me tolerance. (Interview mother M3)

In observation, mother M15 went to the next room in the ward. She discussed with another mother about their experiences. The mother came back to her child's room. She told the researcher what she was doing. She heard from the mothers in the ward that there was a case similar to her child's case. She heard another child had had a more complicated condition, which in a sense comforted her that her child's condition might not be as serious as she might have thought. In interview, some nurses supported the idea that it could helpful for mothers to share information. However, it could also be dangerous in some cases.

Mothers like to discuss their experience with other mothers. We see that here. They support each other. However, in some cases, they (mothers) could affect each other negatively. For example, if one mother has had a bad experience, or her child has had complications regarding other factors that could be different to the mother of a second child, this might be detrimental for the child of the first mother. (Interview nurse N9)

However, there was no hospital documentation found for or against the idea that mothers could share information.

4.13 Model of the mother's experience of involvement in her child's postoperative pain relief

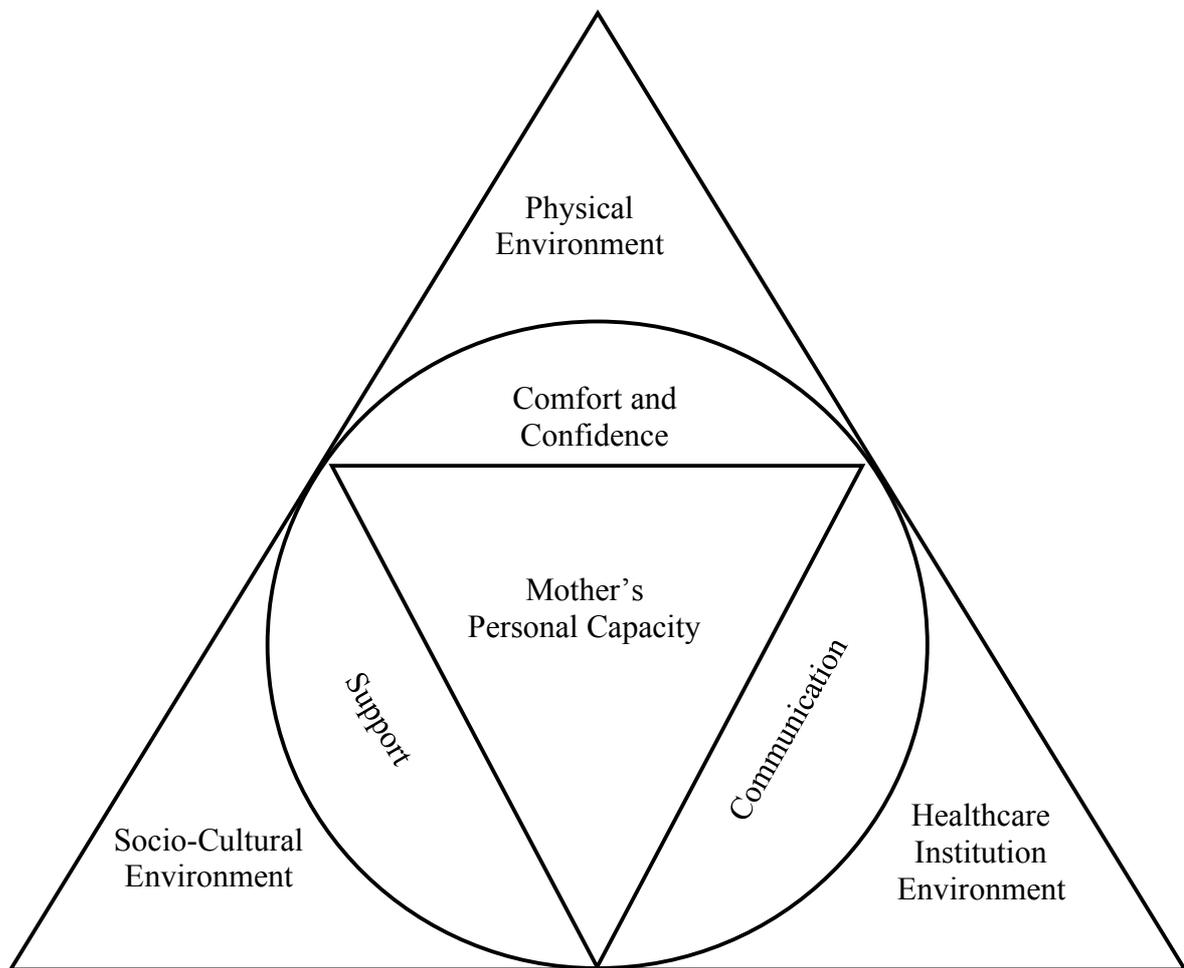


Figure 4-1 Model of mother's experience of involvement in her child's postoperative pain management

The above model is a visual representation of the themes and subthemes and their relationship with each other. The model deconstructs the themes and subthemes and reorganises them in a way that captures the complexity of the findings. It illustrates the factors that contribute to the mother's experience of her involvement in her child's postoperative pain relief. As the focus of this research was the mother's experience, the model is mother-centric, placing the mother at the middle of the model, with consideration of all the internal and external factors that affect the experience as revealed by the findings.

This model is made up of three main elements: the mother's personal capacity, the environment, and the interaction between the mother and the environment. The mother's personal capacity refers to the mother's personal intrinsic ability to care for her child physically, emotionally, and psychologically. The environment refers to the extrinsic factors that affect the mother, that is, the physical, socio-cultural, and healthcare institution. The interaction of the mother with her environment concerns things that impact her individual experience, such as receiving spiritual and social support from her socio-cultural environment, feeling comfortable and confident in her ability to care for her child, and communicating effectively with the healthcare team. These interactions influence the mother's personal capacity to care for her child and provide pain relief. Detailed explanations of the three sections is given in the following paragraphs.

4.13.1 Environments

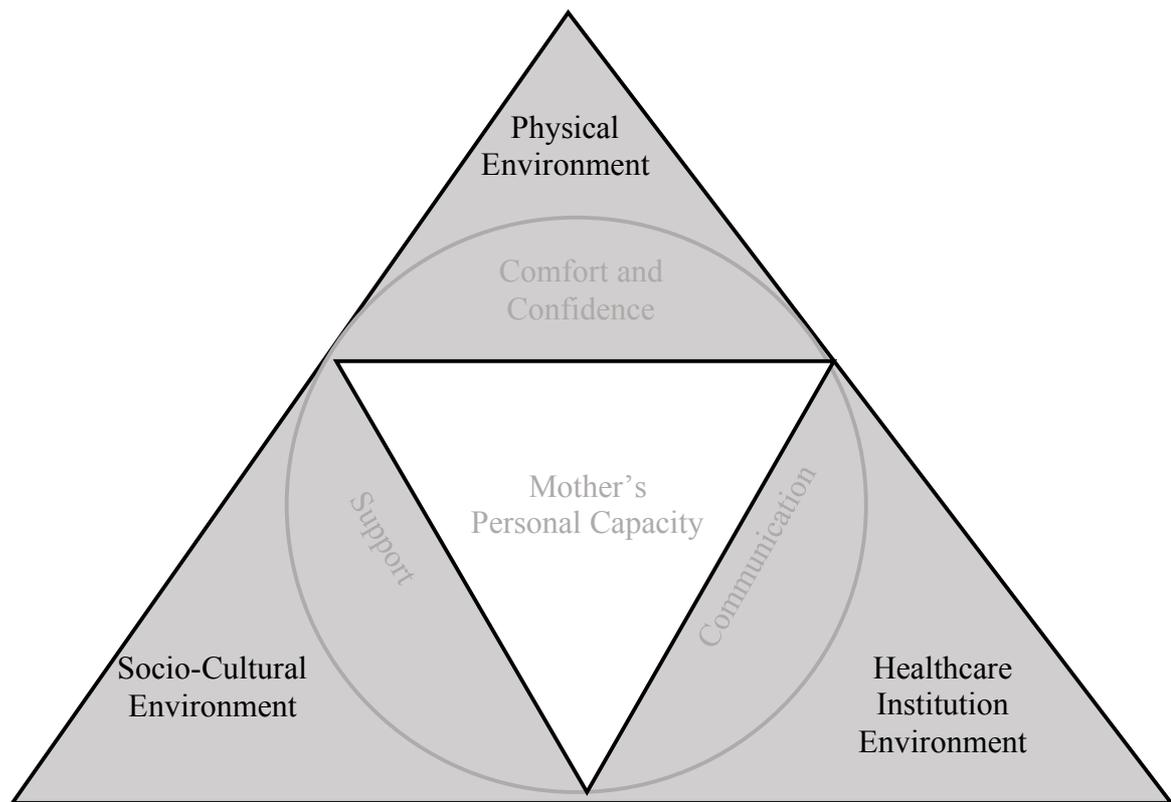


Figure 4-2 The three environments in the model of mother's experience of her child's postoperative pain management

The external environments that contribute to the mother's experience is depicted by the three smaller triangles set adjacent to the mother's personal capacity: the physical environment, the socio-cultural environment, and the healthcare institution environment.

The Physical Environment

- Hospital setting
 - Interior decoration, privacy absenteeism, and physical surroundings.
 - I think the decorations in the room were not really nice. The room should be coloured and with nice paintings for the child. These things could let the child feel more relaxed and energetic (Interview mother M17)

- Indeed, most of the time I was arguing with him. Also, the room was very warm. I think because the next patient was a small baby, his mother wanted the room to be warm (Interview mother M17)
 - I did not feel comfortable after the child had had surgery because the child's room was not a private room [it was a two-bed room]. (Interview mother M3)
 - The child cried and screamed on the first few days after surgery. She felt worried because there was another patient in the next bed. She blamed herself that this might have annoyed or disturbed that child. (Observation mother M3)
 - All hospitals are the same. It was irritating when the cleaners, nurses, and visitors came in the room, especially when your child wants to sleep. (Interview mother M10)
 - Provision
 - We need some materials for non-pharmacological pain relief methods. A hot water bottle is not available. This is used mainly in the adult wards. (Interview nurse N4)
 - The hospital needs to improve the non-pharmacological methods. (Interview nurse N9)
- Hospital services
 - Play therapy and entertainment for the child
 - Actually, I just today saw the social workers read stories to the children. I realised they were enjoying it. With this, mothers could feel relaxed. Then she could monitor and take care of her child successfully. It is better that the hospital should also activate the playroom. (Interview nurse N9)

The Socio-Cultural Environment

- Social and cultural context
 - Mothers like to discuss their experience with other mothers. We see that here. They support each other. However, in some cases, they [mothers] could affect each other negatively. For example, if one mother has had a bad experience, or her child has had complications regarding other factors that could be different to the mother of a second child, this might be detrimental for the child of the first mother. (Interview nurse N9)
 - I found a mother in the hospital whose child had had the same surgery as mine. It's helpful when parents meet with other parents whose children have the same condition. They can share their experiences. Her child was only one year's old but I went to her room. Also, my cousin's child in Jordon had the same surgery as my child. My cousin told me that I should come to Jordon and for my child to have the surgery there. His child underwent surgery only one time and it was successful... I wish I had found others who have had similar experiences so that I could discuss my concerns. (Interview mother M13)
- Family member interactions
 - We had a lot of visitors during the weekend. My child was feeling much better than during the previous days. My family invited me to stay. I felt sorry for my child, I did not want to leave her at hospital. However, they surprised us – they came here after the party to see her. We celebrated together (Observation mother M8)
 - My family was often talking to me on the mobile phone when I was waiting for my child, until he finished the surgery. They phoned me most of the time. They supported me. They helped me

to be patient. This support made me feel better. At that time, I needed my family to support me. (Observation mother M20)

- Cultural influences and traditional practices
 - Divorced mothers need more support to manage their child's pain after surgery. They don't have a man with them to support and help them. In our culture, we need the father to make decisions and support the mother at this difficult time. I cannot take all the responsibility. (Interview mother M1)
 - To be honest, I don't have enough information about my child's surgery and pain. This is her father responsibility. I cannot take this responsibility. This is what we have in our culture. ... Anyway, I would do the pain management after surgery in the way my husband would tell me.... Her father took the pain relief medication at discharge time from the male pharmacist and he told me how to use it at home. (Interview mother M18)

The Healthcare Institution Environment

- Nurses' attitudes
 - Nurses were too busy to answer my concerns or responses immediately. I do understand that they're busy. Sometimes I ask them that I need milk for my daughter. Some of them take a long time to bring it; others just ignore me. They need to manage these things through programs and evaluations. (Interview mother M19)
 - Not all nurses did their work properly. However, they should smile at the child. Children are afraid of nurses and doctors. They look as if they don't have enough knowledge about this. (Interview mother M17)

- Nurses' attitudes could be improved. When the nurse sees a patient is in pain, she should take it seriously and carry out the proper course of action. Also, nurses' attitudes should be evaluated from time to time. (Interview nurse N20)

- Doctors' attitudes
 - Mother expressed to the researcher that she is not satisfied because when she asked the doctors questions about her child's pain, they sometimes responded as if these questions were naïve or unnecessary. The mother felt doctors should understand that not all mothers are educated, or have the same level of understanding as them. (Observation mother M10)

 - Most of the time doctors are busy in the theatre to come and meet the child's mother or family. (Interview nurse N20)

4.13.2 Mother's personal capacity

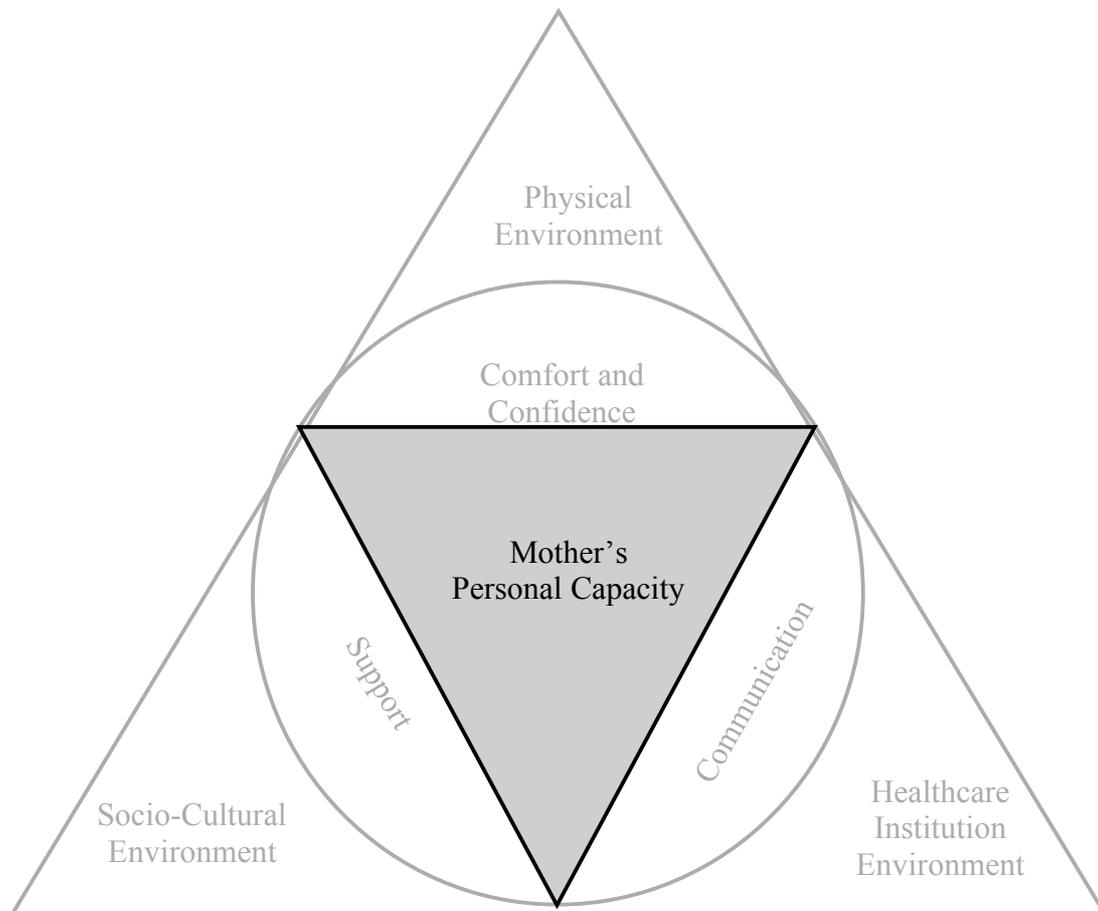


Figure 4-3 The mother's personal capacity in the model of mother's experience of her child's postoperative pain management

The mother's personal capacity to be involved in the child's pain relief is reliant on the following internal factors:

- Knowledge needs
 - Information about child's pain, and postoperative pain management
 - No one explained to me how long the child would experience pain after surgery and how the pain would be. I tried to find my own way. Also, no one gave me information about pain and the duration of pain when my child's was discharged from the hospital. So I tried to find my own way at home to know how I could support my child. (Interview mother M5)

get some rest. Then I can come back to hospital. (Observation mother M13)

- Psychological and emotional needs
 - Mothers look afraid when the nurse wanted to do anything to their child, such as insert a cannula. They do not want their children to feel any pain. Some mothers cannot endure the thought that their child feels pain, especially when they think children are too young to feel pain. (Interview nurse N7)
 - All mothers feel worried and have fears regarding the surgery and pain. It is normal and a natural feeling. I am a mother, so I do understand this fear. If my child has surgery I would have the same feelings. They are worried about everything in the surgery: complications, childcare, and pain after surgery. Therefore, we [the nurses] should support the mother. And we give her emotional support. (Interview nurse N16)
- Time
 - She is a mature girl, not a child. She needs to take care of herself ... I should take care of them [her other children]. I wish if my daughter would be ill, she could take the medication by herself. No need for her father and I to tell her to take the medication all the time. Her brother, when he is ill, takes his medication by himself. He does not need us to remind him every time. I am working and I do not have enough time to make sure she takes her medication. (Interview mother M18)
 - I was not feeling totally free to manage my child's pain when he was at hospital. I have to work some hours and manage some phone calls at work. I felt it was really stressful for me, and I felt affect my mind needed to be free to manage my child's pain care. When he was crying I felt I did not have enough energy to deal with him. (Interview mother M12)

4.13.3 Interaction between the mother and the three environments

The interaction between the mother and the three environments is shown in the model by the overlapping portion of the circle (representing the mother) with the three small triangles (representing the physical environment, socio-cultural environment, and the healthcare institution environment).

