Examining Knowledge, Attitudes and Beliefs of Oncology Units Nurses towards Pain Management in Saudi Arabia

By

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Declaration of Originality

I certify that except where due acknowledgement has been made, the work is that of the author alone; the work has not been submitted previously, in whole or in part, to qualify for any other academic award; the content of the thesis is the result of work which has been carried out since the official commencement date of the approved research program; any editorial work carried out by a third party is acknowledged; and, ethics procedures and guidelines have been followed.

Mohammed Eid Alqahtani

Signed: ______________________ Date: 31/08/2014
List of Publications and Conferences Resulting from this Study

Publication

Recent Conferences

Invited speaker

Intention to prepare and submit the following
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<th>Description</th>
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<tbody>
<tr>
<td>ANOVA</td>
<td>Analysis of Variance</td>
</tr>
<tr>
<td>APS</td>
<td>American Pain Society</td>
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<tr>
<td>BTCP</td>
<td>Break Through Cancer Pain</td>
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<tr>
<td>CAQDAS</td>
<td>Computer-Assisted Qualitative Analysis Software</td>
</tr>
<tr>
<td>CNS</td>
<td>Central Nervous System</td>
</tr>
<tr>
<td>HPS</td>
<td>Hispanic Pain Treatment Survey</td>
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<tr>
<td>HREC</td>
<td>Human Research Ethics Committee</td>
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<tr>
<td>IASP</td>
<td>International Association for the Study of Pain</td>
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<tr>
<td>ICU</td>
<td>Intensive Care Unit</td>
</tr>
<tr>
<td>IRB</td>
<td>Institutional Review Board</td>
</tr>
<tr>
<td>KASRP</td>
<td>Knowledge and Attitudes Survey Regarding Pain</td>
</tr>
<tr>
<td>KSA</td>
<td>Kingdom of Saudi Arabia</td>
</tr>
<tr>
<td>MoH</td>
<td>Ministry of Health</td>
</tr>
<tr>
<td>NAHN</td>
<td>National Association of Hispanic Nurses</td>
</tr>
<tr>
<td>NCCN</td>
<td>National Comprehensive Cancer Network</td>
</tr>
<tr>
<td>NSAID</td>
<td>Non-Steroidal Anti-Inflammatory Drugs</td>
</tr>
<tr>
<td>PLS</td>
<td>Plain Language Statement</td>
</tr>
<tr>
<td>PRN</td>
<td><em>pro re nata</em></td>
</tr>
<tr>
<td>RMIT</td>
<td>Royal Melbourne Institute of Technology</td>
</tr>
<tr>
<td>SASH</td>
<td>Short Acculturation Scale for Hispanics</td>
</tr>
<tr>
<td>SCR</td>
<td>Saudi Cancer Registry</td>
</tr>
<tr>
<td>SOS</td>
<td>Saudi Oncology Society</td>
</tr>
<tr>
<td>SPSS</td>
<td>Statistical Package for Social Sciences</td>
</tr>
<tr>
<td>SSPM</td>
<td>Saudi Society of Pain Medicine</td>
</tr>
<tr>
<td>TRA</td>
<td>Theory of Reasoned Action</td>
</tr>
<tr>
<td>UK</td>
<td>United Kingdom</td>
</tr>
<tr>
<td>USA</td>
<td>United States of America</td>
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<tr>
<td>WHO</td>
<td>World Health Organization</td>
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Abstract

Study Background

Cancer pain is a multi-dimensional syndrome with a combination of acute and chronic pain that causes physical, psycho-social, behavioural, emotional and spiritual problems resulting in adverse effects on patients’ quality of life. Nurses ought to be well prepared with knowledge on pain assessment and management techniques in oncology units, due to their vital role in the decision-making process regarding pain management. There is a growing body of information concentrating on understanding pain in cancer patients. However, limited research has been conducted regarding nurses’ knowledge and attitudes regarding pain management in oncology units. None of these studies were undertaken in the Kingdom of Saudi Arabia (KSA). Therefore, findings of this study will contribute new information that is vital to improve the quality of nursing care of patients diagnosed with cancer, mainly in environments that involve nurses from different cultures.

Objectives of the Study

The overall aim of this study was to examine the level of knowledge, attitudes and beliefs of nurses working in designated KSA oncology units towards pain management, and to explore the nurses’ perceived barriers that hinder the delivery of effective pain management to cancer patients.
**Study Methodology**

Mixed methods approach was used to assess and explore the nurses’ knowledge, attitudes and beliefs towards pain management in KSA oncology units. The Knowledge and Attitudes Survey Regarding Pain (KASRP) by Ferrel and McCaffery (2008) was used to measure the knowledge and attitudes of nurses towards pain management practice. The survey involved a total sample of 320 registered nurses who worked in oncology units in KSA hospitals for at least three months. Five focus group discussions were conducted using a purposive sampling of six to eight nurses in each group, clustered according to their age, nationality and high/low score responses on the Phase 1 questionnaire.

**Study Results**

The results of the survey revealed that nurses’ knowledge and attitudes towards pain management in KSA oncology units was far from optimal. The mean correct scores of the KASRP tool were less than 50 per cent (M=45.08), while 77 per cent (n=249) of the nurses answered 35 to 55 per cent of answers correctly, indicating low levels of knowledge about and attitudes towards pain management. In addition, the results of this study demonstrated that only 11.9 per cent (n=38) of the participating nurses attended pain management courses at their hospitals. In addition, the study revealed that nurses who had participated in research had a higher pain management score than nurses who had not.

The results of Phase 2 in this study revealed five main thematic categories. These thematic categories are: communication barriers, cultural differences, nurses’ workloads, lack of knowledge, and absence of health team collaboration.
Conclusion

This study will provide baseline data for nurses, administrators and educators. The data can be used to improve current practices of patient care in relation to pain assessment and management, through identifying the deficient aspects of nurses’ knowledge, attitudes and beliefs towards pain management in oncology unit settings. In addition, the study will increase nurses’ awareness of the barriers that may hinder the efficacy of pain management provided to cancer patients. Significant implications will benefit nursing practice, administration and education, in addition to identifying potential future research.

Key words: Nurses’ knowledge and attitudes; Nurses’ beliefs; Oncology units, Kingdom of Saudi Arabia; Pain management; Barriers; Culture
Chapter 1: Introduction

1.1 Introduction

This chapter provides the context and structural outline of this study. This chapter presents a background of the thesis, the general aim and the specific objective of the study. In addition, an overall view of the rationale for conducting the study and its significance to nursing practice, education and administration are provided. Finally, this chapter will give an overview of the chapters in this thesis.

1.2 Background of the Study

Cancer is considered one of the leading causes of death globally (World Health Organization (WHO), 2014). Jemal et al. (2011) estimated that by the year 2030 there will be 21.4 million new patients diagnosed with cancer annually. During the trajectory of this disease, significant symptoms are reported, especially in the advanced stages, where pain is the most upsetting symptom for patients with cancer (Yazdani & Abdi, 2014). Cancer pain is a multi-dimensional syndrome with a combination of acute and chronic pain that causes physical, psycho-social, behavioural, emotional, and spiritual problems, resulting in adverse effects on patients’ quality of life (Hanks, et al., 2011; Yildirim, Cicek & Uyar, 2008).

Managing pain in patients with cancer is possible; evidence indicates that 80 to 90 per cent of pain can be relieved by correctly following international guidelines for managing cancer pain (Foley, 2011). Despite the advancement in pain management techniques and the international prescribed guidelines for adequate pain management, studies have shown that patients with cancer continue to suffer from pain at different
stages of their illness, mainly in the advanced phases (Al Qadire, Tubaishat & Aljezawi, 2013; Dees, Vernooij-Dassen, Dekkers, Vissers & van Weel, 2011). The American Cancer Society (Siegel, Naishadham & Jemal, 2013) declared that 60 per cent of patients who received treatment for cancer experienced moderate to severe pain, and the percentage increased up to 90 per cent in the advanced stages of cancer.