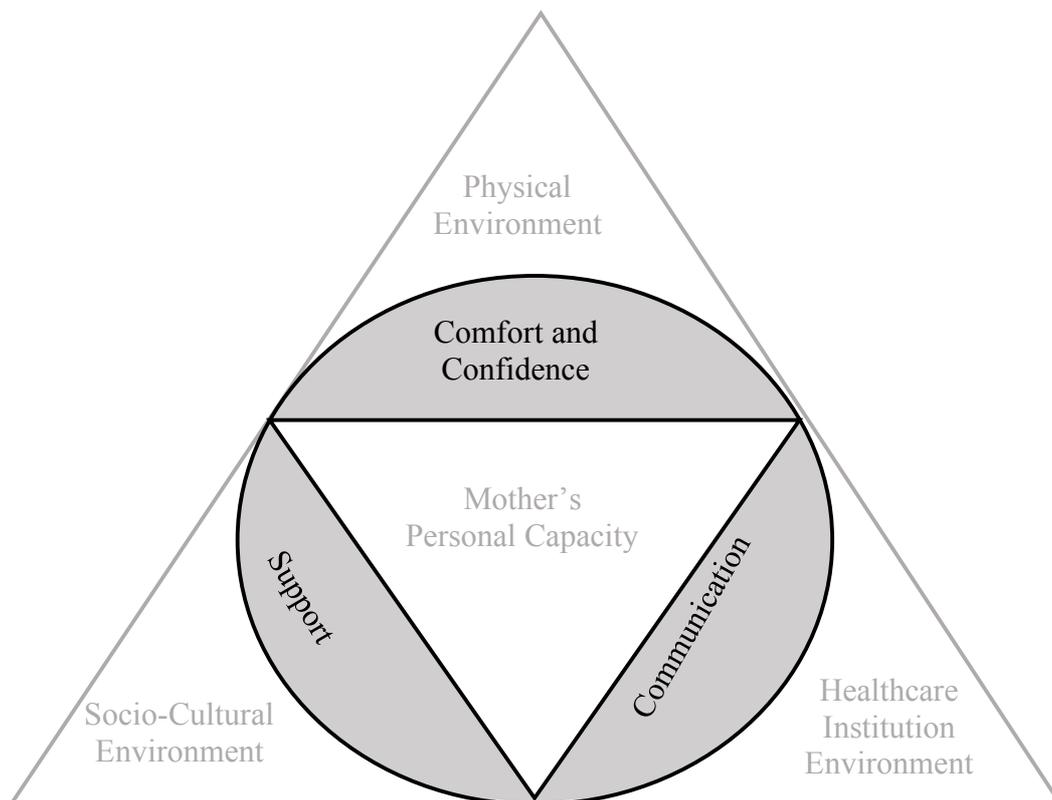


Figure 4-4 The three elements of interaction between the mother and the three environments in the model of mother's experience of her child's postoperative pain management

Communication

- The communication between mothers and the healthcare institution
 - Mothers should ask the doctor directly because of the language barrier. It is better the doctor provides the mother with information to avoid any mistakes that might put the child in danger. (Interview nurse N17)
 - Most of the time, I could understand them [the nurses], but not all the time. I understood them when they spoke a few Arabic words. I

understood them but I cannot ask them about specific things because we speak different languages. I cannot speak English. I asked my relative to explain things to me. She understands a little bit of English. Again, I prefer to communicate with a nurse who speaks Arabic. (Interview mother M2)

- I cannot understand these nurses. Their accents are not clear for me. They eat most of the letters. I really find it hard to communicate with them, especially when they talk fast. (Interview mother M16)
- The communication within the healthcare institution
 - I had a problem because the nutritionist was not informed that my child had surgery and should not eat. She brought the breakfast meal before the surgery which made my child cry until the surgery time. She also repeated this after the surgery. (Interview mother M5)

Support

- Emotional support from family members
 - Actually, my husband and daughter came and stayed with me for a certain time. They talked to me and I felt more relaxed. But then they needed to go. I told them you can go, but at the same time I wanted them to stay with me. (Observation mother M12)
 - My family was often talking to me on the mobile phone when I was waiting for my child, until he finished the surgery. They phoned me most of the time. They supported me. They helped me to be patient. This support made me feel better. At that time, I needed my family to support me. (Observation mother M20)

- Traditional and cultural support
 - Actually, his father is the one responsible about the surgery and finishing the paperwork [for admission and discharge]. He then told me what should I do. In my culture, the man does everything and talks with other males, even doctors. (Observation mother M1)
 - Every time the doctors came and checked my child's condition I felt shy. Therefore, I could not discuss my actual concerns. Then, when they left the room, I continued to dwell on those concerns. (Interview mother M19)
 - The problem with the mothers is that they don't question the male doctors. Usually they bring up their concerns with the nurse when the doctor has left the room; perhaps because they are afraid to talk to the male doctors directly. When the doctors discuss with them their child's condition and pain, they sometimes don't ask the questions that they have in their minds; and don't explore fully their thoughts during the discussion. I think it is part of the mothers' culture that they don't feel confident to talk to male doctors. (Interview nurse N10)
- Religious and spiritual support
 - I gave my child Zamzam water. As you know, we have strong beliefs that it is blessed water and can help my son to be cured. I will pray to God to take care of my son and relieve him from pain. God has the power to do everything. Besides this, I would keep doing what the doctors say. (Interview mother M4)
 - I like to read the Quran. I believe that I should infuse the environment with religious feelings in order to be closer to God. He will help my child to feel better and relieve his pain. (Interview mother M2)

Comfort and confidence

- The influence of the hospital physical environment
 - I feel unwell because I did not sleep yesterday. I am used to sleeping in my home; now the place is new for me. I have difficulty in sleeping in new places. When the nurses came to check the other child and my child they distracted my sleep. Now I will get rest. (Observation mother M13)
 - All hospitals are the same. It was irritating when the cleaners, nurses, and visitors came in the room, especially when your child wants to sleep. (Observation mother M10)

- The influence of hospital facilities
 - The visiting time is not suitable. The child needs to enjoy the time with family and cousins. My child was sad because he could only see his twin at hospital. Seeing your family supports the child and mother, especially with long hospital stays. I stayed fifteen days and we often felt bored. (Interview mother M3)
 - Actually, I just today saw the social workers read stories to the children. I realised they were enjoying it. With this, mothers could feel relaxed. Then she could monitor and take care of her child successfully. It is better that the hospital should also activate the playing room. (Interview nurse N9)

4.14 Summary

Mothers' involvement in their child's postoperative pain has various limitations in Saudi Arabia; further progress is required in order to improve the level of involvement. This requires development in terms of physical, emotional, social, cultural, knowledge, and hospital services factors. These factors affect the mother's involvement during her

child's hospitalisation period and following discharge. The study has identified ways to strengthen the mother's involvement; broadly, by providing support from the health care team and family as well as increasing the services of health care institutions. The study developed a model of mothers' experience in their child's postoperative pain management which explains the mothers' needs for involvement in their child's care. The next chapter will discuss the study findings in relation to the literature on mother's involvement in postoperative pain management. It will delve into the meaning, importance, and relevance of the findings.

CHAPTER 5 : DISCUSSION

5.1 Introduction

This chapter discusses the findings of this study in order to examine the extent of mothers' involvement in their child's postoperative pain management, and how this might be improved in Saudi Arabia. The five themes generated from the study findings will be discussed, comprising 1) Acquisition and provision of information about pain, 2) Communication deficiency, 3) Emotional and physical influence, 4) Social and cultural factors, 5) Hospital facilities, provision, and services. The strengths and limitations of the study are also examined. Explanations of the principle implications of the findings for policy and practice, and how they relate to recent research in health science, are presented. At the end of the chapter, suggestions for further research are identified.

5.2 Theme 1: Acquisition and provision of information about pain

a) Mother's expectation of their child's pain experience

It was found that mothers wanted to know the expected level and duration of their child's pain after surgery. Sufficient information would allow them to have an active role in their child's postoperative analgesia and to contribute fully on pain care in order to support the child. They described feeling ignored by doctors and nurses on the ward, and that nurses often managed their child's pain care without fully involving them. A few studies have specifically examined mothers' experience of involvement in their child's postoperative pain care from the mother's perspective, showing that mothers often feel that their involvement in their child's postoperative pain care is limited (Darbyshire 1994; Gordon et al. 2010; Tait et al. 2008; and Lim et al. 2011). These studies correspond with the present study. They found that parents need a greater amount of specific information from health professionals about their child's pain to be involved. In

a study of the evolution of involving parents in paediatric wards, Darbyshire (1994) examined the experience of parents and nurses living with a sick child in hospital in the UK. It was found that mothers required substantially more information. This affected them negatively, because they felt that their role was being minimised or even eliminated since they were not involved as fully as they desired.

Parents that are given comprehensive information about pain management have a better understanding than those that were given no or minimal information (He et al. 2015; Jaaniste et al. 2007; Pölkki et al. 2006; Tait et al. 2008). Tait et al. (2008) examined the nature of information provided to parents regarding options for postoperative pain control and their understanding of this information. They found that information deemed unclear or insufficient resulted in decreased parental understanding. A lack of information or understanding can result in miscalculation of the risks and benefits of a treatment plan. Moreover, without involvement, mothers can sometimes feel disempowered and unconfident, especially when they feel their mothering responsibilities are being denied or reshaped at hospital, which might have a detrimental effect on pain care and even put the child's safety at risk. Preparatory information is required to develop a detailed pain care plan and pain care goal to arrange mothers' thoughts and expectations, which can reduce their stress and help them become actively involved (Darbyshire 1994; He et al. 2015; Jaaniste et al. 2007; Pölkki et al. 2006; Tywcross and Finley 2013). Negative feelings in the mother could also have had a detrimental impact on other aspects of pain management. Children require emotional support from their mother owing to the anxiety and fear with experiences surrounding hospitalisation. Therefore, helping mothers to be free from anxiety is beneficial for the child, improving the child's experience (Carter et al. 2014).

In the present study, many nurses did not follow up according to the hospital policy. Although nurses assessed pain regularly, they did not explain how they assess the pain to the child and mother and how the mother can involve in the pain assessment. Also, many said that they had beliefs about expectations that may have affected their performance. For example, nurses expected children to be able to verbalise any feeling of pain that they have. Thus, they did not explain to the child and mother that they should inform the nurse if the child feels pain, especially when the child is not prescribed a regular analgesic. Several studies discussed health professionals' attitudes and performance towards pain assessment in paediatric settings (Alabdulaziz et al. 2017; Czarnecki et al. 2011; Czarnecki et al. 2014; He et al. 2015; Kortestuoma et al. 2008; and Kozlowski et al. 2012; Twycross et al. 2013). They found that health professionals did not follow the hospital policy of pain assessment in terms of the frequency of using pain assessment tools and involving both children and parents. These findings corresponded with those of the present study.

It has often been suggested that health professionals generally give low priority to pain management and involving parents in the child's pain management after surgery (Czarnecki et al. 2011; Czarnecki et al. 2014; Alabdulaziz et al. 2017). Alabdulaziz et al. (2017) explored family-centred care in the Saudi context from the perspectives of paediatric nurses. It was noted that nurses may be reluctant to inform parents because they believe they generally do not have complete information from doctors about the case, and also that providing information for mothers is not their responsibility. Nurses reported they are not confident to inform the mother because doctors did not update them with the case. Similar to the present study, there was a lack of information provided by health professionals about pain intensity, pain duration, and the use of medical devices, such as an IV cannula or urinary catheter, which may cause pain, physically and

emotionally. In the present context, the cultural barrier between the non-Saudi nurses and Saudi Arabian mothers, as well as the specific work culture of health professionals in this context, may have made further challenges to providing information compared to the studies of many Western countries. In particular, these health professionals might not be aware of the importance of informing children and mothers about pain, and therefore the attitudes of health professionals may directly place limitations on the involvement of mothers.

The mothers' limited role about decisions regarding their child's health care in Saudi Arabia might be a product of the internal culture of health authorities and the more widespread cultural landscape (Alabdulaziz et al. 2017; Rawas et al. 2012). For instance, in general, it is the father who takes the main responsibility for decisions about surgical procedures and treatment plans; the hospital policy only accepts the father to give consent, and the surgeon must wait until the father is present before commencing surgery. This differs to many Western cultures, where the principles and practices of gender equality are often more explicitly regarded (e.g., Carter et al. 2014). It may be useful to provide better provisions for health professionals about various aspects of cultural differences, such as providing education programs for understanding and working with cultural differences to improve mother involvement.

b) Use of non-pharmacological methods

It was found that mothers often needed more and better quality information about non-pharmacological methods to control pain. Nurses said that they only provided information when they thought the mother required them. Thus, this was not done routinely; it was not normal for nurses to provide such information to mothers. This corresponds with Chng et al. (2015), He et al. (2010), Power and Franck (2008),

Twycross and Collis (2013), and Lim et al. (2011), which found that parents were generally not given information about non-pharmacological pain relief methods. The several studies that have examined nurses' knowledge and attitudes about non-pharmacological relief methods (He et al. 2015, He et al. 2008, He et al. 2010, He et al. 2011) found that this may be because nurses have inadequate knowledge about non-pharmacological methods. Many reported that they believed this is part of the mother's role. He et al. (2015) and He et al. (2011) believe that nurses' provision of parental guidance had a key effect on influencing parental practice. He et al. (2015) examined nurses' perceptions of providing preparatory information and non-pharmacologic methods to parents and how their demographics and perceived knowledge adequacy of these methods influence this guidance; the study was carried out in seven paediatric wards in two tertiary public hospitals in Singapore. They pointed out that there is a need to extend nurses' guidance to parents about anxiety and pain in the management of children's perioperative sensory information (such as what the child feels during surgery). They argued that nurses should provide instructions for parents about methods less frequently conveyed by nurses, such as cognitive-behavioural methods (imagery) and physical methods (positioning and massage).

This position contrasts with the findings of Twycross and Finley (2013). These UK researchers claimed that parents and children were satisfied with the nurses use of non-pharmacological methods; however, children felt moderate to severe pain postoperatively. Lime et al. (2012) Gordon et al. (2011) pointed out that providing parents with information improves parental participation and the use of non-pharmacological methods to alleviate pain. For example, they could explain to her child to expect fairly substantial pain and show her how to use distraction methods. Gordon et al. (2011) found that parents preferred to have a leading role as information provider for

their child. In the current study, it was observed that there was insufficient information about things that might cause pain, such as vomiting and inappropriate movement. Klemetti et al. (2009) found that preoperative counselling about nutrition significantly reduced the child's pain during the first hours after tonsillectomy surgery and helped the child tolerate the stress of potential postoperative nausea and vomiting. In the present study, mothers needed to know their child's activity level after surgery to provide their children with information. For example, children often wished to move around or be involved in physical play, which, if permitted, could have a negative impact on their recovery. Therefore, mothers gave explicit instructions to their child not to do so after being informed by nurses of this responsibility.

Nurses performance in applying guidance to mothers about non-pharmacological methods is influenced by their demographic background, including such aspects as age, education, being a parent or not, and perceived knowledge adequacy of non-pharmacological methods (He et al. 2011a; He et al. 2015; Lui et al. 2008). Nurses' perceived knowledge adequacy is the main factor influencing their provision of parental guidance (He et al. 2015). Nurses who are younger, had little education, lower socio-economic status, less working experience, and no children of their own used non-pharmacological methods less frequently than nurses with the converse characteristics of these attributes (He et al. 2011a). In the present study, it was noted that nurses often said they believed that low pain levels should be treated using non-pharmacological methods if possible, rather than consistently using analgesics, indicating a lack of understanding about the use and application of non-pharmacological methods. This concurs with Lui et al. (2008) and Svendsen and Bjork (2014), where nurses were found often to have a lack of knowledge about non-pharmacological pain management methods. In the present study, nurses generally believed that patients can endure mild pain, and this should be

treated using only non-pharmacological methods. Nurses believed that these methods are required for cooperation with the child for small procedures only, such as inserting an IV cannula or taking blood pressure. This lack of knowledge of non-pharmacological pain relief methods suggests that nurses treat pain based on a limited understanding of the application of these techniques. Accordingly, if they have a lack of knowledge about these aspects, it may be problematic for their ability to provide mothers with appropriate information.

A number of resources in the paediatric surgical ward in the present setting were not available, such as hot or cold compressors, play therapists, and imagery techniques. This suggests that the hospital setting does not pay enough attention to the importance of effective use of non-pharmacological methods to ensure the adequate engagement of mothers in their child's pain care. The study identified the limited awareness of health professionals regarding the importance of the use of non-pharmacological methods to guide mothers in the relief of their children's pain.

c) Use of pain relief medication

Mothers and children were found to be not sufficiently involved in giving pain relief medication and the decision-making process surrounding pain care. Mothers generally said that they needed to be kept more informed about postoperative pain treatment; this had an effect on the level and degree of mothers' involvement in pain management. For example, mothers and older children often did not know how long the analgesia effect would last, and they thought that they should have medication only when the nurse administered it. Therefore, when children felt pain they often did not ask the nurse about it; many children experienced pain for significant periods of time, particularly at night. These findings correspond with various studies which discuss mothers' limited

understanding of pain relief medication (Longard et al. 2016; Twycross et al. 2014; kankkunen et al. 2009; Paquette et al. 2013; Sutters et al. 2012; Zisk-Roney et al. 2010). These studies found mothers misunderstood instructions or had incorrect beliefs about the use of pain medication. The present study found that mothers mainly depend on nurses as the main source of information, and thus needed appropriate information about pain relief medication.

It has been widely noted that nurses' lack of knowledge and information about the use of analgesics for children's pain relief requires improvement (Ekim and Ocakci 2013; Griffin et al. 2008; Smyth et al. 2011; Simons and Moseley 2008; Vincent and Gaddy 2009). Smyth et al. (2011) found that nurses had insufficient understanding about the administration of PRN analgesics in postoperative pain management in children: approximately half of children prescribed PRN analgesics were not given it in practice. Simons and Moseley (2008) noted that analgesics were not given by nurses in the amounts initially prescribed. Vincent and Gaddy (2009) found that nurses often have misconceptions regarding pharmacokinetics and administering morphine, therefore, nurses sometimes chose to limit the dosage, administering inadequate doses of analgesics for children after surgery. Alternatively, Griffin et al. (2008) pointed out that nurses with a high level of knowledge of pain management sometimes appropriately gave children larger and more frequent doses than the prescribed amount, being able to respond accordingly when required. Vincent et al. (2010) explain how nurses provide pain management intervention for children. They depend on a Conceptual Content Cognitive Map (3CM). If nurses are not confident in their understanding of pain management, this affects their ability to provide mothers with sufficient information about medication administration. In the present study, although the hospital policy on pain management (CLI-NU-084) indicated that mothers are required to receive preparatory information

from doctors and nurses about pain treatment, nurses generally reported that the lack of time and their limited authority affected how they provided information and involved mothers in their child's pain care.

It was observed that mothers were given only minimal information from the pharmacist about their child's take-home medication for pain. For example, they were not given instructions about how they might assess their child's pain if medication was needed outside the hospital. This corresponds with the conclusions of a number of other studies (Kankkunen et al. 2008; Melo et al. 2012; Paquette et al. 2013; Vincent et al. 2012), where many parents were not satisfied with the information given for pain management at home owing to the lack of information and the perceived difficulty of language used by healthcare professionals. Almutairi (2015) and Smith and Coleman (2009) found that the barriers and obstacles that their participants most frequently cited as issues were the frequent use of obscure medical technical terms, the limited time allocated for nurses to answer their questions, and communication (e.g., the use of a lingua franca).

Smith and Coleman (2009) reason that teaching children and their families is a complex activity, and health professionals should focus on communication skills in order to deliver information more effectively to children and their families, enabling effective administration of medication and continuation of home care. Preparing for discharge and learning new nursing and medical skills are often factors that are not given enough attention. They also highlighted that children's understanding and perceptions about health may be very different from those of adult members in the family and are likely to change depending on their developmental age and social experience. In the present study, in order to provide appropriate pain management, including the use of medication

at home, it was not necessary for children's and mothers' backgrounds to be addressed fully by health professionals.

5.3 Theme 2: Communication deficiency

a. Language barrier

In the present study, mothers experienced widespread difficulties in understanding nurses during their child's hospitalisation period. Mothers generally pointed out that communication through the use of the English language by nurses was one of the main impediments to understanding. Indeed, mothers and nurses often suggested having translators in the paediatric surgical ward. The issue of the language barrier was encountered by Festini et al. (2009) (in a study conducted in Italy), where difficulties in communication between foreign families and health professionals was reported. Similar to the present study, the language barrier was a primary obstacle for communicating appropriate pain care for children. They concluded that effective use of language was a primary foundation for fostering good nurse-family relations. Festini et al. (2009) also suggested using cultural mediators to help parents and nurses communicate more successfully. However, in the hospital setting of the present study, cultural mediators or translators were not available; non-Saudi nurses often asked Saudi nurses to communicate to mothers about various details relating to their child's care. On occasion, native Arabic nurses were not available to translate, meaning communication was hindered or limited to the transmission of basic information. The study setting was a hospital where the first languages of most nurses (of various nationalities) was often different to the first language used by most mothers (Arabic), and the established lingua franca for health professionals (English) was generally not well understood by mothers. Thus, it can be concluded that in this hospital setting, and by extension, many hospital

settings in Saudi Arabia, the language barrier is a major obstacle in effective communication about pain care, and thus impacts negatively on mother involvement.

These findings broadly correspond with a study by Almutairi (2015), where issues surrounding effective communication between patients, families, and healthcare providers were identified as being in part a consequence of nurses' lack of cultural understanding. Each country has its own unique culture that dictates the normative values and attitudes of individuals within a group, and these attitudes affect all aspects of life and behaviour within a country. In Almutairi (2015), it was found that barriers in communication can cause unnecessary errors, excessive pain, poor quality of care, or even death. In the present study, the general lack of knowledge that many non-Muslim nurses have regarding Saudi Arabian culture, the difficulty in achieving competence in dealing with culture-related health issues, and the culture shock felt by foreign nurses were found to be significant factors that can be barriers to effective communication.

It was found that while some non-Saudi nurses spoke English with mothers, the nurses spoke with various accents or dialects. Therefore, even if mothers generally understood basic English, their understanding might still have been hindered owing to aspects of pronunciation, regional accent, dialect, and idiomatic language usage. Likewise, non-Saudi nurses were often unfamiliar with the mother's language (Arabic), including dialect, regional accent, or colloquial idioms (which originate in various parts of Saudi Arabia). For this reason, a number of non-Saudi nurses asked Saudi nurses (there were only three Saudi nurses on the ward) to help them communicate with mothers in Arabic. Mothers likewise asked foreign nurses to bring a Saudi nurse so that they could communicate (or translate) in Arabic. Some mothers did not feel confident enough to receive information from non-Saudi nurses, even when the nurses used a scattering of

Arabic words placed within an English sentence. However, in a number of cases, mothers tried to understand the nurses when they used a few Arabic words accompanied with the use of hand gestures. Nurses agreed with mothers' reports about the main difficulties in communication, and that the language difference is a primary barrier to successful and appropriate communication. These findings correspond with Fortier et al. (2011), in a study based in Italy, where 206 parents were examined to identify the impact of ethnicity and language on parental attitudes regarding analgesics use to treat children's pain. They found that language significantly impacted parental beliefs regarding the use of analgesics for children's pain, and differences in accents and dialects between parents and health professionals can increase the risk of errors in the management and treatment of pain. In the UK, for patients who do not understand English, an interpreter is usually provided (nhs.uk 2019).

b. Lack of respect and conflict of expectation

In the present study, some mothers said they perceived a lack of respect from doctors and nurses. A few of the mothers expanded on this, saying that they felt doctors generally did not make enough time for them when discussing the treatment of their child's pain, such as when they were discussing how to administer medication and improve the child's condition. Some mothers complained that doctors often seemed to consider their questions unsuitable or trivial. During observation, the researcher noted that doctors were sometimes not able to give mothers the required time to discuss their concerns in appropriate detail; also, they generally did not respond appropriately to the mothers' cultural, social, and educational backgrounds, or try to explore how they might better communicate with them. This corresponds with Twycross (2008), in a study based in the Midlands in England, which noted that health professionals frequently did not discuss

with mothers about their preferences regarding their child's postoperative pain management. Twycross (2008) reported that nurses believed that communication between themselves, parents, and children is essential to care. However, in practice they often did not do this effectively owing to their heavy workload, and so often gave low priority to communication with children and parents. Tait et al. (2008) also found that doctors did not pay attention to the preferences of parents and children, and generally did not involve them in making decisions.

Twycross et al. (2013) argued that nurses were not fully aware of the mother's role, and often expected more input from the mother. Indeed, in this respect, Fortier et al. (2011) noted that health professionals should take into account the mother's individual background and preferences for improved communication. A lack of understanding of the mother's role and not being aware of her preferences can lead to an attitudinal breakdown and a lack of trust for mothers, which limits her ability to be effectively involved in pain care (Sheldon and Foust 2014). In the present study, there were frequent conflicts of expectation between mothers and health professionals during the child's hospitalisation period. This resulted from the mothers and nurses having overly optimistic or incoherent views about the pain management of children. Often, it was found that mothers did not have enough provided information about their role in their child's pain management after surgery, which may have contributed to contrary expectations.

From the nurse interviews, Saudi mothers were said not to have shown interest in being involved in, or caring for, their children since they assumed these are nursing tasks. Nurses suggested that this might be because some mothers are used to having a home servant, and think that nursing is a type of care that is commensurate with this service.

However, these views are stereotypical opinions of Saudi women, and are not true of all Saudi mothers or even Saudi mothers in general. Kankkunen et al. (2008) found that mothers' attitudes differ in various ways, each having particular preferences formed by the individual, as well as views established from their socio-cultural background. These shape the behaviour towards their children, and are generally not objectively good or bad. Saudi mothers often desire to take an active role in their children's healthcare (Zolaly 2012) and pain management (Al-Ayed 2010), but their actual behaviour may differ owing to the specific circumstances, such as the influence of cultural restrictions on how mothers can act in social environments. Differences in involvement can also occur owing to the severity of patient illness, personality type, socioeconomic class, and level of education. However, perhaps the most profound difference between expectation and actuality are cultural (Smith and Coleman 2009). While many health professionals think that they can avert problems if they treat each patient with respect, knowledge of culture helps to avoid misunderstanding and conflict, and enables practitioners to provide more suitable patient-orientated care, specific to the child and mother (Kankkunen et al. 2008).

Corlett and Twycross (2006), in a review of literature regarding parental roles, supports the view that there is a broad conflict of expectation between nurses and mothers. They suggested that a lack of effective communication, differences between professional and parental expectations, and issues of power and control often prevent open and mutual interaction between families and health professionals, such as with mothers and nurses. Studies of parental participation in the care of hospitalised children have shown how parents wish to be involved in care but nurses' poor communication limits information sharing (Corlett and Twycross 2006; McCann et al. 2015). Furthermore, a reluctance to relinquish control by nurses over their nursing care can lead to parents feeling

disempowered or deskilled (McCann et al. 2015).

The findings of the present study showed that mothers requested to be involved in pain management, although owing to poor communication they did not. Nurses suggested that they should take care to use language that shows respect for mothers' preferences and feelings when they communicate with them, to increase their confidence and engagement. Nurses recommended the use of simple, easy-to-understand language that is accessible and limits miscommunication, avoiding adverse effects on the rapport between mothers and health professionals and improving the quality of their involvement in pain care. The general view of nurses and mothers was that if mothers feel relaxed with nurses and doctors they can discuss their concerns more freely, without feeling intimidated.

Nurses and doctors could use specific tools, such as the Negotiated Care Tool, to encourage mothers to ask about healthcare and to improve communication (McCann et al. 2015). The Negotiated Care Tool is an important technique that can raise staff awareness about effective communication, and can be used for care management with parents in busy clinical practices, permitting the avoidance of miscommunication and differences in expectations. Indeed, transparent communication and the clear understanding of roles between nurses and parents are integral to family-centred care provision (McCann et al. 2015).

c. Communication between health professionals

In this study, it was found that communication between health professionals was often insufficient for the successful management of children's postoperative pain, sometimes causing difficulty for mothers, nurses, and children, e.g., discharge without required

antibiotics, failed medical procedures, and mistakenly providing food for fasting children. Communication between the nurses and doctors was often limited in various ways. For example, some doctors did not update the nurses about the child's pain care, and some of the doctors did not enter changes to the child's treatment in the hospital system. The hospital was both a public and teaching hospital, which meant it provided an environment for medical students and interns to learn from direct exposure to medical practice. However, this sometimes made mothers feel uncomfortable when dealing with medium-sized or large groups of people, especially when the health professional teams are uncoordinated or even disorganised, inhibiting their communication with health professionals.

Surgeons were often too busy to follow particular cases from beginning to end, and so the resident doctor updated the mothers. Therefore, information could depend on what the resident doctor learned verbally from the surgeon, rather instructions being given in written form. Thus, issues that emerged could be exacerbated if there is poor verbal communication between health professionals, and this can create confusion for the mother and negatively affected the child's pain experience. Smith and Coleman (2009) found that messages can become distorted during the transmission and reception phases. Gourlay (1987) identified two main factors that caused distortion of communication: firstly, some health professionals have a type of 'filter' that psychologically blocks what another is saying; and secondly, health professionals impart a 'double message', which is where more than one message is sent at a single time without a single coherent meaning.

These issues surrounding communication were also found in two studies based in the USA, Czarnecki et al. (2011) and Czarnecki et al. (2014), where barriers were identified that were perceived to interfere with nurses' ability to provide optimal pain management

in a children's hospital. It was indicated that many nurses and doctors had problems regarding the communication of the child's pain management that affected the child's pain experience. For example, there was sometimes poor or insufficient communication between nurses and pharmacists instructing pharmacists, using electronic pagers, to provide urgent medication before the next scheduled delivery time. Wang et al. (2018) similarly found that there was ineffective nurse-physician communication, which may compromise patient safety and ultimately increase healthcare costs. O'Daniel and Rosenstein (2008) argued that a lack of communication helps to create situations that could put the child in discomfort or danger. Weller et al. (2014) found that ineffective communication among healthcare team members diminishes the quality pain care, since communication is one of the most important aspects of safe and reliable patient care. They concluded that effective nurse-physician communication has positive effects on the quality of patient outcomes, such as increased patient and family satisfaction, shortened length of stay, and decreased adverse events.

d. Pain documentation

In the present study, the child medical documentation was found to have been insufficient for the continuity of the child's treatment after surgery, including for pain intervention. While nurses explained in interview that keeping current documentation resulted in more reliable information transmission between health professionals, many did not follow the hospital policy of keeping up-to-date files in practice. Nurses merely documented in the child's file if something was considered serious or deemed important enough to make an official record. Additionally, doctors sometimes delayed recording in writing changes or updating treatments or medical procedures. These findings correspond with Czarnecki et al. (2011) and Czarnecki (2014), which identified that a

lack of documentation and an insufficient documentation format were barriers to optimal pain care. Also, Twycross and Collis (2013) noted that there was a lack of documentation created by health professionals for children's pain, and Twycross et al. (2013) and Zisk-Rony et al. (2015) reported that nurses did not always document pain reassessment or the effectiveness of pain relief medication. Likewise, Twycross and Collis (2013) pointed out that despite the availability of pain management guidelines in hospitals and nurses understanding the importance of pain assessment and reassessment documentation, in practice, nurses did not follow all the hospital guidelines. This corresponds with the findings of the present study, where nurses were found to have followed pain management guidelines to varying extents. This influenced the quality of children's pain management and mother involvement in clinical practice. Smith and Coleman (2009) believed that limitations in the written communication between health professionals might have impacted negatively on the mother to carry out her role, because she would not be informed about the child's current pain care. Being uninformed or misinformed, or having a lack of shared information and involvement in decisions about their children, disempowered mothers to be effective in pain management.

e. Further issues in communication

In the present study, every mother had prior experience with hospital admissions, either for the child under observation or a sibling. These mothers often extrapolated knowledge from this prior experience of hospital admissions to anticipate what nurses might want to communicate with them. This aligns with Chng et al. (2015), where it was reported that parents whose child had admissions prior to a stay at hospital had significantly better attitudes about pain management than those that did not. Thus, familiarity with hospital

admissions, the hospital environment, the culture, and hospital schedules aid in successful communication between health professionals and mothers. Sethi and Rani (2017) observed communication issues in their study that were related to environmental barriers, cultural barriers, work overload, and busy schedules, all of which were found to have adverse effects on nurse-mother interaction. In the present study, it was found that these barriers may be overcome by raising the mothers' awareness about the environment and hospital management, as well as raising awareness in nurses about the cultural environment of patients.

In Melo et al. (2014), a Portuguese study in which a questionnaire was distributed to 660 parents or caregivers and 95 health care professionals, it was noted that finding time for communication between parents and health professionals was important for providing effective pain care for hospitalised children after surgery. Parents highlighted that nurses should spend more time with the child and parents to improve communication. Melo et al. (2014) pointed out that mutual understanding between parents and health professionals is key for parental involvement in the child's care in hospital. In the present study, nurses often claimed that owing to a full workload they often did not have enough time to properly manage and communicate with the mother and child, limiting the mothers' ability to be involved in pain management.

In the present study, mothers desired that educational materials and courses be available for doctors and nurses to improve their communication skills with mothers and children. They believed this could help health professionals be more effective in providing care. This corresponds with Kodjebacheva et al. (2015), where it was argued that health professionals require intervention strategies to improve communication with patients and families. There are a number of common interventions suggested for improvement, such

as role-playing sessions and seminars for medical providers. Also, educational interventions that targeted parents might include the use of literature with strategies to encourage parents to pose questions, since these can address parents' issues and improve satisfaction and communication. Kodjebacheva et al. (2015) further advised that fictitious child patients could be used to help train doctors in various aspects of communication. Accordingly, they found that these provisions resulted in better communication between doctors, nurses, and parents.

Communication is important for collaboration, sharing information, respecting each other's contribution, and to work on strengths and weaknesses; it is also necessary in supporting all those involved in achieving mutual goals and providing quality of care that is the key to success (Titone et al. 2004). Jangland et al. (2009) and Twycross and Finley (2013) reported that communication issues caused poor nurse-parents relations and personal dissatisfaction. Accordingly, they found that inadequate communication between nurses and parents generally affected the quality of the children's pain care. Also, Smith and Coleman (2009) noted that communication is essential for quality of care and the satisfaction that children and parents require. Poor communication can result in an attitudinal breakdown and loss of trust for mothers, which is detrimental to their involvement in pain management (Roberts et al. 2014).

5.4 Theme 3: Emotional and physical influence

a. Lack of family support

The findings show that many mothers were unsatisfied with some aspects of the hospitalisation experience. For instance, some experienced a lack of family support at hospital, which they required both physically and emotionally. These mothers needed help to care for their child after surgery when they became tired of monitoring for long

periods or were not able to cope with their child's experience of pain. Some mothers felt bored at hospital and needed additional company; also, their children expressed a desire to spend time with their relatives' children. The visiting time was from 4:00 p.m. to 8:00 p.m. in the hospital setting, and children could visit only on Fridays; they were not permitted access on other days. This policy might have contributed to making children think that their health situation is more serious than it may have been, because they may have perceived the fact that they could not play with other children as a sign that they were seriously ill (Darbyshire 1994). Thus, the visiting hours might have had adverse effects on the children's psychological experience of pain. This is problematic because playing with other children might have helped distract them from feeling pain. Thus, inflexible visiting hours also increases the stress and fear of hospitals.

Shulkin et al. (2014) suggested that the implementation of open visitation at acute care and long-term care institutions can be accomplished with little disruption; it is well utilised by visitors, improves the patient and family experience, and is generally accepted by hospital staff. Despite these advantages to the family unit as a whole, children's wards are sometimes restricted in terms of visiting; this may partly be because of the complexity in the issues surrounding the management of children, although in many Western countries open visiting is the norm in children's wards. Smith et al. (2009) recommended that open visitation and ways to increase patient control of visiting should be considered, and that no connection was found between liberal visiting hours and increased infection rates. They also argued that when facilitating sibling visitation in the intensive care unit, a pre-visit education process could be given.

It was shown in the findings that mothers often had individual or culturally conditioned attitudes that affected how they helped their child in the absence of the fathers. Many

mothers required support from their husband to manage their child's pain, particularly in the recovery unit. For example, one mother had claustrophobia, which made it difficult for her to be consistently with her child; other mothers were not able to participate fully because they were pregnant. The support of fathers enables the burden and stress to be taken off mothers when their child feels pain, whether physically or emotionally, such as when the child behaves aggressively. Nevertheless, a few mothers did not want the father to stay with them at hospital, because they perceived that this was not the father's role, or believed that he might not be able to cope with the situation; some mothers expressed that the fathers did not have the temperament to deal with their child's behavioural issues.

A number of children expressed a desire for the father's presence, usually when the child and father had a close relationship. The latter point corresponds with the findings of Pena and Cibanal (2011), where it was shown that children required the presence of both parents as a source of protection and security. The findings of Lim et al. (2012) align with the present study, where it was noted that a supportive family network is an important factor for promoting parental participation in care. Lim et al. (2012) explored the experience of 14 parents in managing their child's postoperative pain in Singapore. They pointed out that having another family member to share the responsibility of caring for the child helped to relieve some of their stress. They often mentioned that they had negative feelings owing to the hospitalisation, such as anxiety about surgery and seeing their pain, which hindered parental participation. Darbyshire (1994) discussed the role of family members and fathers in supporting the mother, both physically and emotionally. Darbyshire questioned the traditional interpretation of the concept of the parent, where the hospital determines, often through hospital policy and health professional ethos, that

the mother should occupy the main role in managing the child. He notes that other family members' roles are important and should be utilised where possible.

In the present study, mothers were often worried about their other children when they were with a hospitalised child. They sometimes wanted a family member or friend to take responsibility for their tasks at home, such as to look after their other children. This exacerbated pain care issues at hospital, because mothers could not focus fully on the pain care of their hospitalised child. The hospital did not give the mother enough time to manage her life at home, because the date and time of the surgery was given without enough notice. Also, the father was not permitted to stay at hospital to give the mother a chance to check on her other children. This is problematic because fathers can play an important role in pain management. Indeed, a policy of exclusion of fathers is difficult for mothers and children, and especially for those that do not feel comfortable in the absence of their father (Darbyshire 1994). Moon et al. (2008) examined the level of agreement between mothers' and fathers' assessment of their child's pain. Fathers gave their sons higher pain ratings than their daughters, whereas mothers' ratings of their sons' and daughters' did not differ. However, in general, fathers tended to be more accurate judges of their child's pain than mothers. In the UK, such as at the Royal London Hospital, there is often open visiting hours for parents and primary carers on children's wards. All other family members are free to visit from 10am to 8pm (unless previously discussed with a paediatric nurse in charge). Also, at the Children's Hospital of Wales, UK, visiting times for parents and siblings of children are unrestricted, and other visitors are welcome between the hours of 2pm and 7pm, unless a prior arrangement has been made.

b. Lack of emotional support from nurses

Nurses often did not consider the emotional support of mothers as one of their responsibilities, and this was criticised by mothers. Lime et al. (2012) aligns with the present study, pointing out that parents often reported that they think nurses should be one of their main sources of support. Roets et al. (2012) recommended that health professionals take responsibility for ensuring the emotional support of parents towards improving their participation. In the UK, Simons et al. (2001) investigated the views of parents and nurses on the involvement of parents in the management of their child's pain during the first 48 hours after surgery. It was found that parents valued the nurses' opinions and made an effort to suppress any negative feelings that they may have had towards them in order to maintain a good working relationship. They noted that the relationship appeared to function on the basis of parents accepting that nurses were professionals and that it was often beneficial not to challenge their practice, even if they were unhappy about some particular aspects. For the present study, it is difficult to draw clear conclusions about how the present findings on parental support by health professionals compares with other contexts, since in the health science literature parents' need for emotional support from nurses has not been fully explored, and requires further research.