Many barriers hinder the delivery of effective pain management to patients with cancer; this might be healthcare professional-related, healthcare system-related, or patient-related (Oldenmenger, Smitt, Dooren, Stoter & vander-Rijt, 2009; Apolone et al., 2009). Poor knowledge and negative attitudes towards pain management were reported as one of the most common barriers to effective pain management among nurses (Al-Khalaileh & Al Qadire, 2012; Hui, Rong & Haishan, 2010; Yildirim et al., 2008).

Nurses working with patients diagnosed with cancer have a vital role in the decision-making process regarding pain management. Therefore, nurses ought to be well prepared with knowledge on pain assessment and management techniques in oncology units. Nurses importantly should not hold incorrect beliefs about pain management, which can lead to inappropriate and inadequate pain management practices (Jones, 2011).

This study will make an original contribution to nursing knowledge, as it explores knowledge, attitudes and beliefs regarding oncology unit pain management in the cultural context of the Kingdom of Saudi Arabia (KSA). The findings established from this research will add to the understanding of nurses’ knowledge of pain management in a KSA context. Thus, the information originating from this study can be
utilised to develop and implement educational programmes that fill the gaps in the nurses’ knowledge deficits, creating more positive attitudes. In addition, the study is expected to direct future research, as the results can be employed to initiate strategies aimed at improving pain management in oncology care settings. Therefore, this study intends to describe the knowledge and attitudes of nurses working in oncology units regarding pain management in KSA hospitals. It will also explore the perceived barriers that affect the delivery of effective pain management to patients with cancer.

1.3 Aim of the Study

The overall aim of this study was to examine the level of knowledge, attitudes and beliefs of nurses working in designated KSA oncology units towards pain management, and to explore the nurses’ perceived barriers that hinder the delivery of effective pain management to cancer patients.

1.4 The Study Objectives

The specific objectives of this study were as follows:

- To examine the level of nurses’ knowledge of pain management in designated oncology units in KSA hospitals.
- To examine nurses’ attitudes towards pain management in designated oncology units in KSA hospitals.
- To examine nurses’ beliefs about pain management in designated oncology units in KSA hospitals.
- To explore the perceived barriers to effective management in designated oncology units in KSA hospitals.
1.5 Significance of the Study

There is a growing body of information concentrating on understanding pain in cancer patients. Many studies exist in the literature that examine nurses’ knowledge and attitudes towards pain management. The vast majority of these studies have been conducted in western countries (Apolone et al., 2009; Lewthwaite et al., 2011; McNamara, Harmon & Saunders, 2012; Oldenmenger et al., 2009; Voshall, Dunn & Shelestak, 2013), while only a few studies have been conducted in the Middle East region where KSA is situated (Abdalrahim, Majali & Bergbom, 2010; Al-Khalaileh & Al Qadire, 2012; Kaki, 2011; Yildirim et al., 2008). However, limited research has been conducted on nurses’ knowledge and attitudes regarding pain management in oncology units; none of these studies were conducted in KSA. This has left a large gap in the research investigating nurses’ knowledge, attitudes and beliefs regarding pain management in oncology units.

Consequently, this study originates from a need to investigate the current levels of nurses’ knowledge, attitudes and beliefs regarding pain management and to explore the barriers to effective pain management in KSA hospital oncology units. Therefore, this study’s findings will contribute new information concerning this area. Such knowledge is important to encourage improvements in the quality of nursing care for patients diagnosed with cancer. In addition, this study involves nurses from different cultures; thus, it will provide reference data on pertinent regional issues in the healthcare sector that affect the delivery of effective pain management.

Further, this study aimed to identify barriers to effective pain management from the perspective of nurses working in oncology units. Consequently, it serves as an
initial step in assessing Saudi oncology units’ needs for improving the quality of nursing care. Thus, it will direct health institutions’ efforts to solve the problems that hinder effective pain management within the Saudi community. Moreover, this study provides evidence-based data necessary for further development of nursing curricula for the undergraduate and postgraduate nursing programmes, as well as in-service education in hospitals. In addition, the study suggests an important area for future research concerned with improving the quality of care for patients with cancer. It recommends changes in healthcare institutional practices and policies regarding pain management.

1.6 The Study Questions

Four questions were extracted from identified gaps in the literature to further investigate oncology unit nurses’ knowledge, attitudes and beliefs regarding pain management within the KSA cultural context. The questions driving this thesis were:

1. What is the level of knowledge that nurses working in KSA hospital oncology units have regarding pain management?

2. What are the attitudes of nurses working in KSA hospital oncology units towards pain management?

3. What are the beliefs of nurses working in KSA hospital oncology units towards pain management?

4. What are the perceived barriers that nurses working in KSA hospital oncology units face in the delivery of effective pain management?
1.7 Statement of the Problem

Effective pain management can be seen as an issue of primary importance for both nurses and patients. Relieving patients’ pain and suffering is considered the primary responsibility of healthcare providers, including nurses; it is a fundamental human right for all patients (Jones, 2011). Although pain can be effectively managed, the under-treatment of pain continues to be a significant health problem. In hospital settings, studies showed that pain is inadequately managed and more than 73 per cent of hospitalised patients with cancer continue to suffer from unrelieved pain (Stockler & Wilcken, 2012).

Of all healthcare providers, nurses are the most involved in the pain management of patients with cancer. Their knowledge, attitudes and beliefs are crucial to the achievement of pain relief for patients in oncology units (Lewthwaite et al., 2011). The global literature has identified that, for more than three decades, nurses consistently demonstrated a lack of knowledge, along with differing attitudes and beliefs about pain and pain management (Hui et al., 2010; Kaki, 2009; Yildirim et al., 2008). This has been identified as a significant clinical problem: relieving pain is a central goal of many oncology nursing interventions (Jones, 2011). Further, it is argued that many of the frameworks, intervention protocols and assessment tools have not been effectively used by oncology nurses to improve the care of patients experiencing pain (Lorenz, et al., 2009; Rustøen, 2013).

Currently, no studies have been found that examined nurses’ level of knowledge, attitudes and beliefs towards pain management at KSA hospital oncology units. In addition, no studies assessed the perceived barriers to effective pain management among
nurses working in these oncology units. Therefore, it is worthwhile to address this gap in
the literature. This will establish baseline information about nurses’ current knowledge,
attitudes and beliefs regarding pain management. Accordingly, examining the level of
nurses’ knowledge, attitudes and beliefs towards pain management is a significant step
in the process of improving pain management in oncology units. This will reflect
positively on enhancing the quality of life of patients with cancer and hopefully decrease
hospital admission rates. Consequently, this will decrease medical costs (Green,
Hart-Johnson & Loeffler, 2011; Tangka et al., 2010).

Moreover, knowing the barriers that nurses face in oncology units in relation to
providing effective pain management will help explore deficient areas, guiding
healthcare administrators and decision makers when planning policies. In addition,
exploring those barriers as perceived by nurses in oncology units will help nurse
educators (at schools of nursing and in-service education offices) to focus more on
cancer-related pain topics in their curricula. Additionally, it may shed light on the need
for educational programmes for further postgraduate education in the topics of pain
assessment and management.