Festini et al. (2009) investigated the issues and attitudes surrounding Italian nurses in a paediatric setting, looking at the nursing care of non-native children and families. It was found that the language for communication is fundamental for a successful nurse-patient relationship, because, if not effective, can raise issues for nursing care. They found that the emotional support often did not meet the parents' satisfaction because of limitations in communication owing to the language barrier between the native nurses and non-Italian families. This situation was mirrored in the present study, where nurses and

mothers spoke a different first language and both could not effectively use the English lingua franca. Thus, nurses were limited in their ability to express their support. The findings of He et al. (2010) also corresponds with the present study. He et al. (2010) described Chinese parents' perceptions of informational and emotional support received from nurses, and looked at their recommendations for the improvement of the management of their child's postoperative pain. A questionnaire survey was completed by 206 parents of six 12-year-old children hospitalised in 12 wards in five provincial hospitals in the Fujian Province, China. Parents reported that nurses' emotional support and time spent with both them and their children is key to building trust and forming secure relationships. Accordingly, these are key factors in achieving optimal pain management.

c. Mothers' concerns

The findings showed that mothers had a number of concerns about the hospitalisation process, including complications during and after surgery, issues with regards to the use of anaesthetics, the physical and mental impact of surgery (especially with respect to the child's age), the management of the child's behaviour, and the use and side effects of medication. It was a common belief in some mothers that young children (infants and toddlers) cannot tolerate pain as well as older children or adults because they cannot understand their own bodies and conditions, and so they thought that this increased the level of pain experienced. Mothers were often preoccupied with these concerns during hospitalisation, which was a consequence of a lack of provided information from health professionals as well as a limited discussion of these issues by health professionals. This generally weakened the mothers' confidence in their role (Smith and Coleman 2009) and limited their ability to pass the information on to her child (Gordon et al. 2011).

Mothers expressed that older children were more cooperative, self-reliant, and better able to cope with pain than infants and toddlers, because they thought that they had a better understanding of their own condition. This corresponds with the findings of an exploratory study by Matziou et al. (2016), based in Greece, which examined the perceptions concerning pain by children and their parents during hospitalisation and the impact of pain on parents' quality of life. It was noted that parents believed that the child's age is a factor in their ability to cope with pain. Parents reasoned that as children grow older they are better able to deal with their pain psychologically, and therefore better able to cooperate with parents. Likewise, Carter et al. (2014) highlighted that older children can be cooperative and involved in decision-making and sharing information with health professionals. Smith and Coleman (2009) found that older children can have various options in terms of involvement, depending on negotiation with parents and health professionals and the level of the child's competence. Coney (2006) suggested that decision-making is a complex activity, and that while health policy generally encourages all children to be active in decisions about their health care, this should not mean pressuring children to be involved, but rather encouraging them to take a view.

In the present study, it was found that mothers did not have enough knowledge about aspects of their child's pain behaviour caused by surgery or the surgical process. Therefore, mothers might not have been equipped to deal with the child's altered psychological state. Indeed, it was found that the children's behaviour changed radically after surgery; they often became aggressive and unpredictable. Some mothers thought that their child required psychological support after he or she responded aggressively or behaved violently. This made them confused and unconfident about pain management, specifically, how they should deal with relieving pain. Some mothers might require psychological support themselves in the care of their child. Also, nurses thought that

children could be psychologically affected because of the unusual events that were happening with them, since undergoing a medical procedure can be traumatic. While the child might not be overwhelmed by the pain in terms of its physical level, it might not be able to cope with the psychological impact. This point is supported by Watson et al. (2003), which examined the anxiety level and behaviour of children after surgery. It was found that children had psychological anxiety and changed their behaviour following surgery, sometimes being unpredictable and aggressive, in response to a prior experience of pre-operative preparation, anaesthesia, or pain.

In another study which corresponds with the present findings, He et al. (2010) revealed that parents were also sometimes worried or anxious about their child's surgery. It was noted that these feelings were related to the psychological effect of having their child undergo a surgical procedure. These concerns included the normal apprehensions of undergoing surgery, such as the perceived risks of complications, the side-effects of anaesthetics, worries about the child's condition and prognosis, fear about seeing the child in pain, and a lack of knowledge or capacity to help the child cope with the hospitalisation experience. He et al. (2010) noted that parents reported that health professionals did not differentiate between parents in terms of their cultural and intellectual backgrounds, previous experience with child hospitalisation, knowledge of pain management, and emotional needs.

In the present study, it was found that negative feelings, such as anxiety and fear, were exacerbated when there was a lack of preparatory information given to mothers before surgery and when there was limited opportunity to deal with these concerns (as discussed in Section 5.2. Theme 1: Acquisition and provision of information about pain). These fears were increased when mothers were not kept updated about the child's recovery

process. Mothers were noted to be particularly concerned owing to their lack of involvement in the decision-making about their child's postoperative pain management. This corresponds with the findings of Hug et al. (2005), a study based in Switzerland, which examined 1490 parents' self-reports of stress, using a questionnaire. It was determined that parents were concerned about surgery, pain, and the negative effects of their involvement, which can induce more stress and decrease the effectiveness of the child's pain management.

In the present study, mothers were concerned about giving their child pain-relief medication after surgery because they believed it might cause them harm. However, it was found that many mothers had a lack of knowledge of pain-relief medication. A number of studies have corresponding findings. Zisk-Rony et al. (2010), Chng et al. (2015), and He et al. (2015) noted that parents had insufficient knowledge, limited experience, and an inappropriate attitude with respect to the use of analgesics. They stressed the importance of preparatory information for parents in using analgesics, which reduces anxiety and increases involvement in the child's pain care. Likewise, Kankkunen et al. (2008) reported that parents had misconceptions about the use of pain-relief medication. For example, parents routinely believed that the experience of low pain levels does not require analgesics. Czarnrcki et al. (2014) also thought that parents' reluctance to give their children medication could be a barrier to optimal pain management.

d. Feeling comfortable

The findings showed that more than half of the mothers highlighted a number of barriers that affected their involvement in their child's postoperative pain care. A fundamental barrier is that mothers were already tired before surgery owing to a lack of sleep and

food, and therefore were less able to cope with pain management after surgery. Mothers highlighted that they did not eat properly because they were worried about their child's condition; they spent many hours beside their child to monitor them and provide companionship. This corresponds with the study of Lim et al. (2012), where although parents expressed a desire to be involved with care, they had a lack of adequate rest as a result of spending extensive periods of time at hospital, which was a determining factor in their ability to provide adequate pain care. Likewise, Lam et al. (2006), in a qualitative exploratory study, captured parents' experiences of participation in Hong Kong. It was found that the inconvenience of rescheduling the family's activities and changing routines, as well as unsatisfactory sleeping patterns, poor hygiene, and limited catering facilities were obstacles in parental participation. These findings instruct health professionals in thinking about the physical and emotional influences important for mothers and children. However, further research is required to explore parents' needs to improve their participation and satisfaction during their child's hospitalisation.

5.5 Theme 4: Social and cultural factors

a. Cultural and religious beliefs

The findings showed that various cultural and religious factors affected the mothers' role in their child's postoperative pain management, and mothers were found to have been guided towards certain types of involvement through these influences. In particular, the patriarchal society had a strong impact on the type and degree of involvement. Mothers were not permitted to freely interact with men, and were often specifically told not to do so by their husbands. Thus, there was a difficulty for mothers to exchange information with male doctors and nurses, which was a significant limiting condition for effective pain management. This cultural constraint automatically puts the mother in a less influential role in pain management. Decisions about pain care were mainly guided by

fathers, who spoke directly to doctors. Indeed, Rawas et al. (2012) highlighted that in the patriarchal cultural tradition of Saudi Arabia, mothers generally do not have a key role in decision-making in their child's care. However, Smith and Coleman (2009) have argued that hospitals and communities can empower mothers to be involved in their child's care and help them to become more engaged in making decisions, for example, through careful management, systematic changes and initiatives, and improved education for both nurses and mothers.

The societal impact of Islam in Saudi Arabia is evidenced by the development of various cultural institutions and initiatives over its history, but is perhaps most conspicuous in terms of the refinements to the educational system, which has had a lasting influence on the structure of the Saudi economy, the country's developing philosophy, the delivery of the healthcare system, and the wider cultural environment (Brown 2009). Islam is an overarching system of beliefs, values, ethics, and lifestyle codes (Hallaq 2009), and is profoundly yoked to the education system and the healthcare culture of Saudi Arabia.

The present findings showed that most mothers identified as being Muslim, and often held strong beliefs that God would protect them and their children. Mothers often prayed to God, asking for protection from pain and complications during surgery. This faith seemed to affect mothers' attitudes and behaviour with respect to pain care. For example, mothers used the consecrated Zamzam water to treat their child after surgery. They believed that this water helped to reduce their child's pain. They thought that drinking and washing their child with the water helped ease the health problem. However, the findings showed that owing to these religious beliefs mothers were sometimes limited in their conviction and ability to manage pain. For instance, it is a strongly held belief and a practiced religious and cultural tradition that when a husband dies a widow is not

permitted to go outside her home for forty days. However, if a mother cannot freely leave home she cannot effectively care for her child at hospital. This was found to be highly restricting for effective pain care for one mother, since she could not be with her child when required, and had to postpone the child's surgery.

These findings align with Jongudomkarn et al. (2012), a phenomenological study based in Canada, where the researchers elicited the experiences of parents who were providing pain care for their hospitalised child. It was found that parents' involvement in their children's pain management was affected in various ways owing to cultural beliefs. These beliefs strongly affected their attitudes towards the experience of pain, such as their social-behavioural expectations about enduring pain. For example, they found that the Buddhist belief of Karma instilled an acceptance in parents about the inevitability of their child's pain experience, which thus impeded effective pain management. This broadly follows Cleland et al. (2005), where it was found that culture influences personal health beliefs, personal understanding, expression, and pain management. Some cultures permit verbal and demonstrative expression of pain, whereas others restrict outward expression, requiring restraint and stoicism. Children learn what type of behavioural expression is acceptable in a society, and these are reinforced or discouraged while they learn to cope with pain on a personal level (Kankkunen et al. 2008).

In the present study, it was found that in some cases religious and spiritual beliefs positively influenced mothers' ability to cope with their child's situation and permit optimal participation in pain management. This corresponds with Lim et al. (2012), where it was indicated that spiritual practice in the form of prayer provides comfort and hope to parents in challenging times. They found that Christian and Muslim parents have

a sense of assurance in postoperative pain care that encourages positive attitudes and behaviour.

Mothers' broader cultural heritage and background were found to have affected their attitudes towards the use of medication in managing their child's pain. Saudi mothers expressed concern about the overuse of medication, preferring to use homeopathic or religious treatments. This parallels findings by Fortier et al. (2011), where English-speaking Hispanic parents were said to have had many misconceptions regarding pain medication use; often, these parents had a tendency to want to limit the amount of pain-relief medication given to their child. Fortier et al. (2011) suggested that parental characteristics, including ethnicity, culture, and language, may place children at a higher risk of under-treatment of acute pain owing to misconceptions about the use of pain-relief medication. They found that more American parents than Finnish parents thought that analgesics should be given before the pain becomes too severe. Nevertheless, more American parents than Finnish parents believed that their children became too easily dependent on pain-relief medication, and also American parents thought that medication for home use may be dangerous for children. Kankkunen et al. (2008) concluded that nurses should be aware of parents' perceptions and beliefs about pain care, which may be barriers for effective pain management.

A further example of where mothers' cultural and religious beliefs may have had an adverse effect on pain care management concerns the storage of food in the hospital ward. Mothers often kept food on their bedside table for extended periods of time because they believed, from their religious and cultural perspectives, that wasting food is sinful or disrespectful. Nurses frequently complained that storing food in the hospital ward for long periods is not good for the patient because it creates an unhealthy

environment, which in the worst case could poison the mother or child; this would thus have a detrimental effect on the child's recovery time and prolong the experience of discomfort and pain. The nurses argued that the immune system of the patient after surgery is weak, and so keeping food for long periods of time increases the risk of infection. Fresh, nutritious, and healthy food is important for helping the child to overcome the effects of surgery, and so causes of complications and increased experience of pain should be addressed. Thus, since poor quality nutrition hinders the recovery process, restricting this contingency should be an important consideration for mothers in managing their child's pain. Despite the importance of the issues of nutrition and storage of food in hospital, to the author's knowledge there have been no studies that have dealt specifically with the influence of mothers' beliefs about nutrition and food safety in managing pain.

In the present study, religious, social, and cultural factors were shown to have had a marked effect on interaction between mothers and health professionals. Saudi culture does not encourage, or in certain contexts permit, girls and women to fraternise with men. In general, Saudi women are restricted to communication in specific contexts and circumstances with non-relative males. Also, in Saudi Arabia, male nurses are not allowed to work in paediatric departments, and a male doctor must be accompanied by a female nurse (Al-ma'sitah and Gharaibeh 2000). This makes the role of female nurses in Saudi Arabia more significant (Al-ma'sitah and Gharaibeh 2000), owing to their greater responsibility, but it may also produce a barrier for effective communication between mothers and girl children and male doctors. Indeed, this cultural restriction may affect the quality of the child's pain care because of the inherent deficiencies in communication (Rawas et al. 2012).

The present findings showed that mothers often felt uncomfortable communicating with male doctors; they generally felt more confident if there was a male relative present who can discuss their child's care directly with the male doctors. Nurses confirmed that some mothers felt shy around male health professionals. Also, girl children felt especially shy in front of male doctors, so perhaps even greater provision is needed towards clear, sensitive interactions with male health professionals to improve the quality of pain management. The findings of Festini et al. (2009) broadly corresponds with the present study, noting that there are often distinct differences in interactions between patients and health professionals of different genders; in particular, they noted that fathers sometimes had difficulty interacting with female nurses.

Mackean et al. (2005) noted the importance of empowering parents to assume more responsibility for their child's care, through a focus on parental preference. They argued that greater attention by health professionals is required to assess parents individually, in terms of their social, psychological, and cultural backgrounds. These considerations may be difficult to enact in a Saudi Arabian context, where there are explicit and implicit physical and psychological barriers between female parents and children and male health professionals. However, Smith and Coleman (2009) recommended that it is important to fully involve all health professionals, using their communication skills, technical skills, and knowledge, and to participate with the family as a holistic institution, as opposed to relying solely on the interaction between nurses and families.

Cultural sensitivity involves the awareness and use of cultural knowledge of a person's preferences, thought patterns, and responses (Tucker et al. 2015). Similar to the present study, Valizadeh et al. (2017) pointed out that cultural sensitivity is required to improve nurse-parent communication in paediatric care. Valizadeh et al. (2017) listed the themes,

categories, and sub-categories that influence culturally sensitive communication. Their first theme discussed organisational factors, which includes the categories of inefficient policies and professional contingencies. The sub-categories of the first theme were: a lack of definitive policies for delivering culturally sensitive healthcare, insufficient cultural healthcare education, professional status of nursing in society, and time considerations. Their second theme was human factors, which included the categories of nurse-related factors and unique characteristics of families. The sub-categories of their second theme were: individual characteristics, cultural knowledge, cultural differences, and family's health literacy. The significance of these themes are mirrored in Luring (2011), who noted that intercultural communication concerns the communication processes and problems within an organisational or social context, enacted by culturally diverse individuals from different religious, social, ethnic, and educational backgrounds. Indeed, these were found to be decisive for effective nurse-to-parent communication in the present study. Since there is a large population of non-Saudi nurses interacting with Saudi mothers, this should be respectfully handled by management at all levels of the institution. Improvements in policy regarding interaction between males and females would likely result in more effective pain care management, reducing the risks to the patient, decreasing errors, improving patient satisfaction, and thus limiting the distress caused by pain.

b. Work status

While the issue of work status is a fundamental issue in child pain management, it was found not to have been previously researched in the health science literature as far as the author is aware, and was not explored in the literature review. In the present study, it was found that some mothers had difficulty managing their child's postoperative pain

management full-time owing to work commitments. They often could not get sufficient leave to be involved to a degree that they would consider satisfactory. They said that working and managing their child's pain care after surgery is highly demanding, and left them feeling exhausted. This issue was exacerbated when mothers were not given enough notice by the hospital to organise work leave, limiting mothers' effective involvement.

Smith and Coleman (2009) highlighted that community and hospital service has a role in empowering parental participation. Children require their mothers' presence during their hospitalisation experience and feel more secure with them (Darbyshire 1994), therefore, occupation managers and health professionals must be aware of the pressures on parents to facilitate better care. Providing mothers with free time from their work to look after their child would be helpful, as would hospitals giving mothers early notice about their child's admission date, duration of hospital stay, and details of any care required after discharge. The influence of parents' works status in their child's pain care requires further research.

5.6 Theme 5: Hospital facilities, provision, and services

a) Entertainment for distraction

Both mothers and nurses reported that they strongly believed that entertainment helped direct children's attention away from the pain experience. Mothers and nurses thought that the provision of children's entertainment for distraction, such as a television with children's channels, toys, puzzles, games, arts, crafts, playrooms with interactive facilities, and play therapists were important. Alternatively, they mentioned that social workers may engage children in activities in playrooms, through reading stories and being creatively active with them. These findings correspond with Pelander and Leino

(2010), where health professionals believed that children's best experiences were through relating with people, through activities and the environment, and outcomes. Among the best experiences mentioned were with respect to entertainment activities. However, some of the worst pain experiences in children discussed were related to problems with activities and the hospital environment. Children generally experienced feelings of illness and separation, often felt through association with the general hospital environment, perhaps owing to the atmosphere of clinical sterility, being a place of life-saving physical care and painful treatment procedures, which indirectly affects their psychological attitude. Thus, distractions are important for children's positive experiences at hospital (Gold et al. 2006; Johnson 2005; Polkki et al. 2008), helping to support the mother in managing their child's pain (He et al. 2015).

Perhaps the most promising distractions found in the present study were a playroom and play therapist. Nurses noted that mothers frequently requested these provisions in order to be able to occupy the child's time. Therefore, nurses advised in interview that a playroom be available for longer periods so that mothers and children can use it more frequently. However, during the period when the study was conducted, the playroom was closed at 4 p.m., and sometimes prior to this time, which gave little time in the afternoon for mothers to engage their children in play. This is a significant limitation on mothers' ability to provide pain care distraction. Making this type of distraction available must be considered by management at this hospital and the wider cultural ministry, so, by extension, this provision could be improved in other hospitals in Saudi Arabia and possibly also those in Western countries.

Mothers said that they wanted the hospital to allow their children's siblings, cousins, and friends to visit them to help engage them, comfort them, and distract them from their

feelings of pain. This corresponds with He et al. (2008), which highlighted that health professionals do not give enough attention to non-pharmacological pain-relief methods, particularly with respect to entertainment and distraction. Hospitals of various countries permit the children of family members to visit children, but usually only in set visiting hours, such as can be found in a number of hospitals in Taiwan and China (Smith et al. 2008). Improving this provision would greatly assist mothers in pain management, relieving stress and reducing the impact of the child's pain.

b) Hospital environment

In its essence, the hospital environment is generally considered a challenging setting for both mothers and children (Kraljevic et al. 2012). In the present study, most of the mothers did not feel comfortable in the allocated hospital room. Many mothers expressed that they and their children felt uneasy because the hospital environment was new and they felt they needed more privacy to manage their child and to follow their cultural beliefs. This finding corresponds with Kraljevic et al. (2012), who noted that children often felt that hospitals are intimidating places, which increases their feelings of discomfort.