1.8 Overview of the Study Setting (KSA)

The following sections present a general overview of the study setting—KSA—
where the present study was undertaken. A brief introductory background is outlined,
including: the country’s geographical location, statistical figures and facts about
economy, religion, education, with an overarching emphasis on healthcare services and
nursing workforce composition and challenges.
1.8.1 Background of KSA.

Geographically, KSA is the largest country in the Arabian Peninsula, which is situated in the farthest western corner of Asia. It occupies four-fifths of the Peninsula’s land area, with a total area of 2,240,000 square kilometres. KSA is a kingdom country consisting of 13 administrative regions directly connected to the country’s central government in the capital city Riyadh. The population of KSA is 27 million, including 20 per cent non-Saudi, residing temporarily (Central Department of Statistics & Information, 2011). The majority of Saudi citizens (90%) are of Arabic origin, while the remaining 10 per cent have Afro-Asian origins (Ministry of Labour, 2013). The dominant religion in KSA is Islam: Mecca and Medina, the most important and sacred cities for Muslims, are located in the western part of KSA, where they have been the centre of attraction for millions of pilgrims from all over the world every year. Figure 1.1 highlights KSA’s geographical location and major cities.

Riyadh is the centre and the capital city of the kingdom, where all the royal family, government bodies, ministries and foreign embassies are located. KSA was founded by King Abdulaziz in 1932, and since then has become one of the world’s most prosperous oil-based economies, especially after the exploration of large oil reserves in 1934. KSA holds around 20 per cent of the world’s proven oil reserves. Today, oil export and oil-based industries constitute more than 90 per cent of the country’s wealth (Gately, Al-Yousef & Al-Sheikh, 2012).

To transform the country, the government of KSA has initiated developmental plans that cover five-year periods and are then reassessed. These ongoing developmental plans promote growth in areas such as agriculture, commerce, industry, transportation,
communication, education and healthcare. Up until now, the country has been dependent on exporting oil and oil-based industry products to support the economy. However, a number of initiatives have been introduced to lower dependency on oil, including the facilitation and attraction of foreign businesses, tourism and the export of other non-oil-based products (Ministry of Economy and Planning, 2013).

The government of KSA follows a monarchy system, where the constitutional and civil laws are derived from and guided by Islamic directives. In addition, Saudi communities are highly influenced by Islamic teachings, rituals and guidelines. This is evident in everyday living activities including eating, dressing, socialising and working. For instance, it is quite common to observe people praying and encouraging others in the community to join prayers in mosques; fasting during the holy month of Ramadan is an annual event in KSA that limits working hours, as well as the time of work; and major Islamic events, such as the Hajj (pilgrimage season) are considered public holidays. Islam, for Muslims in general and Saudi Arabians in particular, is not just a religious identity. Rather, it is central to life, guiding all aspects including personal, social, economical and political systems. Therefore, in KSA, Islam is central to life and the only accepted reference for moral values and good conduct (Aldossary, While & Barriball, 2008).
Figure 1.1. Map of KSA showing major regions, cities and surrounding countries (SUSRIS, 2013).

1.8.2 The education system.

Education in KSA is provided free for all Saudi nationals at all levels of education, from elementary school to university level. Since the 1970s, the government of KSA has steadily supported education and has funded all the necessary developments to enhance and transform the educational system (Ministry of Economy and Planning, 2013). This has resulted in remarkable improvements and more options for Saudi
students pursuing their preferred career and enhancing their skills for employment. For example, from the mid-1970s to 2004, the illiteracy rate for students aged 10 years above significantly decreased from 64 to 20 per cent (WHO, 2006). In KSA schools, from the primary level (which starts at the age of six), gender segregation for students is mandatory. Male students go to different schools from female students. Similarly, male teachers work at male students’ schools and female teachers at girls’ schools. Primary education in KSA consists of six years, followed by an intermediate level school of three years, and a secondary level of three years. Students can then pursue higher education at universities, study at vocational colleges to acquire industry skills or join a public academy such as the police, media or business to specialise in these fields. In recent years, the government KSA has funded a major 10-year scholarship scheme that allows secondary school and university graduates to further their education at the best universities worldwide. The scholarship recipient is highly rewarded and is generally covered for all expenses, including educational fees, travels, medical insurance, housing and living expenses (Bukhari & Denman, 2013).

Private education and investment in the KSA education industry has also rapidly grown over the past 10 years. Being a relatively young nation, about 40 per cent of the population are of school age. This has fuelled a need for more educational resources and funding. To fulfill this growing demand, the Saudi government encouraged investors in the private educational sector by offering long-term, interest-free loans for the establishment of schools, and has equally recognised graduates from the private educational sector (Hamdan, 2013). Overall, the government of KSA is spending and investing heavily in the education sector. In 2013 about 25 per cent of the country’s
budget was assigned to support the education sector. This obviously shows the Saudi government’s interest in developing the country’s education system (Ministry of Economy and Planning, 2013).

1.8.3 Healthcare services.

Healthcare services in KSA are located across the country, including the 18 administrative regions that regulate the public and private healthcare sectors. All healthcare services in KSA are governed by the Ministry of Health (MoH), which is located in the central region of Riyadh. The MoH was established in 1954 to govern and develop all healthcare services in the country, since that time, healthcare services have developed rapidly. Today, the MoH provides free healthcare services to citizens, including preventive, curative and rehabilitative healthcare (Jannadi, Alshammari, Khan & Hussain, 2008). There are more than 420 hospitals providing health services today in KSA that are regulated and supervised by the MoH in country. Among these, 75 per cent are directly under governmental sector control, including more than 60 per cent directly under the supervision of the MoH. The remaining 25 per cent of healthcare facilities and services are provided through the private sector (Almalki, Fitzgerald & Clark, 2011).

The MoH has made strategic plans for the next five years—2014 to 2019— which are coherent and consistent with the KSA healthcare strategy and the country’s development plans. In addition, the MoH has, when planning for improved plans, always considered other factors that would achieve their future vision, in line with developments accomplished in the healthcare industry worldwide. These strategies were in response to a number of major challenges facing the healthcare industry across the
country, due to increasing levels of awareness and expectations for high quality services from care recipients (Almutairi & Moussa, 2014). Among the latest healthcare strategies that were developed and are currently the focus of MoH are: the national health insurance scheme, the privatisation of public hospitals, diversification of funding sources and the optimal utilisation of available resources and funding (Albejaidi, 2010). Despite the recent improvement and advancement in healthcare services, one of the biggest challenges facing such services in KSA is the shortage of skilled healthcare professionals, including nursing staff.

1.8.4 The nursing education and workforce.

Nurses are the primary healthcare provider for patients in hospital settings worldwide. In KSA, expatriate nurses continue to form the majority of all working nurses, especially for inpatient services (Almalki et al., 2011). The government of KSA takes every effort to retain Saudi nurses in hospitals, due to rapid growth of the Saudi population and advancements in healthcare technology. The total number of Saudi nurses working under the umbrella of MoH hospitals in 2010 was 29,590, which represents 44 per cent of the total healthcare professionals. In contrast, the expatriate nurse-workforce—nurses have work-contracts from the MoH in the KSA—represents 56 per cent of the total nursing workforce. In addition, the nursing profession seems to attract both genders equally in KSA. The number of Saudi male nurses was 48.3 per cent, whereas female nurses accounted for 51.7 per cent of the total Saudi nursing workforce population contracted by the MoH (Al-Homayan, Shamsudin & Subramaniam, 2013).
The nursing workforce in KSA has been dependent on expatriates. Although the international nurse workforce contributes to the development of healthcare services in KSA hospitals, there are many significant difficulties associated with this dependency on expatriate nurses. These include the high turnover rate of nurses due to difficulties adapting to Saudi culture (Almutairi, McCarthy & Gardner, 2012). The turnover rate resulted in a loss of nursing staff as they traveled back to their home countries (Bozionelos, 2009). Some may view this turnover of nurses as valuable to hospital administration (due to a belief that newly employed nurses may bring new ideas and positive changes (Tucker, Singer, Hayes & Falwell, 2008)). However, these benefits should be judged against the costs of losing experienced nurses, mainly in specialised areas such as intensive care, emergency and oncology units. In this regard, a royal decree for the ‘Saudisation’ of nursing in the country was made, which aims to foster a rise in the number of Saudi nurses in KSA and consequently decrease the turnover rate. Saudisation is the substitution of expatriate workers with local Saudi workers (for example, nurses) to be recruited in the jobs that expatriates have formerly occupied (Al-Mahmoud, Mullenand & Spurgeon, 2012).

Nursing staff shortages are an international phenomena; however, the consequences are severe for KSA, for a number of reasons: a) KSA population growth is very high (2.29 in 2011) (Khaliq, 2012); b) language and communication difficulties are experienced by expatriate nurses; c) the complexity of cultural norms and family structure in KSA, and; d) the importance of Islam in KSA people’s lives, while most expatriate nurses come from non-Muslim countries (Al-Khathami, Kojan, Aljumah, Alqahtani & Alrwaili, 2010).
Despite the developments and support for nursing as a career, the Saudi nursing profession remains a very new career. Currently, local Saudi nurses represent less than one-third of the total nursing population in KSA. Moreover, the vast majority of these local Saudi nurses hold either a diploma or associate degree in nursing, while the remaining registered nurses hold a degree or a postgraduate degree in nursing (Almalki et al., 2011). The nursing profession in KSA is facing tremendous challenges given the rate of the population expansion, Saudisation initiatives, the expansion in healthcare facilitates and the high expectations of citizens from such a well-supported public service industry.

To meet the growing demands and to bridge the gap of nursing staff shortages, the MoH has actively recruited nurses from abroad, and from different socio-cultural backgrounds. Today, nursing staff who work in KSA come from different countries, mainly Asian-based, including the Philippines, India, Pakistan, Sri Lanka and Bangladesh. Nurses from Arabic countries like Jordan, Egypt and Sudan are also recruited (Al-Homayan et al., 2013). Nurses from English-speaking countries, such as the United States (US), United Kingdom (UK), Australia and South Africa are also recruited, but are only seen in specialised referral centres in major cities, university-based or private hospitals.

It is argued therefore, that non-Arabic nursing staff will encounter language and communication barriers while working in KSA. They have to learn basic Arabic communication and skills to initiate a conversation with patients and families while working in hospitals and healthcare centres (Al-Khathami et al., 2010). Learning a new language different from the nurses’ native language is never easy, requiring time and
effort, as well as becoming familiar with the local culture. This challenges expatriate nursing staff when working, especially in hospitals and critical areas, as assessment and management of patients depends on communication and understanding (Al-Khathami, et al., 2010). This situation requires further training courses for non-Arabic-speaking nurses prior to joining the nursing workforce, to enhance their communication skills and promote cultural awareness.

1.9 Definitions of variables

<table>
<thead>
<tr>
<th>Conceptual definitions</th>
<th>Operational definitions</th>
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<tbody>
<tr>
<td>“Knowledge is defined as facts, information, and skills acquired through experience or education” (Oxford dictionaries, 2014).</td>
<td>For the purpose of this study knowledge is defined as the scored level of knowledge about pain management by nurses’ working in the oncology unites in KSA as measured by as measured by the items of the “Knowledge and Attitudes Survey Regarding Pain (KASRP) by Ferrel and McCaffery (2008).</td>
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<td>Attitudes are defined as “mental and neural representations, organized through experience, exerting a directive or dynamic influence on behavior” (Breckler and Wiggins, 1992, p. 409).</td>
<td>For the purposes of this study, the attitudes of nurses working in the oncology unites in KSA toward pain management practices as measured by the items of the “Knowledge and Attitudes Survey Regarding Pain (KASRP) by Ferrel and McCaffery (2008).</td>
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</table>
A barrier is defined as “A circumstance or obstacle that keeps people or things apart or prevents communication or progress” (Oxford dictionaries, 2014).

For the purposes of this study, barriers are the obstacles to the delivery of effective pain management that emerged from analysing the focus group discussions transcripts.

1.10 Summary and Thesis Structure

This thesis consists of seven chapters. Chapter 1 has presented the background of this study, the general aim and the specific objectives, an overall view of the rationale for conducting the study, in addition to the significance of the study to nursing practice, education and administration. Chapter 2 will present the relevant literature in the study area. This chapter will begin with the search strategy, information related to pain (and specifically cancer pain) prevalence and management modalities in KSA. Specific sections are devoted to present recent global and local studies related to nurses’ knowledge and attitudes towards cancer pain, in addition to the barriers to effective pain management. A systematic literature search approach was followed to critically present and appraise previous research related to pain management in oncology units.

Chapter 3 will detail the methodology of this study, which is comprised of a triangulation (mixed methods) approach for collecting data. The chapter will clearly describe the quantitative and the qualitative designs of this study and provide justification for using each design. Chapter 3 will also present the analysis strategy for each design, in addition to the detailed description of data collection and the ethical considerations procedures.
Chapters 4 and 5 will present the results of the two phases of data collection. Chapter 4 will demonstrate the results of the quantitative part of the study (Phase 1). This chapter will report the results, divided into four sections: (1) the demographic and contextual profile of the participants; (2) the frequency distributions of the responses to the instrument and; (3) the testing of the null hypotheses using inferential statistics. In contrast, Chapter 5 will report the results for the qualitative part of the study (Phase 2). This chapter will present a detailed description of the emerged categories, which represent the perceived barriers as reported by nurses in oncology units, including communication barriers, cultural differences, nurses’ workload, lack of knowledge and absence of health team collaboration.

Chapter 6 will discuss and integrate the significant results of the quantitative and qualitative components of the data collection, which informs the questions of the study within the context of the existing literature. In this chapter, a brief summary of the study and the participants’ characteristics are discussed. This is followed by discussion of the nurses’ knowledge, attitudes and beliefs in KSA oncology units regarding pain management that emerged from the quantitative approach of the data collection (Phase 1). Later in this chapter, the barriers that nurses KSA oncology units have in relation to the delivery of effective pain management, that emerged from the analysis of the qualitative data (Phase 2) are discussed.

Finally, Chapter 7 summarises the main conclusion derived from the findings of the two phases of this study. The chapter presents the strengths of this study and its implications to nursing practice, administration, education and future research. In addition, the limitations of this study will be presented at the end of this chapter.
Chapter 2: Literature Review

2.1 Introduction

Pain is a common symptom for most patients with cancer; around one-third of patients with cancer report pain (World Cancer Declaration, 2008). In the advanced stages of cancer, this percentage increases to three-quarters of patients (Goldberg & McGee, 2011; World Cancer Declaration, 2008). Despite the development of new techniques and guidelines for adequate pain management, pain is often inadequately managed, with the under-treatment of pain being reported as a major and persistent clinical problem (McCaffery & Ferrell, 1997; McCaffery & Pasero, 1999).