In the present study, mothers required improved facilities to help them feel comfortable and to more effectively manage their child's pain (e.g., retractable blinds, variable room temperature, etc.). Melo et al. (2014) pointed out that mothers and children reported that the hospital environment did not meet their needs. During the hospitalisation process there was no private place to report and discuss their child's postoperative pain, or to confide in health professionals about their wishes for a more relaxed and private environment. Current practice suggests that hospital rooms should be comfortable, with retractable blinds or curtains, variable temperature systems, a welcoming environment,

evidence of activity, use of colour, natural daylight, a view of green spaces, privacy (for children and their parents), accessibility, and a greater use of visual art that appeals to all age groups (Department of Health, NHS 2004). These provisions are often implemented in the UK and many other Western countries and could be mirrored in Saudi Arabia.

Smith and Coleman (2009) argued that practical nursing skills should be taught to parents. Also, parents needed to know how to adapt their basic parenting skills for use in the hospital environment. They found that feeling uncomfortable and unfamiliar with a hospital department is often disempowering for the parent and child, and limits their involvement in care. Darbyshire (1994) highlighted that some mothers did not feel comfortable in the hospital because they felt that they had less confidence and control in the new environment, and that they could not perform tasks for themselves, such as make tea or feed their children. Thus, having a comfortable environment empowers the mothers and children, enabling greater involvement in care.

c) Educational provisions for mothers

It was found that mothers required improved access to educational materials to strengthen their participation in their child's care, since it was determined that mothers often struggled in managing their child's postoperative pain at home. Nurses often stressed that it would be helpful for mothers to have a digital display interface and Internet available at hospital so they could access different websites relating to pain care. These techniques would improve their understanding about their children's diagnoses and treatment, and improve their understanding of their role in pain management (Smith and Coleman 2009). Carter et al. (2014) argued that children likewise need to have access to relevant information. While older children often take a role in their own pain management, young children should also participate; health professionals need to

consider how to include younger and older children as equals in the goal of managing pain, such as through the increased use of technology and educational materials.

It was found that mothers faced many issues that required advice from doctors and nurses, and they sometimes required follow-up programs after discharge which were not available in the hospital setting. Indeed, there were no follow-up programs specifically aimed at the child after discharge. This accords with the findings of Vincent et al. (2012), where it was argued that brief written instructions about postoperative pain management and a short interactive session about continued postoperative pain management at home were insufficient measures in altering parents' attitudes towards providing adequate postoperative care at home: they found that parents in the intervention group administered greater amounts of analgesic than did parents in the control group, but not statistically significantly greater amounts; there were no significant differences in the mean pain scores between both groups. This suggests that more extensive instruction programs are needed to effectively change attitudes about pain management.

In support of these findings, Paquette et al. (2013) found that follow-up telephone calls by nurses improved parents' understanding of managing postoperative pain management in children, minimising complications at home. Nurses highlighted in interview that some doctors gave the family of mothers their contact phone number in case of emergencies. However, during observation it was found that both these provisions were not carried out routinely. Such deficiencies caused increased anxiety and confusion for mothers, and might have put their children in danger (as suggested in Wiggins and Foster 2007).

It was found that mothers required opportunities to share information with other mothers undergoing similar experiences. This could provide them with further knowledge about

pain management and potentially reduce stress. Nurses often agreed with the idea that it may be helpful for mothers to discuss key information about care with other mothers, but suggested that it could also be harmful in some cases, and thus requires monitoring. Smith and Coleman (2009) posited that nurses could arrange for families to interact with other families that have children with similar medical issues, facilitating information sharing. A formal support group was also identified as a vital experience for families, and could be an important forum for information sharing.

d) Educational courses for nurses

Mothers reported that a greater number of educational courses are needed for nurses about how they can improve pain management in children and how they can more successfully interact with families. Nurses generally agreed with mothers that they needed further education to improve their knowledge about pain management and indicating that they could update their knowledge on nurse–parent/child interaction. They also said that their actual performance in pain management and how they involve mothers in pain care should also be regularly evaluated. This is supported by the findings of Twycross (2008) and Twycross et al. (2013), where it was reported that nurses often had insufficient knowledge of pain assessment and management in paediatric settings. They also found that when nurses did appear to have sufficient knowledge, their perception of pain assessment and management was not matched in practice; in particular, they did not effectively show in practice how mothers could be more involved in pain management. Therefore, they needed to improve their application of knowledge to clinical practice. The study of Shretha-Ranjit and Manias (2010) corresponds with the present findings with respect to nurses requiring education programs on pain management for children. They found that nurses generally ignored the hospital

guidelines for pain assessment and management; nurses assessed pain less frequently than stipulated in the hospital guidelines. Also, nurses frequently did not use pain assessment tools and were not aware of the different indicators of pain; they generally used informal methods to assess pain.

Huth et al. (2010) likewise supports the findings of the present study in suggesting that pain education programs are required to improve nurses' knowledge and attitudes about pain management. Zhang et al. (2008) found that nurses that had received pain education programs significantly improved their pain management knowledge and attitudes. For example, following an education course, nurses increased their use of assessment tools when assessing children's pain. Zhang et al. (2008) explored the importance of continued nursing education programs on pain management, positing that nurses should use both pharmacological and non-pharmacological methods, respecting current evidence-based practice. Furthermore, it was argued that nurses might consider not only practice, but theory too. Consistent evaluation and support through such programs might help maintain the suitability and standards of such improvements in clinical practice.

He et al. (2008) closely examined the effect of education programs on nurses. They found that there was a significant increase in the use of non-pharmacological methods on children following an education program, such as improved use of imagery, positive reinforcement, touch, and human presence. Also, there was consistency in the use of other methods, such as preparatory information, distraction, providing comfort, and creating a suitable environment for pain relief. Position and massage were the most frequently used physical methods for pain relief, and cognitive and sensory information were given with an overall increase in frequency by nurses following the education program. He et al. (2011a) posited that there should be continuous education programs

for nurses about non-pharmacological methods to equip them with the knowledge required to improve practice, such as encouraging parents to be involved in their child's pain care management. However, Smith and Coleman (2009) found that nurses often did not use their theoretical knowledge to involve parents and children. They suggested that one factor which influences this may be that parents are prevented from moving from nurse-led care towards parent-and-child-led care because of a lack of self-empowerment; a further factor could be that nurses have a lack of knowledge about how to empower parents and children.

e) Pain management team

Nurses suggested that the hospital should provide a pain management team in the paediatric surgical ward. This team should make routine visits to mothers and children that would manage and control the pain treatment of the child, provide information about how they could manage pain, and update mothers about treatment. This corresponds with Czarnecki et al. (2014), where health professionals believed that a pain management team could be available to work in coordination with parents, doctors, and nurses.

In the present study, nurses argued that doctors and pharmacists should check the child's pain simultaneously, not separately. This would enable them to prescribe the right medication and dosage for the child, based on individual needs. This could reduce medication errors, especially since nurses are generally not fully proficient in pharmacological knowledge. Strickland et al. (2007) argued that a clear strategy and stepwise approach in developing a pain management pharmacist–physician collaboration is key to its success. Once the collaboration is formalised, a management strategy should also be defined which could include regular chart reviews and feedback from the doctor.

Through physician–pharmacist collaboration, pain management outcomes can be optimised and risk can be mitigated.

5.7 Strengths and limitations of the study

Children with a variety of health issues were included in this study, comprising a number of different surgical treatments. This means that the differences in surgical procedures might have created inconsistent findings across the data. For example, a child having a tonsillectomy procedure usually requires a two-day or three-day stay at hospital according to hospital policy, whereas a child having a hypospadias procedure must stay considerably longer, and also have a urinary catheter inserted. Following the hospital policy, a child having a hypospadias procedure must stay for the full course of the treatment, owing to the complexity of the procedure, which thus requires more input from the mother and a greater degree of involvement in pain care management. This accords with Carter et al. (2014), which noted that some procedures require more input from parents than other procedures. In addition, there was a wide age range of children examined in the present study that might have resulted in unwanted variability in the findings. Since the type and degree of pain care management is relative to the age of the child, differences in age are likely to have affected mother response. Indeed, mothers often reported concerns about involvement and their perception of their child’s pain that were dependent on the child’s age.

There are often differences in attitudes and behaviour towards pain with respect to boy and girl patients (Crandall et al. 2009). This might have affected how mothers responded in their pain management. Although this factor was not a formal variable in the findings, it was noted that girls were often shy about explaining their feelings of pain to doctors, whereas boys more often openly described their concerns to health professionals and

mothers. It is possible, therefore, that the findings about mother involvement might be inconsistent owing to the different nature of pain perception and measurement with respect to boys and girls. There were 13 boy and 7 girl participants studied; thus, it is possible that the findings about mothers' attitudes could better reflect the pain care of boy children than girl children.

Another limitation was that the researcher observed between the times of 07:00 a.m. and 04:00 p.m. The researcher did not want to disturb the mother and child at night during sleep. Also, after 4:00 pm is visiting time, at which the mother and children would often have family and friends visiting. Further research is required to explore mothers' experience of their involvement in their child's postoperative pain management during night-time periods. Khan et al. (2017) found that parents have difficulty in communication with health professionals during night, which is when their needs regarding their child's care is often more urgent. Indeed, communication breakdowns are a leading cause of hospital medical errors, and often implicated in the most serious adverse events; indeed, communication was observed as a salient problem in the present study. Intervention may be required to improve communication between health professionals, parents, and the interdisciplinary team of providers (Haynes et al. 2009).

The mother-centric nature of the methodology of the present study also posed certain limitations on the data collected. From this perspective, it was assumed that mothers are the main caregivers. This may not correspond with cases where the role of pain management is shared between both parents or where the burden of care lies on other family members, such as guardians, siblings, or extended family members. Indeed, to varying extents, all family members can have a role in the child's pain care. Health professionals need to pay increased attention to how every family member could be

involved in managing the child's condition (Smith and Coleman 2009). Another limitation of the present study is that doctors' perspectives were not included in the data of this research. Doctors and other health providers also have a role to play in empowering mothers and children to be involved (Carter et al. 2014); this could be a point of more focused attention in future research.

The children's own perspectives were not explored in this study. However, the children's views on their own and others' pain care is a crucial voice that may have added greater depth to the topic. This research aimed to reveal issues primarily from the mother's perspective, and so it was necessarily limited to fully explore this unit of analysis, as well as the nurses' views and understanding of mothers' experience. Future work could explore the views of others involved in the child's pain management, which, especially those from the child's perspective, would reveal a more comprehensive picture.

The present study boasted a number of strengths, facilitating a rich understanding of the factors that affected mother involvement. Indeed, it employed a qualitative research methodology and procedure triangulation of data that enabled a broad collection of data types, which helped in perceiving the broad and varied experiences of mothers during the hospitalisation period and following discharge. Procedure triangulation is one of the most common types of triangulation, involving the simultaneous or sequential use of more than one data collection technique to source different dimensions of the same phenomenon. The advantage of data triangulation lies in the fact that the flaws of one data type can often be found to be strengths in another. Thus, the researcher can utilise the strengths of all types while overcoming their unique deficiencies (Denizin 1989). Furthermore, this technique enhances the validity and reliability of the findings (Wayers et al. 2008).

Data were collected through participant observation, interviews, policy documents, and forms used in the paediatric surgical ward. However, this study did not examine the mothers' experience at home, since in Saudi culture members of the general public and health professionals are generally not invited into family homes (many of the participants considered the researcher as an unknown member of the public) and also does not permit the mixing of females with non-relative males (Alabdulaziz et al. 2017; Rawas et al. 2012). A related issue that was thus avoided in this study is that the data collected was not compromised by the influence of the researcher, which may have been the case if the mother felt uncomfortable with being observed at home.

An important consideration is that nurses were not assigned individually to child patients; nurses were assigned according to their shift schedules. Thus, nurses were assigned based on availability, and were often on rotation on a particular ward, so children and mothers were not appointed with a specialist nurse. This might be a limitation, because a nurse's approach and attitude on a particular shift might be more appropriate for one mother and child than another nurse on a different shift, and thus could have inadvertently affected the mother's interactions with the child. Nurses have various attitudes regarding pain management in paediatric settings, and this is often influenced by their background and specialisms (Peirce et al. 2018). They also have various attitudes with respect to the importance of parental participation (Angelo et al. 2014). However, this assignment of nurses could also be considered a strength of the study, since observation and interviews were based on a variety of nurses, which might have enhanced the consistency of the data from mothers.

It was also necessary to attempt to avoid contrived reports by nurses and mothers that might have aimed at showing themselves as being more professionally competent or

caring. Nurses and mothers that were conscious of being observed could have provided responses to questions that reflect on them more favourably (known as the Hawthorne effect), possibly diminishing the validity of the results. Therefore, the researcher spent a significant amount of time prior to observation and interview explaining to nurses and mothers that the aim of the study was to improve the quality of pain management of children after surgery, not to evaluate the performance of individual nurses and mothers. Also, the post-observation interviews were designed to clarify and explain for participants the data found in observation (Wayers et al. 2008).

5.8 Research implications and recommendations for practice

The lack of preparatory information for mothers by health professionals often adversely affected their involvement. Health professionals need to provide mothers with more detailed information about pain management after surgery and knowledge about what their child should feel before, during, and after surgery so they can increase involvement. They could also inform them about medical implementations, such as what their child may be physically attached to, particularly cannula lines or monitors, to avoid confusion and anxiety. On occasion, when mothers saw their child attached to wires or oxygen masks, they automatically imagined that their child was in a serious condition – even in the context of routine surgical procedures. More information should be given to mothers by health professionals about aspects of medical procedures that might result in the child experiencing pain, such as wound dressing and removal of urinary catheters or IV cannulas. Mothers must be continuously updated by health professionals about their child's care plan and any changes that might have occurred with respect to all aspects of their hospitalisation. Health professionals should give mothers more opportunities to discuss their concerns and encourage them to ask questions that could improve their

involvement and ease their preconceptions and anxieties about various aspects of the procedures. Orientation and education sessions provided by nurses to parents of hospitalised children tend to empower parents in providing adequate care for their child, assisting them in becoming more participative and responsible (Pena and Cibanal 2011).

Health organisations in Saudi Arabia could pay more attention to developing a fuller, more flexible, and more robust infrastructure for mother involvement than presently available. For example, policy and procedure in Saudi hospitals could be reviewed and improved, specifically in paediatric surgical wards, towards promoting mother involvement. This should focus on writing policy for health professionals to follow that increases mother involvement in her child's pain care, which the present findings have shown to be in need of improvement. A policy program for mother involvement could stipulate that doctors and nurses incorporate data of mothers' backgrounds into their interactions with them. This is in order for them to act in accordance with various aspects of the mothers' educational and knowledge levels, provide greater support if necessary, and to acknowledge their preferences and cultural expectations, all of which might affect the mother's successful involvement. Criteria should be set in this respect about the nature of the preparatory information given to mothers, incorporating the use of assessment tools (such as a checklist for health professionals to evaluate prior understanding of mothers) and tools to ensure that they have appropriately internalised provided information. Similar suggestions are noted in Kain et al. (2007), where it was found that a preoperative preparatory program was effective in reducing anxiety and improving postoperative outcomes for children, as well as increasing the effectiveness of the use of analgesics and facilitating early discharge from hospital.

Broadly, the present study found that the communication between mothers and nurses was insufficient for the effective involvement of mothers in managing pain care in children in Saudi Arabia. It was found that there were barriers to mothers' understanding and involvement owing to problems with respect to language, beliefs, values, and culture. The findings suggested that there is a substantial need to increase the quality of communication in Saudi Arabian hospitals. This might be achieved through providing Arabic language courses for nurses, which could then be followed-up by regular evaluations and action plans. Although the study hospital provided basic courses in Arabic, which is useful for new nurses, it seems that these were not sufficient to enable continued clear communication in practice. Owing to the shortage of indigenous nurses in Saudi Arabia and the widespread current policy of employing overseas (non-Saudi) nurses (Almalki 2011), this problem probably generalises across many Saudi Arabian hospitals. The Saudi Health Ministry may solve this issue by providing cultural mediators and translators that could bridge cultural differences and ease language barriers. Courses on Saudi Arabian culture and attitudes could be provided throughout nursing education departments, which might help overseas nurses become more successful in communicating and interacting with patients and their families. Furthermore, hospitals could provide courses on Arabic culture for non-Saudi nurses and run activities to involve them in the Saudi community. In this way, nurses can improve their interaction with mothers and improve their understanding of the Arabic culture and language. An easy, but possibly expensive remedy for improving the problems of cultural differences and communication barriers would be to give nurses more allocated time to interact with mothers and children. These improvements could, by extension, also apply to many hospitals across Saudi Arabia.

From the results of this study, the following specific measures could be considered helpful in establishing effective nurse–child/mother communication: extra allocation of time for nurses to learn about the language and culture of the region; policy and programs on how nurses can maintain meaningful interpersonal relationships with patients and mothers; workshops to develop communication skills; upgraded medical clinics and facilities; establishment of nursing quality assurance committees; and programs for nursing managers and administrators that encourage rigorous commitment to successful communication.

Since mothers and girl children often felt shy when communicating with male health professionals, sometimes withholding information or refraining from posing questions and concerns about pain and pain management, health professionals need to find ways to encourage mothers and girl children to openly and freely discuss their health issues to health professionals. These might be enacted through changes in hospital policy, such as the use of checklists and assessment tools to make sure that opportunities are provided to raise concerns, make enquires, and pose sensitive questions. While not specifically examined in this study, the child’s role and perspectives should be more fully considered in the transmission of information and pain management. The child’s views and preferences need to be evaluated by health professionals in the treatment plan and decision-making surrounding care. While these considerations partly depend on the child’s age and development, the child should feel that they have an important role in their own care in the hospital and following discharge.

It was found that communication between health professionals was generally insufficient, such as between nurses, pharmacists, nutritionists, and doctors. Strategies are required to encourage effective interdisciplinary team communication, through

adopting novel communication policy improving the hospital communication ethos and fostering attitudes that support closer adherence to the hospital guidelines. For example, there were frequent issues with the prescribing, guiding, and administration of analgesics. To address this issue, it might be more effective if nurses not only accompany the pharmacist to the child's room to check if the mother has been given the medication and requisite information, but also that further information is provided about the usage of administration to ensure that mothers have fully understood the instructions after dispensation. To this end, it would be helpful if nurses also use a checklist or criteria about nurse–mother interaction to account for the information given. Efforts to improve hospital communication have previously focused on standardising interdisciplinary communication among providers. In general, interventions are required to improve communication between providers and parents, and also among interdisciplinary teams of providers, particularly at night, as found in Khan et al. (2017). Night-time care represents over half of care provided in hospitals and presents unique communication challenges, although also important opportunities for family and nurse engagement. Night-time care is particularly prone to the proliferation of errors and may be more susceptible to communication lapses as a result of inadequate care transitions, decreased staffing, increased workload, lack of formal bedside rounds, and increased provider and parent fatigue and sleep deprivation (Gonzalo et al. 2014; Riesenbergr et al. 2009).

The findings showed that it is necessary to provide a greater number of facilities and policy measures to encourage mother involvement, such as improving family support, entertainment, and the length of visiting times. For example, some mothers felt more relaxed when their husbands were at hospital with them. Father availability and general family support was found to be a key resource in helping mothers participate effectively

in pain management, especially when children had behavioural problems or those mothers were tired, such as after a busy schedule or working day, as found in Carter et al. (2014). Visiting hours in paediatric departments should be reviewed and revised to permit child family members and friends to visit for longer periods and with greater frequency. This supports the work of health professionals, enabling increased physical and emotional help and support for children and mothers, allowing them to benefit from structured care from those friends and family members (Smith et al. 2009).

5.9 Suggestions for further research

This research has explored various provisions and facilities that mothers may require to become more actively involved in pain care at hospital and at home than presently evident in this Saudi Arabian setting. It has examined how mothers must meet their child's pain management needs and how they may be more effective. Further research is required to establish a broader picture on how effective preoperative education programs could function and how they would impact mother involvement. However, the findings of the present study and future studies might be used to inform these programs. Research needs to focus on the cultural and social background of mothers, particularly with respect to aspects that directly limit participation in pain management so that directed strategies can be put in place for improvement.

It is necessary to explore how information transfer between health professionals and mothers (and their families) can be improved. Future studies may be of an exploratory qualitative design, which could capture effective and ineffective communication between nurses and mothers with respect to pain care management at hospital. The methodology used in the present study may apply to other hospitals in Saudi Arabia and beyond, to consider whether health organisation resources, such as policy and procedure, number of

qualified nurses, department facilities, and education courses, can be changed to improve mother participation. These should be more fully examined, particularly with respect to improving coordination and personal interaction between health professionals and mothers. This might include a more in-depth examination of nursing perception, education, and experience, and how they affect mother involvement. Exploratory research could be carried out to investigate the relationship between nurses' and mothers' education, experience, and attitudes, and how this affects the pain care experience of mothers at hospital and at home, since successful postoperative pain management strongly depends on an effective relationship between nurses and mothers.

This study collected data through observation of the mother, child, and nurses in the surgical ward, conducting formal interviews with mothers and nurses and reviewing documents of hospital policy and forms. However, it did not examine the role of surgeons in mother involvement nor the unique perspectives of the children involved. These might be important considerations, because surgeons have a major role to play in the success of mother involvement and children have deep insight into the requirements of their own care. The mothers' experience of their involvement in the child's pain care may have been positively or negatively influenced by the surgeon's practice, and so it is important that interaction between mothers and surgeons are explored; also, the children's experience of their own pain may be radically different to the insights of health professionals, family members, and the researcher, and so likewise needs to be heard. Future studies might collect data about children, other health providers, and the perspectives of children themselves, to enhance findings about pain care management.

5.10 Conclusion

This study has explored the extent of mother involvement in children's postoperative pain management in hospital and following discharge in Saudi Arabia. It has identified ways to strengthen this involvement. A qualitative single case study approach was used, collecting data from participant observations of 20 mother/child dyads. The same 20 mothers were interviewed afterwards using a semi-structured interview technique. Data were collected from 21 paediatric nurses, likewise using a semi-structured interview technique. Documentary evidence (policy and procedure, and forms) was obtained from the paediatric surgical ward.

The results indicated that while mothers desired to be involved in their child's pain care, they needed more information about their child's postoperative pain management and preparatory information about their role. It was found that there was a communication deficiency between mothers and nurses owing to various issues related to the language barrier. Communication between health professionals was often poor, which put mothers and children at a disadvantage with regard to achieving successful pain management. Other communication issues were also prevalent. For example, mothers and female children often felt shy dealing with male surgeons and pharmacists, and they occasionally said that they felt a lack of respect from health professionals, and experienced frequent conflicts of expectation. This study showed that mothers needed more emotional and physical support during the hospitalisation period and at home. Mothers required greater family support, better attention by health professionals for their questions and concerns, and a more comfortable environment for themselves and their child at hospital. It was found that mothers often had insufficient food provisions, which affected their ability to be involved in pain management. Mothers also required a better provision of hospital facilities, including entertainment for distraction, follow-up

programs after discharge, pain management courses for nurses, and other provisions and materials. The results highlighted that social and cultural factors strongly influenced the effectiveness of mother involvement. For example, a patriarchal society, disempowering cultural beliefs, and a limiting work status had a significant effect on the level of mother involvement.

To strengthen mother involvement, mothers required more information about their child's pain after surgery, improved communication with nurses, the surgical team, and other health professionals, and more emotional and physical support from family and health professionals. They also required acknowledgement and sensitivity by health professionals of social and cultural factors that impacted their involvement, as well as adequate and appropriate hospital facilities and services. This study might help to raise awareness about the limited extent of mother involvement in their child's postoperative pain management in Saudi Arabia. Various approaches have been highlighted that could improve the current situation, increasing mother involvement and decreasing the child's experience of pain. It is hoped that health professionals and hospital systems can advance mother involvement, supporting them to achieve optimal pain management at hospital and at home, as well as encouraging children to take a more active role in their own pain management.

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Appendix A: Approval of the Research Ethics Committee of Cardiff University School of Healthcare Sciences (SOHCS)

School of Healthcare Sciences
Head of School and Dean Professor Heather
Waterman

Ysgol Gwyddorau Gofal Iechyd
Pennaeth yr Ysgol a Deon Yr Athrawes Heather Waterman



25 October 2016

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35 – 43 Newport Road
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Email E-bost HCAREethics@cardiff.ac.uk

Prifysgol Caerdydd
13^{ed} Lawr
Ty Eastgate
35 – 43 Heol Casnewydd
Caerdydd CF24 0AB

Fatmah Saigh
210 Landmark Place
Cardiff
CF10 2HS

Dear Fatmah

Mothers' experiences of, and involvement in, their child's post-operative pain relief

The School's Research Governance and Ethics Committee Chair has considered your re-submitted research proposal. The decision of the Chair is that your work should:

Pass –and that you proceed with your Research in collaboration with your supervisor

Please note that if there are any subsequent major amendments to the project made following this approval you will be required to submit a revised proposal form. You are advised to contact me if this situation arises. In addition, in line with the University requirements, the project will be monitored on an annual basis by the Committee and an annual monitoring form will be despatched to you in approximately 11 months' time. If the project is completed before this time you should contact me to obtain a form for completion.

Please do not hesitate to contact me if you have any questions.

Yours sincerely

Mrs Liz Harmer – Griebel
Research Administration Manager

Appendix B: Approval of the Hospital Ethical Committee

Ref.:

Date: / /

Encl.:

الرقم :

التاريخ : ١٤ / / هـ

المرفقات :

UNIT OF BIOMEDICAL ETHICS Research Committee

TO: Principal Investigator: Fatimah I.Saigh (PhD student of health science) From: Professor. Hasan Alzahrani
Supervisor: Professor Molly Courtenay Supervisor: Dr. Julia Sanders Co-investigator: Prof.Omar I.Saadah
Date: Wednesday, September 28, 2016 CC:Vice-Dean, University /Hospital Director & Academic Affairs & File & Mentoring Committee

RE: "Mothers' experiences of, and involvement in, their child's post-operative pain relief"

(Reference No 334-16) Qualitative Research

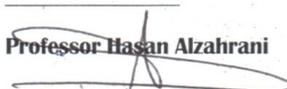
The above titled research/study proposal has been examined with the following enclosures:

- The Study Protocol.

The REC recommended granting permission of approval to conduct the project along the following terms:

1. The PI is responsible to get Academic Affairs, hospital and departmental approval.
2. Provide to committee "Continuing Review Progress Report" every 3 months.
3. Any amendments to the approved protocol or any element of the submitted documents should NOT be undertaken without prior re-submission to, and approval of the REC for prior approval.
4. Monitoring: the project may be subject to an audit or any other form of monitoring by the REC.
5. The PI is responsible for the storage and retention of original data of the study for a minimum period of five years.
6. The PI is expected to submit a final report at the end of the study.
7. The PI must provide to REC a conclusion abstract and the manuscript before publication.
8. To follow all regulations issued by the National Committee of Bio & Med ethics - King Abdul Aziz City for Science and Technology.

The Organization & operating procedure of the KAU. Faculty of Medicine - Research Ethics Committee(REC) are based on the Good Clinical Practice (GCP) Guidelines.
PLEASE NOTE THAT THIS APPROVAL IS VALID FOR ONE YEAR COMMENCING FROM THE DATE OF THIS LETTER.


Professor Hasan Alzahrani

Chairman of the Research Ethics Committee

(HA-02-J-008) No of Registration At National Committee of Bio. & Med. Ethics.
Yasser AlAhmadi (Reference No 334-16)

Appendix C: Approval of the Gate Keeper

Encl. :
24 January 2016

.....:الرفقات

Professor Molly Courtenay

Re: **Fatmah Al Saigh Studies towards her PhD**

It is my pleasure to accept the supervision of **Fatmah Al Saigh** during the data collection phase of her research in Saudi Arabia.

Best regards,



Omar Saadah, MBBS, MRCP (UK), CABP, DCH

Professor of Pediatrics

Appendix D: Participant Information Sheet (Nurse)

Title of the Study: Mothers' experiences of mothers' involvement in, their child's postoperative pain relief

Introduction:

The study will identify the role of mothers with regards to their involvement in the post-operative pain care for their child in Saudi Arabia. The research objectives are the following:

- To explore mothers' perceptions of their involvement in their child's postoperative pain management.
- To explore nurses' perceptions of mothers' involvement in their child's postoperative pain management.
- To identify the extent to which mothers are involved in their child's pain management activities.
- To identify ways in which mothers can be supported to participate in their child's postoperative pain management.

Dear Colleague,

My name is Fatmah Saigh, I am a PhD student in the School of Health Care Sciences at Cardiff University in the UK. I would like to invite you to take a part in this study. Before you decide whether you want to take a part or not, it is important for you to understand why the research is being done and what your participation will involve. Please take time to read the following information carefully and discuss it either with other members of health care or family if you wish, please contact me if anything is unclear or if you would like more information. Take time to decide whether or not you wish to take part. Thank you for reading this.

1. What is research and why is this study being done?

Managing children postoperative pain has been found to be a significant problem and in need of improvement despite the efforts made over the past years. Although nurses play

an important role in children's pain after surgery in hospitals, involving mothers in children's postoperative pain might optimise postoperative pain management, as mothers possess unique expertise in understanding and managing their child's behaviour. By adequate mothers' involvement in the hospital, the mother will be prepared to continue her child's postoperative pain care at home after her child discharges. In order to identify mothers' roles, it is important to understand mothers' experiences in managing their child's postoperative pain at hospital and at home.

2. Why have I been asked to take part?

You have been invited to take part in this study because you play an important role as a paediatric nurse in postoperative pain management in children. You have more than one-year experience in paediatric wards.

3. Do I have to take part?

No. It is up to you to decide to join the study. You are free to withdraw at any time during the study, without giving a reason. Also, if you decide not to take part now or in the future, it will not affect your career in the hospital. You can ask the researcher to stop monitor you if you change your mind, and destroy your observation information by contact her directly. Even in the interview, you can also change your mind when the interview is ended and ask for your recording to be destroyed.

4. What will happen to me if I take part?

If, you decide that you are willing to be observed, then the researcher will monitor your management of post-operative pain care in children at the hospital. If you agree to be interviewed (if appropriate), you will be asked to talk about your experience with children pain management and with mothers' involvement in their child's postoperative since admission until discharge in a single interview. The interview will be audio-recorded and will last approximately 40 minutes or one hour. The researcher will also take your permission to get access to the child's medical record file to see some relevant information such as children age, diagnosis, and nursing notes.

5. Where the interview will be conducted?

The observation will be undertaken in the paediatric surgical ward and post-operative recovery unit. The observation period will be for three months starting from April, 2016.

The interview time will be arranged at a time convenient for you. An interview room will be booked in advanced at the hospital to avoid any distractions.

6. What are the possible disadvantages and risks of taking part?

I do not expect there to be any disadvantages or risks associated with your taking part in this study. However, talking about your experience with mothers' involvement in their child's postoperative pain could be a sensitive topic for you to expose. Multiple-disciplinary team in the hospital will be aware of the research process to provide psychological support to you including my supervisor Professor. Omar Saadah. If at any stage you feel distress talking about your experience, you will be offered to either change the question to manage the interview pathway or terminate the interview without giving any reasons. Please be aware that any information and observation that might put you or the child at risk I will be discussed with the appropriate health professional e.g. child abuse or giving wrong care.

7. What are the possible benefits of taking part?

I cannot promise the study will help you but the information I get from this study may benefit others in the future. Understanding your experience with mothers' involvement in managing their child's postoperative pain will be helping me to identify the role of mothers with regards to their involvement in the post-operative pain care for their child. Sharing your experience with me might help health care professionals modify support and care according to your needs.

8. Will my confidentiality be guaranteed?

Yes, I will comply with the ethical and legal practice guidance of Cardiff University and all the information about you will be handled in confidence. You will not be identified by name and all procedures of handling storage and destruction of data will be kept confidential. I will collect data from the interview which I will do by typing the interviews. All information will be stored on my computer within the university with a password. The observational data and recordings will be locked in a secure cabinet with control access until transcribed and verified and then destroyed. After 15 years of keeping the data, Cardiff University will archive and then destroy the information.

9. Will anyone else know I am doing this?

Your participation in this study is completely voluntary and any information you share in connection with this study will be kept completely confidential. Your details will be kept confidential throughout the study, publication and presentation by giving you a code. Information will be only shared with my supervisors, sponsor (Ministry of Health, Saudi Arabia).

10. Who is organising and funding the study?

This study is sponsored by Research Innovation and Enterprise Services, Cardiff University and funded by the Ministry of health, Saudi Arabia.

11. Who has reviewed the study?

The study has been reviewed and approved by the Research Ethics Committees at Cardiff University School of Healthcare Sciences and King Abdul Aziz University Hospital.

12. What will happen to the results of the research study?

The study findings will be published in professional journals over the next few years (with all personal or identifiable details of participants and staff removed). Direct quotations will be used in the research output and it will be anonymised. I can send you a summary of the findings if you think you would like to read them.

13. What if something goes wrong?

This study is non-participant observation and interviews, therefore, I do not expect any harm comes to you from taking part in this study. If you feel discomfort during the observation and interview please let me know, so we can stop or reschedule based on your convenience. However, if you are not happy about any aspect of the study, please feel free to contact me on the details below. Alternatively, you can contact Professor. Omar Saadah at the paediatric department in King Abdul Aziz University Hospital on the contact details below. In addition, if you are harmed by taking part in this study, there are no special compensation arrangement, if you are harmed due to someone's negligence, then you may have ground for legal action.

Contact for further information

If you have any enquires about anything concerning the study, please feel free to contact me:

Fatmah Ibrahim Saigh

Contact phone number: 00966559861135

Email: saighf@cardiff.ca.uk

Professor. Omar Saadah

Consultant of paediatrics at faculty of Medicine at King Abdul Aziz University

Contact phone number at work: 0096621640-1000/ ext: 18356

Email: med.vdqd@kau.edu.sa

Thank You

Appendix E: Participant Information Sheet (Mother)

Title of the Study: Mothers' experiences of involvement in their child's postoperative pain relief

Introduction:

The study will identify the role of mothers with regards to their involvement in the postoperative pain care of their child in Saudi Arabia. The research objectives are the following:

- To explore mothers' perceptions of their involvement in their child's postoperative pain management.
- To explore nurses' perceptions of mothers' involvement in their child's postoperative pain management.
- To identify the extent to which mothers are involved in their child's pain management activities.
- To identify ways in which mothers can be supported to participate in their child's postoperative pain management.

Dear Madam,

My name is Fatmah Saigh, I am a PhD student in the School of Health Care Sciences at Cardiff University in the UK. I would like to invite you to take part in this study. Before you decide whether you want to take a part or not, it is important for you to understand why the research is being done and what your participation will involve. Please take time to read the following information carefully and discuss it either with other members of health care or family if you wish, please contact me if anything is unclear or if you would like more information. Take time to decide whether or not you wish to take part. Thank you for reading this.

1. What is research and why is this study being done?

Managing children postoperative pain has been found to be a significant problem and in need of improvement despite the efforts made over the past years. Although nurses play

an important role in children's pain after surgery in hospitals, involving mothers in children's postoperative pain might optimise postoperative pain management, as mothers possess unique expertise in understanding and managing their child's behaviour. By adequate mothers' involvement in the hospital, the mother will be prepared to continue her child's postoperative pain care at home after her child discharges. The current study aims to identify the role of mothers with regards to their involvement in the post-operative pain care for their child in Saudi Arabia. In order to identify mothers' roles, it is important to understand mothers' experiences in managing their child's postoperative pain at hospital and at home. The findings from existing research will be applied to, and resonate in Saudi Arabia hospitals to improve the mother's involvement in managing their child's postoperative pain.

2. Why have I been asked to take part?

You have been invited to take part in this study, because you are sitting with your hospitalised child. Your child is aged between 3 and 14 year-old, and undergoing an elective surgery. You take the main responsibilities of caring for your child at home after discharge.

3. Do I have to take part?

No. It is up to you to decide to join the study. You are free to withdraw at any time during the study, without giving a reason. Also, if you decide not to take part now or in the future, it will not affect the care your child receives. You can ask the researcher to stop monitor you if you change your mind, and you can ask to destroy your observation information by contact her directly. You can also change your mind when the interview is ended and ask for your recording to be destroyed.

4. What will happen to me if I take part?

If, you decide that you are willing to be observed. The researcher will monitor your manners in managing your child's post-operative pain at the hospital. If you agree to be interviewed (if appropriate). You will be asked to talk about your experience with your child's postoperative since admission until discharge in a single interview. Then, you will be asked to talk about your experience in managing your child's postoperative pain at home. The interview will be audio-recorded and will last approximately 40 minutes or one hour. The researcher will also take your permission to get access to your child's

medical record file to see some relevant information such as children age, diagnosis, and nursing notes.

5. Where the observation and interview will be conducted?

The observation will take place in the paediatric unit, and post-operative recovery unit. The interview time will be arranged at a time convenient for you. The interview will take place at the hospital after the follow up clinic. An interview room will be booked in advanced to avoid any distractions.

6. What are the possible disadvantages and risks of taking part?

I do not expect there to be any disadvantages or risks associated with your taking part in this study. However, observing and talking about your experience with your child's postoperative pain could be a sensitive topic for you to expose. Multiple-disciplinary in the hospital will be aware of the research process to provide psychological support to you including my supervisor Professor. Omar Saadah. If you feel not comfortable being observed you can ask the researcher to stop monitoring you at any time. In interview (if appropriate), at any stage you feel distress talking about your experience, you will be offered to either change the question to manage the interview pathway or terminate the interview without giving any reasons. Please be aware that any information and observation that might put you or the child at risk I will be discussed with the appropriate health professional e.g. child abuse or giving the child wrong care.

7. What are the possible benefits of taking part?

I cannot promise the study will help you but the information I get from this study may benefit others in the future. Understanding your experience with managing your child's postoperative pain will be helping me to identify the role of mothers with regards to their involvement in the post-operative pain care for their child. Sharing your experience with me might help health care professionals modify support and care according to your needs.

8. Will my confidentiality be guaranteed?

Yes, I will comply with the ethical and legal practice guidance of Cardiff University and all the information about you will be handled in confidence. You will not be identified by name and all procedures of handling storage and destruction of data will be kept

confidential. I will collect data from the interview, which I will do by audio recording the interviews. All information will be stored on my computer within the university with a password. The observational data paper and recordings will be locked in a secure cabinet with control access until transcribed and verified and then destroyed. After 15 years of keeping the data, Cardiff University will archive and then destroy the information.

9. Will anyone else know I am doing this?

Your participation in this study is completely voluntary. Your details will be kept confidential throughout the study, publication and presentation by giving you a code. Information will be only shared with my supervisors, sponsor (Ministry of Health, Saudi Arabia) and an external translator who will translate the transcript from Arabia to English language.

10. Who is organising and funding the study?

This study is sponsored by Research Innovation and Enterprise Services, Cardiff University and funded by the Ministry of health, Saudi Arabia.