This chapter reviews the literature related to pain and pain management, especially for patients with cancer. Emphasis is placed on presenting studies conducted on assessing and describing nurses’ knowledge and attitudes towards pain in patients with cancer. The majority of the reviewed literature was conducted in the western world; however, the research included global and regional studies. The chapter is structured as follows and begins with describing the search strategy, and presenting information related to the prevalence of cancer and pain management status in KSA, revealing the reviewed literature related in the context of this study. The following sections include information related to definitions of pain, types of pain (including cancer pain), assessment and management of cancer pain. The subsequent sections describe studies related to nurses’ knowledge and attitudes towards cancer pain, barriers to pain management, and culture of pain. Finally this chapter explains the theoretical framework underpinning the study.
2.2 Search Strategy

This section explains the process of the search strategy for related articles in databases and other resources. The search plan involved exploring the published studies related to pain, cancer pain, nurses’ knowledge of cancer pain and nurses’ attitudes towards cancer pain. The databases used in the search process covered the years 2000 to 2014, and included: ProQuest, PubMed, GALE, CINAHL, EBSCO, Science Direct and Google Scholar. The key words used in the search were ‘cancer’, ‘pain’, ‘oncology nurses’, ‘nurses’ knowledge’, ‘nurses’ attitude’, ‘Arab’, ‘Saudi Arabia’, ‘pain management’ and ‘pain barriers’. The inclusion criteria for the search included the following: a) literature and studies published in the English language; b) literature and studies presenting information related to pain, pain assessment and management in diverse cultures; and c) studies describing nurses’ knowledge, attitudes, beliefs and experiences. In addition, all studies related to pain in cancer patients, including patients’ and nurses’ experiences in dealing with cancer pain, and pain assessment and management in oncology units, are included. In contrast, all related literature and studies involving paediatric patients and acute pain related to co-morbidities, such as acute myocardial infarction were excluded.

This research retrieved articles related to nurses’ knowledge and attitudes; these numbered 2,784. The researcher then limited the results by using articles in English, full-text articles and articles published within the last 12 years (2003 to 2014). From this list, duplicated articles, and articles that did not meet the criteria, were excluded. The aforementioned process was applied to all databases: the results from all databases were then combined (see Table 2.1). In the final stage of the literature review, a total of 39
subject-related studies were selected and reviewed included 24 articles related to nurses’ knowledge and attitudes towards pain management in oncology units. Additionally, a manual search was undertaken for some literature related to Saudi culture and oncology care in KSA. Such information, along with a number of books and theses, was used to obtain additional data and information.

Table 2.1

*Search Terms and Processes*

<table>
<thead>
<tr>
<th>Database</th>
<th>Search Terms and Process</th>
<th>Database Search Terms and Processes</th>
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<td></td>
<td>Lit. related to nurses’ knowledge &amp; attitudes towards patients with cancer</td>
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**2.3 The Prevalence of Cancer Incidents in the KSA**

Evidence about the prevalence of cancer and the treatment modalities of its symptoms is mostly found in the Saudi Cancer Registry, and can be described as scanty. During 2012, the Tumor Registry abstracted 2,544 new cancer cases (2,288 analytic and 256 non-analytic) (Tumor Registry *Annual Report*, 2012). The literature review revealed
that the highest incidence of cancer in KSA among males, by site, was leukaemia, colorectal, and non-Hodgkin’s lymphoma. For females, it was breast cancer, thyroid cancer and leukaemia (Chaudhri & Hussain, 2013).

Despite improvements in KSA healthcare facilities, the care of patients with cancer is still limited to a few areas in major cities, such as Riyadh (Tumor Registry Annual Report, 2012). Approximately eight thousand new cancer cases are reported annually; however, many are also under-reported, or patients report the disease in the later stages. While no statistics are available to confirm the number of under-reported cases, the available statistics show an incidence rate of cancer at 37.8 (of 100,000 cases); the overall age-standardised incidence is 60.9 (of 100,000 cases) (Saudi Oncology Society (SOS), 2013).

### 2.4 Overview of Pain

Pain is a common phenomenon of human existence and can be experienced by people of all ages, cultures and social statuses (Gregory & Haigh, 2008). Despite this, the majority of curricula designed for nursing education do not include sufficient information about pain diagnosis and type required to effectively describe pain treatment (Kaki, 2011). Additionally, understanding the complex process of pain pathophysiology is necessary for appropriate pain assessment and management.

The following sections detail an overview of the pain definitions and its types.

#### 2.4.1 Definition of pain.

Pain is a purely subjective experience. Thus, McCaffery (1968) has defined pain as ‘whatever the experiencing person says it is, existing whenever she/he says it does’ (McCaffery & Pasero, 2002, p. 17). This definition indicates that the patient is a trustful
person and the main source of pain reporting. As such, patients’ words are the actual indicator of pain, and some scales may help to describe the severity of pain.

Another broad definition of pain was declared by the International Association for the Study of Pain (IASP), which defined pain as ‘an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage’ (Merskey & Bogduk, 1994, p. 377). This definition focuses on two dimensions of pain: the physical and the psychological. The experience of pain is the most stressful of all symptoms that a patient may experience and is what drives the majority of people to seek healthcare assistance (Polomano, Dunwoody, Krenzischek & Rathmell, 2008). The experience of severe pain can lead to the patient suffering, mainly among patients diagnosed with cancer. For example, many cancer survivors have reported that pain changed their life to the extent that they could not socialise or perform the activities of daily living (DIPEx, 2007).

2.4.2 Types of pain.

There are many classification of pain. The first classification categorises pain according to the underlying pathophysiology as nociceptive or neuropathic pain (Turk & Okifuji, 2010). The second categorises pain along a continuum of duration, into acute and chronic pain. Chronic pain is further classified as malignant chronic pain and non-malignant chronic pain (Turk & Okifuji, 2010). Due to the current study’s focus on cancer pain, a brief description of each type of pain is provided, specifically focusing on cancer pain.
2.4.2.1 Nociceptive pain.

Nociception refers to the process by which data about tissue injury is transported to the central nervous system (CNS) as pain (Turk & Okifuji, 2010). Nociceptive pain is caused by continuous stimulation of A-δ and C-nociceptors in reaction to a noxious stimulus (for example, injury, disease or inflammation). Such pain occurs when high-threshold sensory afferents are activated (Turk & Okifuji, 2010). The pain transmits and relays information from the peripheral nervous system to the spinal cord, as well as to higher central structures (American Pain Society (APS), 2011).

2.4.2.2 Neuropathic pain.

Neuropathic pain takes place as a result of injury to nociceptive nerve fibres or to the afferent conducting system. This pain is a type of chronic pain that serves no biotic or efficient purpose (Treede et al., 2008). Such pain can be described as resulting directly from a lesion or disease affecting the somatosensory system (APS, 2010). In other words, neuropathic pain reveals nervous system injury or damage. The most common causes are trauma, inflammation, metabolic diseases (e.g., diabetes), infections (e.g., herpes zoster), tumours, toxins and primary neurological diseases.

2.4.2.3 Acute pain.

Acute pain is defined as a ‘complex, unpleasant experience with emotional and cognitive, as well as sensory, features that occur in response to tissue trauma’ (Ampomah, 2009, p17). While this type of pain is often nociceptive, it can be neuropathic. Common causes of acute pain include trauma injuries, surgical interventions, delivery, invasive procedures and acute illnesses (APS, 2010). Regardless of its intensity, acute pain is of relatively brief duration: hours, days, weeks or a few
months. Acute pain serves as a warning that something is wrong and is generally viewed as a time-limited experience (Asopa & Bajwa, 2011).

2.4.2.4 Chronic pain.

Chronic pain has been defined as a persistent pain that ‘disrupts sleep and normal living, ceases to serve a protective function, and instead degrades health and functional capability’ (McGuire & Sheidler, 1997, p. 20). This definition can be added to the more specific definition provided by McCaffery and Beebe (1998, p. 14), who defined chronic pain as ‘Pain that has lasted six months or longer, is ongoing on a daily basis, is due to non-threatening causes, has not responded to currently available treatment methods, and may continue for the remainder of the patient’s life.’ Chronic pain is now recognised as pain that extends after the healing time, with a non-identified pathology or clear explanation of its existence (APS, 2010). As noted above, chronic pain can be nociceptive, neuropathic or both, and can be triggered by trauma (e.g., surgical incision, cancer, or a different types of chronic diseases (e.g., arthritis and neuropathy). In some cases, chronic pain arises with no apparent obvious cause. In addition, factors that originate from the surroundings and stress may increase the intensity of chronic pain and make it persist, causing disability and maladaptive behaviour (APS, 2011).

2.4.2.5 Cancer pain.

Pain associated with potentially life-threatening conditions such as cancer is often called ‘malignant pain’ or ‘cancer pain’. Cancer pain is the pain produced by pathological condition of the disease (e.g., tumour metastasis, tumour compression on nerves, organ obstruction or tissue inflammation) or the exposure to painful procedures
or interventions (e.g., biopsy, post-surgical pain, side effects of chemotherapy or radiotherapy) (APS, 2011, p. 11–12). Additionally, cancer pain is characterised by its multi-dimensional nature. These dimensions can be physical, psychological, social or even spiritual (Goldberg & McGee, 2011). For cancer sufferers, the pain is progressive in nature: it starts during the early diagnosis of oncology patients, when pain is usually a patient’s presenting symptom. With a cancer patient’s increased survival duration, the pain tends to increase in intensity and with oncology treatment (Ahmedzai, 2001). Cancer patients suffer from persistent severe pain, which can sometimes overwhelm the patient towards the end of their life (Ahmedzai, 2001; Goldberg & McGee, 2011). However, according to the American Society of Clinical Oncology (2010), up to 95 per cent of cancer pain can be treated successfully.

Most studies (Ahmedzai, 2001; APS, 2011) have generally focused on the prevalence of pain itself, or on the prevalence of one type of cancer. As a consequence, little is identified regarding the incidence rate of cancer pain. Nevertheless, three studies (Deandrea et al., 2014; Goldberg & McGee, 2011; Haugen, Hjermstad, Hagen, Caraceni & Kaasa, 2010) did investigate cancer pain. For example, Goldberg and McGee (2011) found that, globally, 20 per cent of adults (in general or those with cancer) suffered from pain; and 10 per cent are newly diagnosed with chronic pain each year. In addition, it is estimated that 50 per cent of patients with non-cancer-related pain, and 90 per cent of patients with cancer-related pain, receive inadequate pain management (Haugen et al., 2010).

The third and most recent study was a systemic review conducted by Deandrea et al. (2014), to provide an estimate of BTCP prevalence using 19 observational studies.
The findings showed that the overall prevalence of pain was 59.2 per cent. The lowest incidence rates were found in outpatient clinics (39.9%), whereas the highest incidence was found in hospices (80.5%).

Although cancer pain is classified as a chronic pain, it is different from other types of chronic pain in four ways: 1) the pain takes longer than expected for the healing of trauma or an illness to cure, and might last for more than a six-month period, or there might be no recovery; 2) cancer pain has many aetiologies and is not limited to the illness itself; 3) most cancer pain is continuous and severe, with the severity depending on its pathologies; and 4) the treatment of cancer pain depends on continuous administration of analgesics 24 hours per day (APS, 2011).

Cancer pain, for many patients, is persistent; if the pain is undertreated, it can cause severe stress. This stress could also lead to other symptoms, such as fatigue, dyspnea, nausea and vomiting, constipation, sleep disorders, depression, anxiety and mental confusion (American Society of Clinical Oncology, 2014). In a study by Levy (1996), 95 per cent of participants revealed that chronic cancer pain was successfully treated with the drug and non-drug therapies currently available.

The most common cause of cancer pain is the cancer itself. When a patient has cancer, their pain can derive from the mass or pressure of a malignant tumour on one of the body’s tissues or nerves, or on the blood vessels that supply the organs (at which time the organs have insufficient blood supply and necrosis) (American Society of Clinical Oncology, 2014). Another cause of the pain relates to the cancer treatment, such as chemotherapy. Chemotherapy may have many side effects, such as mouth sores and peripheral neuropathy (numbness and occasional painful sensations in the upper and
lower extremities). Additionally, severe pain can result after surgical treatment. A third cause of pain can arise during procedural healthcare investigations, such as biopsies, venepuncture, lumbar punctures and debridement (American Society of Clinical Oncology, 2014).

Most cancer patients who have regular treatment with analgesics experience a special type of pain called “breakthrough cancer pain” (BTCP). This can be a debilitating event. BTCP can be defined as: ‘A transient increase in pain intensity over background pain, typically of rapid onset and intensity, and generally self-limiting with an average duration of 30 minutes’ (NICE, 2011. p. 97). Such pain can be of a moderate or severe intensity, which rises above the background of controlled chronic pain. This pain can be spontaneous (unexpected), and is also known as idiopathic pain. Idiopathic pain episodes have no known cause and are therefore unpredictable. In contrast, incident pain episodes have specific causes, and can be anticipated or predicted (Rustøen, et al., 2013). Rustøen et al. (2013; p. 130) further divide incident pain into three main three categories: the volitional incident pain that comes when the person moves or does voluntary activity (such as walking); the second is non-volitional incident pain that increases during non-voluntary activity (such as coughing); and the third is procedural pain that occurs during therapeutic procedures (such as wound dressing) (Rustøen et al., 2013).

2.5 Assessment of Cancer Pain

The basis of effective pain management is the assessment of cancer pain. In most cases, pain can be alleviated, with patients being comparatively free of pain. To successfully relieve pain and suffering, accurate and continuous pain assessment and
reassessment is mandatory. However, the evidence shows that pain assessment is often insufficient, with many healthcare providers not assessing the pain properly (Machira, Kariuki & Martindale, 2013). The effect of such under-treatment varies: patients can feel discomfort and anxiety, experience disturbed sleep or depression, be unable to eat or socialise and, sometimes experience existential suffering (Ahnems, 2012; Tumor Registry, 2012). As many as 25 per cent of newly diagnosed cancer patients suffer from moderate to severe pain, 60 per cent while undergoing treatment, and 75 per cent in the last days of their life (Hearn & Higginson, 2003; Van den Beuken et al., 2007).

In conveying an appropriate pain management plan of care for a patient, it is vital that the assessment recognises the pain intensity, as well as the pain’s origin. Ferrell and Coyle (2010) suggest a comprehensive assessment for all oncology patients, which should include the following: a detailed history, including assessing the intensity of pain, its characteristics, and its effects on body functions; any history of previous analgesics used; a physical examination with a complete neurological examination, particularly if neuropathic pain is suspected; assessing the psycho-social and cultural status; and an proper diagnostic checkup to identify the cause of the pain (Ferrell & Coyle, 2010).

However, pain assessment is contingent on many factors that are subjective to the individual patient; it is also affected by the way the patient perceives pain, and how the pain affects the quality of the patient’s life (Eaton & Frieze, 2008). Other factors can influence the assessment process, namely: the patient’s age, ethnicity, religious affiliation, marital status and social support, the stage of the cancer, and the psycho-social effect of pain on the patient’s life (Eaton & Frieze, 2008; Gilson, 2010).
Multifactorial Model for Pain Assessment is a widely used model for pain assessment in cancer patients (Jost & Roila, 2009). This model is based on defining pain as unique to the patient and as a complex phenomenon that involves many interconnected factors. Further, the assessment is based on describing the pain experience in relation to physiologic, sensory, affective, cognitive and behavioural factors (McGuire, 1992).