11. Who has reviewed the study?

The study has been reviewed and approved by the Research Ethics Committees at Cardiff University School of Healthcare Sciences and King Abdul Aziz University Hospital.

12. What will happen to the results of the research study?

The study findings will be published in professional journals over the next few years (with all personal or identifiable details of participants and staff removed). Direct quotations will be used in the research output and it will be anonymised. I can send you a summary of the findings if you think you would like to read them.

13. What if something goes wrong?

This study is non-participant observation and interviews, therefore, I do not expect any harm comes to you from taking part in this study. If you feel discomfort during the observation and interview please let me know, so we can stop or reschedule based on your convenience. However, if you are not happy about any aspect of the study, please

feel free to contact me on the details below. Alternatively, you can contact Professor. Omar Saadah at the paediatric department in King Abdul Aziz University Hospital on the contact details below. In addition, if you are harmed by taking part in this study, there are no special compensation arrangement, if you are harmed due to someone's negligence, then you may have ground for legal action.

Contact for further information

If you have any enquires about anything concerning the study, please feel free to contact me:

Fatmah Ibrahim Saigh

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Professor. Omar Saadah

Consultant of paediatrics at faculty of Medicine at King Abdul Aziz University

Contact phone number at work: 0096621640-1000/ ext: 18356

Email: med.vdqd@kau.edu.sa

Thank you

معلومات المشاركة في البحث

عنوان الدراسة: تجارب الامهات في مشاركتهم عناية الأم أطفالهم بعد الجراحة

اهداف البحث كالاتي:

لمعرفة تجربة الامهات في انضمامهم بالعناية في الام طفلهم بعد القيام بعملية جراحية واكتشاف العوائق التي قد تواجهها ومعرفة تجربة الممرضات في انضمام الامهات ايضاً. ولاكتشاف تجربة الامهات باهتمام الألام طفلهما في البيت بعد خروج طفلها من المستشفى.

سيدتي العزيزة،

اسمي فاطمه الصائغ، طالبة دكتوراه في كلية العلوم الصحية من جامعة كاردف في المملكة المتحدة. اود ان أدعوك للمشاركة في هذا الدراسة. قبل ان تقرري في المشاركة في هذه الدراسة يجب ان تعلمي عدة أمور عن البحث وما سينطوي من مشاركتك. يرجى اخذ الوقت لقراءة المعلومات التالي بعنايه ومناقشتها اما مع الأعضاء الاخرين في الرعاية الصحية او الأسرة اذا كنت ترغيبين، ويمكن الاتصال بي اذا كنت ترغب في مزيد من المعلومات.

شرح تفصيلي للدراسة ولماذا تتم؟

الدراسة عن كيفية معالجه الألام بعد القيام بعملية الجراحية للأطفال، حيث انها بحاجة الي تحسين علي الرغم من الجهود التي بذلت خلال السنوات الماضية. الممرضات تلعب دور هام في معالجه الألم الأطفال بعد الجراحة في المستشفيات، وأيضاً الامهات وذلك لفهمهم في سلوك طفلهم من خلال إشراك الامهات مع التمريض في المستشفى، سيتم إعداد الام لمواصلة الرعاية بطفلها في المنزل بعد خروجه من المستشفى. وتهدف الدراسة الحالية الى التعرف على دور الامهات في رعاية الألام ما بعد الجراحة لأطفالهم في المملكة العربية السعودية.

لماذا طلب منك المشاركة؟

لقد وجهت الدعوة للمشاركة في هذه الدراسة لمعارفه تجربتك في إدارة الألم بعد العملية الجراحية طفلك في المستشفى والبيت.

هل يجب ان تشاركي؟

لا، الامر متروك لكي في أخذ القرار للانضمام في الدراسة وسيكون لكي مطلق الحرية في الانسحاب في أي وقت خلال فترة الدراسة. ايضاً، اذا كنت قررت عدم المشاركة هذا لن يؤثر على الرعاية التي يتلقاها طفلك. يمكنك أيضاً تغيير رأيك حتى اذا انتهت المقابلة او الملاحظة وطلب مسح الداتا الخاصة بك بالاتصال بي مباشرة.

ماذا سيحدث اذا شاركت؟

أذا قررتي المشاركة في الدراسة، سوف يطلب منك اولاً ملئ استمارة الموافقة. ثانياً، مراقبتك لفتات محدد في المستشفى في حدود الدراسة ومن ثم المقابلة سوف تكون عن تجربتك في عناية بطفلك. ثم سوف يطلب منك التحدث عن تجربتك في إدارة الم طفلك في البيت بعد خروجه من المستشفى سوف تسجل وتستمر لمدة حوالي ٤٠ الي ٦٠ دقيقة.

أين سيتم إجراء المقابلة؟

سوف يتم ترتيب الوقت المناسب لك نفس يوم موعد المراجعة، يرجى أن تكون على علم أنه اذا خلال المقابلة اذا اخبرتنني بمعلومات قد وضعت الآخرين في خطر سوف احتاج الى ابلاغ الجهة المسؤولة للحصول على مساعدة.

ماهي عيوب والمخاطر المحتملة من المشاركة؟

لا أتوقع أن يكون هناك أي عيوب أو المخاطر في مراقبتك اوفي المقابلة. ربما الحديث عن تجربتك مع الألم طفلك بعد العملية الجراحية يمكن ان يكون موضوع حساس بالنسبة لك فحالة حدوث أي اثر نفسي فسوف يتم تقديم دعم نفسي لك بما في ذلك لدكتور. عمر سعادة. اذا شعرت أنك لا تستطيع التحدث في المقابلة عن تجربتك فلك الاحقية في تغيير السؤال او انهاء المقابلة دون إبداء أية أسباب.

ماهي الفوائد من مشاركتك؟

لا أستطيع أن أعددك سوف تساعدك ولكن المعلومات التي احصل عليها من هذه الدراسة قد يستفيد منها في المستقبل. فهم تجربتك مع عناية الألم طفلك بعد العملية الجراحية سوف يساعدني على التعرف علي دور الأمهات في ذلك وقد يساعد الطاقم الطبي في تطوير هذا المجال وفقا لاحتياجاتك.

هل يمكن ضمان السرية الخاصة بي؟

نعم مع التقيد بإرشادات الممارسات الأخلاقية والقانونية من جامعة كاردف. وجميع المعلومات عنك سوف يتم التعامل معها بسريه تامة ولن يتم التعرف عليك بالاسم في جميع الإجراءات وجمع بيانات المقابلة سوف يتم تخزينها على جهاز الكمبيوتر الخاص بي داخل الجامعة بكلمة مرور وسيتم تأمين التسجيلات في خزانة آمنة بعد ١٥ عاماً من حفظ البيانات سوف يتم التخلص منها توافقاً مع أنظمة جامعة كاردف.

هل أي شخص آخر يعرف بمشاركتي؟

مشاركتك في هذه الدراسة هو تطوعي تماما. وستبقي بياناتك سرية طوال فترة الدراسة والنشر والعرض عن طريق إعطائك رمز. وسيتم مشاركة المعلومات فقط مع المشرفين وزارة الصحة، المملكة العربية السعودية. والمترجم في حالة الحاجة لترجمه النتائج إلى الإنجليزية.

من هو الممول للدراسة؟

عن طريق البحث والابتكار وخدمات المؤسسة، وجامعة كاردف وتمويل من قبل وزارة الصحة بالمملكة العربية السعودية.

إي جهة قيمة الدراسة للموافقة عليها؟

قد استعرضت الدراسة والموافقة عليها من قبل لجان أخلاقيات البحوث في جامعة كارديف ومستشفى جامعة الملك عبد العزيز.

ماذا سيحدث لنتائج الدراسة؟

سيتم نشر الدراسة في المجالات الطبية على مدى السنوات القليلة المقبلة مع أزاله كل التفاصيل الشخصية. يمكنني أن أرسل لك ملخصاً للنتائج اذا كنت ترغبين في قراءتها.

ماذا لو حدث خطأ ما؟

لا أتوقع أي ضرر من المشاركة في هذه الدراسة. ومع ذلك، إذا كنت غير راض عن أي جانب من جوانب هذه الدراسة، لا تتردد في الاتصال بي على العنوان التالي او على الدكتور. عمر سعادة في قسم طب الأطفال في مستشفى جامعة الملك عبد العزيز تفاصيل الاتصال أدناه.

معلومات التواصل:

رقم الموبايل: ٠٠٩٦٦٥٥٩٨٦١١٣٥

إيميل: saighf@cardiff.ca.uk

رقم مكتب الدكتور عمر سعادة: ٠٠٩٦٦٢١٦٤٠١٠٠٠/تحويله١٨٣٥٦

إيميل: med.vdqd@kau.edu.sa

Appendix F: Consent Form

Respondent Identification Number:

Study Title: Mothers' experiences of involvement in their child's postoperative pain relief

Name of Student Research: Fatmah I. Saigh

Name of Participant:

Please read each section carefully before you initial each box

1. I confirm that I have read and understand the Participant Information Sheet, for the above study and have had the opportunity to consider the information, ask questions and have these answered satisfactorily.
2. I am willing and give my permission to be observed by a PhD student researcher.
3. I am willing and give my permission for my interview with a PhD student researcher to be audio recorded.
4. I understand that my decision to be observed and interviewed is voluntary and that I can request the recording to be stopped at any time, and I am free to withdraw at any time without my legal rights being affected.
5. I understand that verbatim questions from my interview may be used anonymously in the report produced from this study and in papers produced for publication and for conference presentation. However, I can withdraw the use of any part of the material at any time before the report is established.
6. I understand that if, during the observation and interview, information is disclosed that may put others or me at risk, the appropriate health care team will be informed.
7. I understand that relevant sections of medical nursing notes and data collected during the study may be looked at by the researcher [Fatmah Saigh], where it is relevant to my taking part in this research, I give permission for these individual to have access to my records.
8. I understand that data collected during the study may be looked by research governance staff working in Cardiff University for the purpose of monitoring and auditing the conduct of the research. I give permission for this.
9. I understand that data collected will not be transferred to any other organization.
10. I agree to take part in the above study

Declaration by participant:

I hereby consent to take part in this study:

Name of Participant

Date

Signature

Declaration from the researcher:

I have given a verbal explanation of the research project to the participant, and have answered the participant's questions about it.

I believe that the participant understands the study and has given informed consent to participate.

Name of Researcher

Date

Signature

When completed place 1 copy in the site file and give 1 copy to the participant

إقرار موافقة

رقم الرمز:
 عنوان البحث: تجارب الامهات في مشاركتهم عناية الأم أطفالهم بعد الجراحة
 اسم البحث: فاطمة إبراهيم الصائغ
 اسم المشترك:

الرجاء قراه ما يلي بتمعن

١	أؤكد أنني قد قرأت وفهمت ورقة معلومات المشاركة لدراسة المذكورة أعلاه، وتيح لي الفرصة للنظر في المعلومات وطرح الأسئلة والحصول على أجوبة مرضية
٢	انا على استعداد وأعطي الأذن لمراقبتي
٣	أنا على استعداد وأعطي الأذن مني لمقابلي وتسجيل المقابلة مع الباحث طالبة الدكتوراه
٤	انا افهم ان مشاركتي هو تطوعي وأستطيع الانسحاب في أي وقت وأستطيع توقيف التسجيل ادا رغبت
٥	انا لدي العلم ان اجوبتي يمكن استخدامها في التقرير لهذه الدراسة وللنشر وعرضها في المؤتمرات ومع ذلك سحب استخدام أي جزء من أجوبتك في أي وقت قبل تأسيس التقرير
٦	انا افهم ادا خلال المقابلة تم الإفصاح عن معلومات التي قد توضعى الاخرين او طفلك في خطر سيتم الإبلاغ عنها الي الجهة المناسبة
٧	انا افهم انا بيانات الدراسة التي تم جمعها سوف يتم مناقشتها مع مشرفي الدراسة في جامعة كاردف لغرض البحث واعطي الادن لهذا الغرض
٨	أوافق على المشاركة في الدراسة

إقرار المشاركين بالموافق

أقر بالموافقة على المشاركة في هذا البحث:

اسم المشترك: التاريخ: التوقيع:

أنا هنا أوافق على المشاركة في هذه الدراسة:

إعلان من الباحث: لقد تم شرح لفظي لدراسة وأجبت على أسئلة المشاركة

اسم الباحث: التاريخ: التوقيع:

Appendix G: Interview Guide (Mother)

Introduction

Hello, my name is Fatmah, I am a PhD student at Cardiff University. First of all, I want to thank you for participating in my study. I would like to talk about your experience in managing your child's pain postoperatively. I will be taping the interview and all your responses will be kept confidential. The ethical and legal practice concepts will be maintained in the research processes. Your participation in this study is completely voluntary. Information will be only shared with my supervisors, and sponsor. Direct quotations will be used in the research output and it will be anonymised. Remember, you do not have to talk about anything you do not want to and you may end the interview at any time. Also, your responses will not affect your child's treatment. The interview will take 40–60 minutes. The questions will be classified for three phases; before admission, during admission, and after discharge. They are as follows:

1. What was your child's condition?

Probing:

- History
- Child's pain
- Mother feeling
- Information support
- Making decision to have medical consultation

2. What is your experience of your child's admission to hospital?

Probing:

- Information/ Materials
- Nurse support in the department
- Mother's feeling
- Child's pain in the post-operative unit care
- Mother's role in the post-operative unit care
- Nurses interaction with mother in the post-operative unit care
- Other health professionals' interaction with mother
- other support sources

3. In your opinion, what factors can improve your involvement in managing your child's pain after surgery at hospital?

Probing:

- Mother's needs
- the hospital environment and facilities

4. What is your experience in controlling your child's pain after discharge?

Probing:

- Mother's role
- Nurse support
- other support sources

At the end of interview:

Do you have any other issues regarding your participation in your child's post-operative pain relief?

How do you feel that you have been interviewed about your child's pain management?

Appendix H: Participant Demographic Sheet (Mother)

Interviewee Code:

Date Form Completed

D M Y

Email address:

The following are some basic questions regarding your background. All the information you provide will be kept confidential and will not be shared with anyone else besides the research study supervisors.

1 How old are you?

2 How old is your child?

3 Do you get help from family with managing your child's postoperative pain?

Yes No

4 Are you Saudi?

Yes No

Which nationality

5 Are you working?

Yes No

If yes, how many hours per day

6 What is your child's gender?

Boy Girl

7 What operation has your child had?

8 How many admissions had you with any of your children?

1 2 3 or more

10 How many children do you have?

1-2 3-4 more than 4

11 What is your education level?

Primary Intermediate

Secondary Bachelor

Postgraduate None

Thank You

Appendix I: Interview Guide (Nurse)

Introduction

Hello, my name is Fatmah, PhD student at Cardiff University. First of all, I want to thank you for participating in my study. I would like to talk about your experience in managing children's pain postoperatively. I will be taping the interview and all your responses will be kept confidential. The ethical and legal practice concepts will be maintained in the research processes. Your participation in this study is completely voluntary. Information will be only shared with my supervisors, and sponsor. Direct quotations will be used in the research output and it will be anonymised. Remember, you do not have to talk about anything you do not want to and you may end the interview at any time. Also, your responses will not affect your career. The interview will take between 40 to 60 minutes. The questions will be as following:

1. What is your understanding about pain in children?

Probing:

- Nurse's perception of pain in children
- Nurse's view of pain assessment in children
- Nurse's view of managing pain in children
- Nursing interventions for children' post-operative pain
- Relief pain methods after surgery
- Nurse's view about PRN prescriptions

2. What is your experience when the child's discharged?

Probing:

- Provided information
- Nursing support for the mother

3. What is your perception of mothers' roles in the post-operative pain management for their child at the hospital?

Probing:

- Mothers' roles
- Nurses' support

- Hospital resources regarding child's post-operative pain
- Hospital resources regarding mothers' participation
- Ways to improve child's post-operative pain
- Ways to improve mothers' participation

At the end of interview:

Do you have anything else that you would like to discuss?

Do you have any thoughts or comments about how this interview has been conducted?

Appendix J: Participant Demographic Sheet (Nurse)

Interviewee Code:

Date Form Completed

D

M

Y

Email address

The following are some basic questions regarding your background. All the information you provide will be kept confidential and will not be shared with anyone else besides the research study supervisors.

1 How old are you?

2 Are you Saudi?

Yes

No

Which nationality

3 How many children do you have?

1-2 3-4 more than 4

4 How many years of experience do you have as a nurse?

1 2 3 or more

5 How many years of experience do you have as a paediatric nurse?

1 2 3 or more

6 What is your education level?

Diploma Bachelor

Postgraduate Master

Thank You

Appendix K: Confidentiality and Agreement

Date of this agreement: _____

Between:

_____ of _____
Translator's Name Translator's Address

_____ of _____
Researcher's Name Researcher's Address

The researcher will give you the non-identified interview transcript documents for the purpose of translation in the same date of this agreement. Please read each section carefully before you initial each box

- 1 Any confidential information including all documents shall not be disclosed
- 2 All documents will be protected and kept securely from access by unauthorized third parties
- 3 The confidential information will not be used neither indirectly nor directly for commercial exploit, or used generally for purpose which are not connected with the relevant translation order without the express prior written agreement of research
- 4 Notification of any loss of the confidential information must be made immediately in writing
- 5 After, the translation is terminated, all confidential information will be returned and deleted from stored files
- 6 Any modification and additions to this confidentiality agreement must be made in writing and signed by both translator and researcher

When completed place 1 copy in the site file and give 1 copy to the translator

Appendix M: Example of Reflexive Journal

Date: 10-09-2016

Subject: An incident with the catheter, Mother M13

I was feeling a mix of emotions, and particularly confused and sad after seeing a boy cry in a room in the paediatric surgical ward, undergoing surgery for hypospadias. The child was in pain, and the mother felt frustrated that she could not do anything for her child, only offer emotional support; this mother did not know how to use non-pharmacological pain-relief methods. Mothers found their job of protecting their child difficult in these situations, and often had overly optimistic ideas of making their life pain-free, and generally care free, which is always different to how things are in reality. In the hospital, mothers' roles always became slightly different to at home, and in many ways they were out of their comfort zone, such as the mother in this case – feeling her hands were tied. This feeling was very difficult for the mother to endure, and it often touch my heart and made my work difficult to witness such things, although also rewarding in many ways too, because I think I was able to offer help to mothers, particularly as a product of my research. After this experience, for a brief period I felt that I did not want to have children myself, and although glad to have a child of my own, I still do not fully understand the meaning of being a mother in terms of how to cope in the situations such as this that life brings; sometimes the role of a mother is very difficult, and at this moment that the mother had to bear almost too much pain in looking after her child. Indeed, sometimes it is astonishing the depth of feeling that a mother has about her child. This situation made me think about my own life, and how it would be to experience my son feeling pain. The mother suffered a great deal, and was tired and pregnant at the same time; nevertheless, she stood up and helped her child, which made me feel quite

upset when the health professionals on duty seemed to ignore her and did not provide enough information or encouragement.

Date: 15-10-2016

Subject: Waiting for an analgesic to be given to a child, Mother M4

During observation in the morning, I observed that mother M4 was tired and had not slept during the night because her child was in pain through the night after just having surgery. She thought she was not permitted to ask for analgesics for her boy during the night. This made me feel sad for her because the nurse did not think that this mother needed information, such as that she should inform her about the child's needs, especially in terms of requesting medication when required. This mother, in this instance, suffered because she was not informed about how to call for help. I feel it is important that I was there to help this mother and more generally to explore these deficits in practice through my research. I felt sad in this case when I witnessed the mother and child experiencing pain physically and emotionally, and I feel proud that my research findings may help mothers and children like them in the future. The research could also help the nurses and doctors to know improve their performance and change their attitudes, which in turn could positively affect mothers and children.