### 2.6 Management of Cancer Pain

The need for pain management, as a result of cancer treatments or the progress of metastatic disease, is fundamental to patient care (Wengström, Geerling & Rustøen, 2014). Nursing interventions, such as continuous assessment of the effect of pain treatment, standardised pain assessments, and the proper use of pharmacological and non-pharmacological modalities for pain relief, are the fundamental of effective pain management, especially for patients with cancer (Tumor Registry, 2012).

Thus, the pain management of oncology patients is based on a need to provide holistic care and support throughout the cancer journey. As mentioned earlier, cancer pain can result from the disease itself (e.g., tumour invasion) or from painful diagnostic procedures or treatments (APS, 2011). Therefore, pain management needs to be multi-dimensional and include physical, psychological, social and spiritual dimensions (WHO, 2003). Importantly, the main focus of controlling pain in cancer patients at the end of their life is to improve their functional abilities and quality of life (Ferrell & Coyle, 2010).

The most common pharmacological management of cancer pain is the use of opioids (Ferrell & Coyle, 2010). Oral opioid therapy is often the first-line treatment of moderate to severe pain in cancer patients. However, analgesics should be selected
according to the severity of the pain reported by the patient, and not the progression of the disease (Wengström et al. 2014). For neuropathic cancer pain, which is widespread in nearly 30 per cent of cancer pain patients, co-analgesics such as antidepressants and anticonvulsants are usually used as first-line treatment (Vadalouca et al., 2012).

In 2003, WHO developed the guidelines and principles of a cancer relief programme. These guidelines were developed to provide a comprehensive pathway for pain management in cancer patients. The most important feature of these guidelines is the stress on assessing pain intensity through the patient’s self-report and starting a regular suitable dose of opioids (e.g., morphine, which is considered the gold standard) and other analgesics that relieve the patient’s pain. The choice of analgesics should depend on the pharmacokinetics of the selected drug, the type and intensity of pain and should also consider oral administration of the drug as the preferred route. The guidelines also stress the importance of treating side effects of opioids, such as constipation. In addition, the WHO guidelines encourage the use of adjuvant drugs and non-pharmacological therapies, according to the type of pain. Finally, emphasis is placed on documenting pain assessment and management on a frequent basis.

In KSA, scant information has been found that determines the exact status of pain management; however, many health care organisations have been established to improve the quality of pain management. One such organisations, established to help improve the quality of pain management for patients with cancer is the SOS. This non-profit organisation was founded in 2007, with the ultimate goal of improving cancer quality of care and early detection, as well as ensuring that all cancer patients receive the best care. SOS is committed to: improving the education of oncologists and other
oncology professionals; promoting communication among cancer-related agencies; exchanging a wide range of ideas related to cancer; advocating for policies that provide access to high quality cancer care; and sponsoring the clinical trial programmes needed to increase clinical and patient-oriented research (SOS, 2014).

Another organisation is the SSPM. This was established in 2008 to help improve pain management policy in KSA. The SSPM is an association concerned with increasing the awareness and knowledge of pain in general among healthcare providers and public residents to alleviate patient suffering. The main aim of SSPM is to provide methods for the prevention and treatment of pain for all citizens. Moreover, SSPM emphasises the importance of interdisciplinary and multi-disciplinary research to improve knowledge of pain and methods of pain relief. The association supports any improvement methods and guidelines for pain management. In addition, it supports professionals involved in nurse education and training, and the publication of new pain-related information (SSPM, 2014).

Despite efforts in KSA to minimise patient suffering, the problem appears to be that the majority of nurses have limited knowledge of these guidelines, or have negative attitudes towards implementing them. This will be discussed in the next section.

2.7 Nurses’ Knowledge and Attitudes towards Cancer Pain Management

Pain assessment and management is one of the major competencies of nurses providing care for patients diagnosed with cancer (Joint Commission, 2010). However, studies have reported that nurses tend to underestimate patients’ pain (Aziato & Adejumo, 2014; Pasero & McCaffery, 2010). To achieve high levels of competency and
provide good pain management, nurses need an adequate knowledge, and positive attitude towards, cancer pain assessment and management. In the studies on nurses’ knowledge, attitudes and beliefs, a positive correlation has been found between certain nurse characteristics and factors, and nurses’ knowledge, attitudes and beliefs about pain management (De Silva & Rolls 2011; Houle, 2011; Rushton, Eggett & Sutherland, 2003). These nurse characteristics are related to what the nurse describes, or answers in the questionnaire, rather than to their own perspective. The nurse characteristics include: age, race and/or culture (Aziato & Adejumo, 2013; Lovering, 2006), their level of nursing education (Al-Shaer, Hill & Anderson, 2011), prior experience with cancer pain management (De Silva & Rolls 2011), and professional experience/nursing practice (Lui, So & Fong, 2008). The following sections provide more in depth discussion of these factors and characteristics, to determine their potential influence on nurses’ knowledge and attitudes about pain management. Following this is a discussion of the influences on nurses’ knowledge and attitudes about pain management in the Middle East generally and finally, in KSA.

The influence of professional experience or nursing practice on nurses’ knowledge and attitudes has been inconsistent. For example, McCaffery and Robinson (2002) used a questionnaire to evaluate 3,282 nurses’ knowledge about pain management. They found that nurses with more experience, or those who worked in oncology or a hospice, had the highest scores. Similarly, Lui et al. (2008) investigated knowledge levels and attitudes regarding pain management among 143 Chinese nurses. The nurse characteristics were examined for their relationship with the nurses knowledge and attitudes regarding pain (NKASRP-C). The findings further indicate that
a nurse’s years of practice and working experience positively influenced their overall scores. In contrast, the scores related to applying both pharmacological and non-pharmacological pain interventions were very low. However, the relationship between the nurses’ age, assessment of pain, and clinical area of practice were not significant in relation to their assessment of the patient’s level of pain (Lui et al. 2008).

The relationship between the nurses’ knowledge and attitudes towards pain and their demographic characteristics were supported by a non-experimental descriptive study conducted by Al-Shaer et al. (2011). A total of 129 nurses working in a midwestern metropolitan hospital were invited to take part in the study. The findings revealed that out of 32 points, the average knowledge score was 25.9 (SD=2.5). The findings did not indicate any significance in knowledge scores in relation to the nurses’ working shift or work status, age, or years of experience in nursing profession. Nevertheless, nurses who had 16 or more years of experience in their particular nursing unit had higher scores than nurses with experience of one to five years on their unit (\(M=27.2\) vs. \(M=25.0; p=0.012\)). The oncology nurses’ (n=7) scores were significantly higher in the total knowledge survey compared to all other nurses. In addition, baccalaureate and diploma-prepared nurses had higher scores than nurses who held an associate degree (Al-Shaer et al., 2011).

Similar findings were revealed in a qualitative study that described the experiences and cancer pain management practices of eight oncology nurses working at a government hospital in Sri Lanka, using an ethnographic design (De Silva & Rolls, 2011). The findings revealed that nurses who had prior personal experience with pain reported they would administer more analgesia to patients who needed it. These nurses
reported they felt confident to provide analgesic medications when they had rich information about the use of opioid medications.

These findings were consistent with two other studies that compared oncology and non-oncology nurses. Houle (2011) and Rushton et al. (2003) identified the differences between oncology and non-oncology nurses regarding their knowledge and attitudes toward pain management. Rushton et al.’s (2003) study in Utah (USA) investigated the knowledge and attitudes of 44 nurses working in oncology units, and 303 nurses working in medical surgical wards and intensive care units in relation to cancer pain management. The findings indicated that oncology nurses had better understanding of cancer pain management principles, and more positive attitudes towards pain management than non-oncology nurses. However, the oncology nurses still had difficulties in apprehending the principles of using pharmacological treatment to manage cancer pain.