Appendix N: Example for Initial Data Analysis to Determine the Data Saturation

Data extracted of participant M3	Code
<p>I found a doctor in Riyadh, through Twitter.</p> <p>I read a lot about kidney hypertrophy. The doctor did not tell me about this until I read about it on the internet.</p> <p>He told me to read about it and prepare some questions.</p> <p>I was worried about his pain. I felt he was so small to go through all this pain.</p> <p>When I called them [nurses] they responded. They didn't ignore me.</p> <p>In the first few days in the hospital he was feeling a lot of pain. He was crying.</p> <p>I asked the nurse to give him medication. She told he would be addicted if I gave him it every time. Then this could cause a problem at home. This is not good for him.</p> <p>They [the nurses] also explained to me that they gave him medication for pain, and also antibiotics.</p> <p>The cannula was not comfortable for him. He knew this was a cannula, but when he felt pain he moved a lot, and then it fell out. He was afraid of inserting the cannula, and so tried to avoid letting it fall out [by holding his arm up vertically].</p> <p>I got bored of the long stay at the hospital.</p> <p>Sometimes I went to talk with other mothers. We had a chat and supported each other.</p> <p>The visiting time is not suitable.</p>	<p>Mother used technology to understand their child's condition.</p> <p>Doctors encourage mother to understand their child's condition.</p> <p>Mother's concern about her child's younger age</p> <p>Nurses' attitude of responding the mother's report of her child's pain</p> <p>Nurses' attitude of providing information about drug addiction.</p> <p>Nurses' attitude of explaining to mothers the intervention.</p> <p>Mothers' difficulties about cannula</p> <p>Lack of family support at hospital.</p> <p>Building friend relationship between mothers.</p> <p>Nonsatisfaction about the hospital system of visiting time.</p>

<p>The child needs to enjoy the time with their family and cousins. He was sad because he could only see his twin on Fridays.</p> <p>Seeing your family supports the child and mother, especially with long hospital stays.</p> <p>My child spent most of the time watching cartons on the internet screen. It was close to his eyes which was not healthy at all.</p> <p>If I turned it off, he cried. I didn't want to bother the next patient so I was forced to let him watch. The main thing is that I did not like the two-bed room because I did not want to bother other patients.</p> <p>Every two hours he was crying and screaming, "mom come stay with me on the bed, I feel pain".</p> <p>I got tired; before I was admitted, my other son was also ill because he had the flu.</p> <p>I did not expect that I would stay this long period, so I did not bring enough changes of clothes.</p> <p>My family phoned me and visited me. They tried to not let me feel bored.</p> <p>The mothers should take care of their child. Children love to be with their mothers. They feel secure and relaxed, and I can be sure that he is comfortable. Also, I feed him.</p> <p>I feel he has a phobia. He did not want to pass urine because he is afraid he will feel pain.</p> <p>He did not want to drink water. I tried to convince him that drinking water will help you to feel better, but he didn't want to because he thought if he drank water he would have to pass urine.</p> <p>He became aggressive and stubborn about this. Also, he treated his brother badly.</p> <p>It [the antibiotics] was so heavy. I asked the doctor in the follow-up clinic to change it.</p>	<p>Nonsatisfaction about the hospital system of visiting time.</p> <p>Need for family support at hospital.</p> <p>Mothers' difficulties to manage their child's pain/ Nonsatisfaction about the hospital system of internet screen.</p> <p>Mothers' difficulties to manage their child's pain/ Nonsatisfaction about the hospital system of the room.</p> <p>Mother was not prepared for surgery.</p> <p>Lack of providing information about the treatment plan.</p> <p>Mothers' role to let the child feels secure. Mothers' role to feed the child and show love.</p> <p>Mothers explaining to the child about his condition.</p> <p>Child's behaviour after surgery.</p> <p>Mothers' preference of their child's medication.</p>
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<p>He refused to take the medication. He gets feds up.</p> <p>If he will not take it I will give it to him through a suppository. Then he accepted the medication.</p> <p>Could you imagine being in the same room [in the hospital] and in the same bed for a long time?</p> <p>He became nervous and cried a lot.</p> <p>He did not want to come to the follow-up clinic. I told him we are just going to say hello to the doctor and then come back home. He was afraid the we might stay in the hospital.</p> <p>I waited for the doctor to come and explain to what I should do for him at home. He did not come until evening.</p> <p>The doctor should come and explain not the nurse.</p> <p>I asked him a few questions, but it is not as convenient as explaining face to face.</p> <p>Even the doctor who came to give me the appointment paper was not a specialist in paediatric urology.</p> <p>This doctor and the nurses did not tell me that I shouldn't let my child play roughly and to be careful with him.</p> <p>[before the discharge time] The nurses did not give him the antibiotic. They said give it to him when you go home. I know the antibiotics should be given at the specific time. I didn't like that.</p> <p>I wish there would have been a clear plan for the surgery. I could have prepared myself more.</p> <p>I still have other children. I don't have someone to take care of my child and my children don't want that; they want me only.</p> <p>I was worried because he took a long time in surgery than the doctor told me.</p>	<p>Mothers' difficulties to manage their child's pain at home.</p> <p>Child's lack of comfortable</p> <p>Child's behaviour after surgery.</p> <p>Lack of provided information of postoperative care/Nonsatisfaction discharge process.</p> <p>Mothers' preference to be provided with information face to face.</p> <p>Lack of provided information of postoperative care.</p> <p>Nurses' performance and attitudes.</p> <p>Lack of provided information of treatment plan.</p> <p>Lack of family support/Children need their mother</p>
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<p>One doctor wanted to remove the catheter. He tried, but my child was crying, so the doctor stopped and went out of the room. He told the nurse that he will come tomorrow to remove it. I did not like that because he did not explain it to me. The nurse came and told me that they will remove it tomorrow. I said to myself why did he run away.</p> <p>They [the doctors] did not give me enough information because they might not want me to be shocked. Even the time of the operation they said would take three hours, but they took four hours and a half.</p> <p>They [the doctors] should provide more information about procedures and care.</p>	<p>Mothers' concerns/Lack of accurate provided information.</p> <p>Mothers need information about the surgery procedure and child's post care.</p>
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Appendix O: Example from the Field Notes

Code: M3

Date: 24/10/16 (the surgery day).

Place: It was the recovery unit. It was quiet and organised. Four patients were in the recovery unit. Nurses was busy doing their work or waiting for patients to come from theatres.

People: The boy child (3 years' old, hypospadias-repair procedure), his mother, two relatives, and the recovery unit nurse.

Time: From 13:25 to 14:35.

Context:

The child was transferred into the recovery unit. The nurse attached the monitor to him. Then she called his mother. The mother came immediately to see her child. She stood near him. She thanked God that he was safe. She kissed him and touched his hair. She talked to him softly, almost like she was singing to him.

“My love, my love.”

His two relatives and grandmother came with his mother to see him. His mother was wearing a niqab [a small piece of fabric that covers the head, but not the eyes]. The nurse told them:

“Only the mother can stay with him and others should wait outside. You can stay only five minutes.”

The mother was looking at her child and holding his hand. She kissed his hand and seemed happy that he was fine. Afterwards, the nurse documented his vital signs in the medical file. Then she left the child with his mother. The bed was opposite the nursing station. The mother asked me:

“When will he wake up?”

I told her:

“He needs time to wake up. You shouldn’t be worried – he’s okay!”

She sat on the chair facing her child. The child was sleeping and calm. She looked at the monitor and at her child. She took a lot of pictures of her child. She said to me:

“I want to send these pictures to my family because some of them aren’t here in Jeddah.”

When the child opened his eyes she asked him:

“Do you want go home?”

He nodded his head, to say yes. He then slept again. She ensured that he was covered properly by the blanket and that he was comfortable. She sat on the chair again and held her head. She said to me:

“I’m tired. I feel dizzy. I cannot stand up.”

I came close to her. I asked her:

“What do you feel? How can I help you?”

She replied:

“I couldn’t sleep properly yesterday because I’m not feeling well. Also, I haven’t eaten well. I took medication for the headache on an empty stomach. My child was NPO so I couldn’t eat in front of him. When I wanted to eat he cried and asked me why I’m eating and he’s not.”

I asked her if there is anyone who could stay with him so that she might take some rest.

She said to me:

“I cannot leave him. If I go, he’ll cry.”

The child was sleeping and his mother tried to wake him up. She called him but he remained sleeping. She told me:

“The nurses tried to insert a cannula in him yesterday. They tried five times. He felt too much pain. My poor child! I feel sorry for him!”

She also told me:

“I had a difficult experience with his first surgery. I suffered with his catheter at home.”

She repeated to me that she’s tired and she couldn’t go to her child’s room.

She called her child to wake him up. She remained seated on the chair. The child moved his legs and cried. He pointed at the surgery site, and said:

“It’s hurting me!”

She explained to him that he had a catheter in, and should be patient. He told her:

“I want to walk. I don’t want to stay in bed.”

He cried and said:

“Help me mother. Do something!”

He wanted to see his legs. His mother tried to distract him by taking pictures of him. She showed him his pictures on her mobile phone. The nurse came to check him and prepare him to go to his room. She said to his mother, using a few Arabic words:

“I called the ward nurse to come and take your child.”

At 14:30, the ward nurse came to take him. She checked everything and made sure that he was stable. She touched him softly on his shoulder and said:

“Sorry my love. You’ll be fine.”

He called his mother:

“Come, stay close to me.”

The mother said to the nurse and me:

“Quickly please. I want to go to the room. I feel dizzy. I cannot stand up anymore.”

The mother asked the recovery nurse to change her child’s clothes because they were dirty from urine. The ward nurse said to the mother:

“Don’t give him water or food. Don’t worry, he has an IV solution so he’ll get what minerals he needs from it. He’ll be fine!”

The ward nurse smiled at the child and mother. She touched him kindly and said:

“You’re okay. Don’t worry my love.”

Place: It was the child’s room in the paediatric surgical ward. It included two patient-beds, one TV, and an internet screen. The child could watch cartoon films. Also, there was a small fridge for the mothers to keep their food and drink. There was a big glass window. It was always locked and no one could open it. The room was quiet and was a moderate temperature. There were comfortable dark red sofas for mothers or watchers to sit. The other patient was quiet.

People: The child, his mother, and the assigned nurse.

Time: From 14:50 to 15:30.

Context:

The child was transferred to the room. His mother helped the nurse to move him to the bed. His grandmother told the mother that he’s fine now. She said that she’ll go home and call the mother if she needs something. Then the grandmother left. The mother told me:

“I’m worried that he feels pain or discomfort because of this catheter and the surgery site.”

She was tense and looked at her child. She seemed confused. Later, she told me:

“You know, when you have other children at home without you, you’re just thinking about them. His twin won’t eat without me.”

I told her:

“What about your family, could they help you? You shouldn’t worry about your child’s pain. The doctor prescribed a pain relief medication regularly for him. You should try to eat and get some rest. You need to restore your energy to take care of him.”

She said to me:

“Yes, my family help me a lot, but my children need me. They don’t like anyone else with them, only me. I know how to deal with them.”

The nurse brought the monitor and checked the vital signs. She told the mother that she shouldn’t give her child food or drink for two hours. Then she left the room. After a few minutes, the child slept again and the mother ate dates and drank milk. Then she turned the bedside light off and covered her child with the blanket. She made sure that her child was fine. Then she went to the comfy sofa, laid down, and covered herself with the blanket. The room was quiet and at a suitable temperature for sleeping. The mother was exhausted, so I told her:

“I’ll leave you now. You could take a nap and relax. I’ll come back later.”

She replied:

“You’re welcome. Any time!”

I came back to the room at 16:15 p.m. I found that they were still sleeping.

Date: 26/10/16 (the day after the surgery).

Place: It was the child’s room in the paediatric surgical ward. The room was moderately lit. There was another child with his mother in the other bed. They were quiet. The child

was watching cartoon films on the TV. The internet screen was near the child's bed.

There was food and toys (gifts) for the child on the table.

People: The child, his mother, the doctor, and the assigned nurse.

Time: From 9:10 to 16:15.

Context:

I went to the room at 9:10 a.m. I found the child was still sleeping and his mother was reading on her iPad. I asked her to stay. She welcomed me. She opened the conversation and talked about a number of topics. Later, I asked her how her child was the day before.

She replied:

“He was fine after he took the medication. He woke up a few times at night. I think he wasn't feeling comfortable with these tubes in him. I'm actually confused that he might not have been given the right pain relief medication dosage.”

The nurse came to give the medication to the child at 9:25 a.m. She said to his mother:

“Mother, this is for pain.”

She gave the medication to him quietly when he was sleeping. Then she went out. I remained in the room. Later, he woke up and asked his mother to come and stay on his bed. She went immediately to him and asked him if he wanted breakfast. His breakfast was on the table. She fed him a little bit of bread and cheese. Then she gave him the internet screen. He was lying on bed and watching superman cartoons on the hanging portable screen. It was easy to use. The internet was free. After he calmed down she laid on the sofa and talked to me. Later, he wanted to get out of the bed to go to the toilet. He complained to his mother that he was feeling pain. She looked at him and tried to calm

him down. She explained to him that he couldn't move and that he should stay on the bed. I asked her:

“What do you want to do for him?”

I asked her because she looked tired and pale. I wanted to see if she needed help. She replied:

“I'll ring the bell and ask the nurse for medication. I think the medication wasn't enough for his pain.”

She stayed on her child's bed to hold him properly. She told me again:

“I'm not feeling well. I'm ill.”

I told her:

“You could ask the nurse to observe your child and you could go to the emergency department. You would feel much better if the doctor prescribed some medication for you. Or you should ask someone from your family to come and stay with him until you finish in the emergency department.”

She told me:

“Maybe later. I know he'll cry if I leave him.”

I advised her that when he sleeps and her family arrive she should take this chance to try to get some rest. She encouraged her child to watch his favourite cartoons. When he calmed down she continued talking to me. She described her worries to me. One of her worries was that when they go home she would find it difficult to look after him. She told me that he might not leave the catheter in, and he might feel pain and discomfort.

She looked at her child and asked him:

“Do you want to go home?”

He replied:

“Yes.”

She told me about her first experience with him when he had had the same operation. She couldn't have a rest for even a moment. She was afraid something happened to him because the doctor warned her that he couldn't play as usual, such as biking or playing football. Also, she needed to keep the catheter clean and in good condition. So, this time she's afraid to go through the same experience. She also told me, however, that he's older than before – he could understand me more. I'm still worried and I know how difficult he will be to look after at home.”

I said to her:

“You could ask someone to help you. If there is someone that could give you help with the housework you could have time for him and you might not feel so stressed.”

I also told her that I can see your child is polite and obeyed your instructions. She should relax herself and shouldn't be too worried. Then I went out of the room.

Later, at 12:05 p.m., I came back to the room. The mother and child were sleeping.

Therefore, I returned at 13:45 p.m. The mother was out of the room. I saw her in another room talking to another mother, and so I came again at 15:00 p.m. She asked me:

“Did you come to the room when I was sleeping?”

I said:

“Yes.”

The mother told me about the other mother that she was talking to earlier:

“She is alone. She used to come and visit me here. Today her child's condition became serious. He'll be transferred to the ICU so I stayed with her to support her.”

When she finished talking about the other mother, she talked to me about her own child. The child was sleeping on the bed. The room was quiet. I asked her about her child. She told me:

“I’m worried about when the doctor will allow us to go home. I take care of my child a lot. I feel that I’ll suffer. He’s active.”

I asked her:

“Did the doctor explain to you about your child’s treatment plan in the clinic before the surgery?”

She replied:

“He told me about this. It depends on many things in the operation. He said if I want to go home my child will be discharged with the catheter. The doctor can decide about the discharge order after a few days. He said that may be tomorrow. He said let’s see tomorrow how his condition will be.”

She added:

“These things make me feel bored. I don’t want to stay here long, and at the same time I don’t want to work hard with him at home. I have other kids that I should care for.”

Date: 26/10/16 (the second day after the surgery).

Place: It was the child’s room in the paediatric surgical ward. It was well lit. There was another child with his mother in another bed. They were talking quite loudly. They were also cartoons on the TV. The internet screen was near to the child’s bedside. There was also food on the table and toys (gifts) for the child.

People: The child, his mother, and the assigned nurse.

Time: From 9:20 to 15:45.

Context:

I came to the room to stay with the mother and have a chat. She was feeling much better than the day before. The child was watching cartoons quietly on the internet screen. She stayed on the sofa and drank coffee. She was relaxing and reading a magazine. She welcomed me. She told me:

“The doctor came early in the morning and said that my child should stay in hospital for about 10, or maybe 15, days. And another doctor said that he could be discharged today. Later, another doctor came and decided that my child should stay in hospital. He explained to me that the medical team need to evaluate my child’s condition for a minimum of 10 days, so he should stay. I don’t know why the doctor didn’t explain that to me before the surgery!”

I said:

“So you should plan that you will stay in hospital. I think you should arrange that you will stay during this period.”

She told me:

“I didn’t even bring enough clothes that I need to stay here for this period. I feel depressed and bored.”

I asked her:

“If your sister come to visit you, you might feel better.”

She replied:

“They came yesterday and brought gifts for my child. He felt happy, but he was looking for his twin. He asked them why they didn’t bring him too.”

I asked her why his brother didn’t come with them. She seemed like she didn’t like the hospital policy and said:

“The hospital doesn’t allow children to visit patients, except for Fridays. I’ll make sure he comes to see his brother next Friday.”

I asked her how she feels now. She said:

“Much better, I went to the emergency department yesterday. The doctor gave me medication. I feel much better today, however, I’m not feeling well psychologically.”

The nurse came to empty the urine bag and measure it. The mother told her:

“I emptied it and I measured it for you.”

I smiled at the mother and told her:

“Now you’re an expert.”

She told me:

“I saw many times how she does it. I don’t want to ring the bell all the time. I’m fed up of ringing the bell and asking the nurse to empty it. I preferred to do it myself. Also, I felt bored sitting in hospital. I don’t like the IV because I have to call the nurses every time I want to take him to the toilet. When he wanted to go to the toilet I call the nurse to come and disconnect it. Then I call her later to connect it again. It’s really boring. Now I disconnect it myself and don’t call the nurses.”

I said:

“You should ask the nurse to do it. The nurses care about this because they don’t want your child to get an infection.”

Then we talked about a number of different topics which are not related to the study.

Later, I went to the nursing station to write my field notes. Afterwards, I saw the mother again. She was walking with her child. They walked a few steps in the corridor. I realised the child wasn’t feeling good and his face was grimaced. Then they returned to the room. I went to the room and asked her if he feels pain. She told me:

“He’s in pain. The doctor told me that I should walk him a short distance. Also, I felt sorry for him that he was feeling bored. I thought that it would be good for him to walk.

When I tried to walk with him he felt pain, so I returned him back to the room.”

The child stayed on the bed and his face expressed that was in pain. She rang the bell to call the nurse. The nurse came to the room immediately. The mother told her:

“He’s in pain. We only walked a little bit.”

The nurse told her:

“Mother, because the urine returned back to the child again it caused pain. You need to hold the urine bag down like this otherwise it causes discomfort. Let him lay on the bed and get some rest. He will feel much better. If there is still pain I will give him medication.”

Then she went out. The mother turned the light off and asked her child to calm down. She stayed on the bed with him.

I arranged an interview for her. She gave me her phone number. Then I left the room.

Notes

This mother stayed in the hospital for 15 days. I had many visits with her to chat. Her child obeyed her instructions and cooperated with her.