Similar findings were reported by Houle (2011), who evaluated the level of cancer pain management knowledge by oncology and non-oncology nurses, with a total sample of 60 nurses who worked either at the Oncology Nursing Society or the American Association of Neuroscience Nurses in Florida (30 nurses from each organisation). The results revealed that nurses from both organisations had a deficit in the knowledge related to cancer pain managements. For example, 70 to 100 per cent of the questions were answered correctly by 60 per cent of the oncology nurses; only 30 per cent were answered correctly by non-oncology nurses (Houle, 2011). Both studies reported that oncology nurses had better knowledge than non-oncology nurses in relation to general pain management principles.
Despite the above studies identifying that oncology nurses had better knowledge than non-oncology nurses, a number of studies conducted in a range of western countries have reported on oncology nurses’ lack of knowledge regarding cancer pain management (Alnems, 2012; Smith, 2008; Wang & Tsai, 2010). For instance, Alnems (2012) invited a total of 225 participants from the Oncology Nursing Society in the USA. The results from the Nurses’ Knowledge and Attitudes Survey questionnaire showed deficiencies in the knowledge and attitudes of oncology nurses regarding cancer pain management.

Similar studies conducted in the Middle East have reported poor knowledge related to pain management among oncology nurses (Abdul Rahman, Abu-Saad & Noureddine, 2013; Yildirim, Cicek & Uyar, 2008). For example, in their examination of 68 Turkish oncology nurses’ knowledge and attitudes regarding cancer pain management, Yildirim, et al., (2008) found that only 14 out of 39 nurses correctly answered the survey questionnaire regarding pain management. The nurses had very low scores in relation to: the effectiveness of placebo injections to assess pain; the recommended opioid administration route for persistent pain; the fear of opioid addiction; and over-reporting of pain. However, the highest percentages were obtained for those answers related to considering the patient’s cultural background (72.1%), and the use of around the clock protocols for cancer pain (72.1%) (Yildirim, et al, 2008).

A recent study used the KASRP instrument to examine the level of 88 Lebanese nurses’ knowledge and attitudes towards pain management, and had similar results (Abdul Rahman, Abu-Saad & Noureddine, 2013). The results of Abdul Rahman et al.’s study (2013) revealed a mean score of correct answers of 56.15 per cent, which indicates
that participating nurses in the survey had insufficient knowledge regarding pain assessment and management. Two other studies of Jordanian nurses, by Al-Atiyyat (2009), and Al-Khalaileh and Al Qadire (2012) found similar results.

Evidence has shown the significant effect of pain management education programmes on nurses’ knowledge about pain and their ability to manage pain. Additionally, nurses who enrolled in education programmes showed significant improvements in their levels of knowledge about and attitudes towards pain management. The reviewed literature revealed five published studies that explored the effects of pain education programmes in changing knowledge levels and attitudes of nurses towards pain management (Borglin, Gustafsson & Krona, 2011; Huth, Gregg & Lin, 2010; Jarrett, Church, Fancher-Gonzalez, Shackelford & Lofton, 2013; Long, 2013; Wilson, 2007). Each of these will be discussed below.

The first reviewed study was conducted by Wilson (2007). This aimed to determine post-registration education programme effects on the knowledge 72 nurses (35 oncology specialist nurses and 37 general nurses) regarding pain. The results of this study showed that specialist nurses had more knowledge than the general nurses; however, their levels of knowledge were not related to their years of experience in nursing. The author reasoned that differences in nurses’ knowledge levels after undertaking educational programmes was because the oncology nurses were working in a stressful environment that affected their self-efficacy and control, and influenced their practice regarding pain management.

Similar findings were reported by Long (2013), who investigated 14 professional nurses’ level of knowledge and their attitudes regarding chronic pain management
before and after educational programmes, over a six-month period. The findings indicate a clear improvement in the nurses’ knowledge (F=6.273; p=0.2), and a positive change in their attitudes towards pain management after the education programme (F=12.26; p=0.002).

A further explanation about the influence of educational programmes and nurses’ knowledge was described by Borglin et al. (2011). This study involved a quasi-experimental study designed to investigate the effectiveness of implementing guidelines for systematic daily pain assessments, following a theory-based education programme to improve nurses’ knowledge and attitudes. The participants were recruited from two surgical wards in Sweden specialising in patients diagnosed with cancer. Thirty-five nurses were in both the intervention ward and the control ward group. Nurses in the experimental group had more confidence in providing pain medication, and had better knowledge about managing cancer pain compared to the control group.

These findings were supported with a longitudinal study conducted by Jarrett et al. (2013), with a sample of 206 nurses who worked in acute care facilities in the USA. This study measured the nurses’ knowledge before, immediately after, and six months after education in pain management. The post-test scores were significantly higher than pre-test scores on the KASRP, immediately after the educational session and six months later.

Similar findings were reported by Wang and Tsai (2010) in Taiwan. This study examined the knowledge of 370 nurses working in intensive care, using the Nurses Knowledge and Attitudes Survey (KASRP)—Taiwanese version. An overall correct response score of 53.4 per cent demonstrated their poor knowledge of pain management.
Similar findings were revealed in a study conducted by Tse and Chan (2004) in Hong Kong. The study examined 678 registered nurses’ knowledge and attitudes towards pain using the Chinese vision of the KASRP questionnaire. More than half of the participants (56 per cent) did not answer the questionnaire correctly, which indicated a poor level of knowledge among Hong Kong nurses in the study.

Gaining an understanding of the level of knowledge and attitudes regarding pain management among nursing students could help to recognise the nurses’ educational background, and the level of their knowledge related to pain management. This is supported by a recent study of 240 Jordanian student nurses, from three nursing schools, which explored their knowledge and attitudes regarding pain management. The average correct response score of 34.1 per cent (SD = 9.9) provided further support that student nurses lacked appropriate knowledge and attitudes related to pain management. These findings indicate that the undergraduate curriculum should include additional pain management courses to address this knowledge deficit (Al-Khawaldeh, Al-Hussaini & Darawad, 2013). Likewise, in another study, Rahimi-Madizeh, Tavakol and Dennick (2010) assessed Iranian bachelor degree students’ knowledge and attitudes related to pain management. Almost all students had limited knowledge of pain management according to their responses to the survey questionnaire; the overall average correct score was 36.9 per cent (SD = 7.7). In addition, some students could not understand several items in the questionnaire, even after it had been translated from English into Persian. Hence, the authors suggested that the translation of the survey tool caused possible negative bias in the results, along with the potential influence of cultural factors. Student nurses in the USA also showed limited knowledge. Duke, Haas,
Yarbrough and Northam (2013) asked a total of 162 junior and senior students in the USA to complete the KASRP survey. The findings indicated that student nurses’ knowledge of pain management was moderate (a mean score of 68%). In addition to the level of knowledge, MacLaren, Cohen, Larkin and Shelton (2008) found that nurses’ courses focused more on the physical aspect of pain; there was a dearth of strategies related to the cognitive-behavioural management of pain. These studies explain why many nurses have inadequate knowledge regarding pain management in general, and of cancer pain in particular.

One explanation for this level of inadequate knowledge on pain management (as identified in the above studies) could be the material used to teach students. Ferrell, Viranie, Grant, Vallerand and McCaffrey (2000) undertook a study that appraised 700 nursing textbooks. The results indicated that the pain management materials were inadequate in all the bachelor degree students’ textbooks used in nursing education. This is clearly an omission that can be easily addressed.

In contrast, another study indicates that the lack of nurses’ knowledge about pain management is not as simple as this. Aziato and Adejumo (2014) assessed 14 Ghanaian nurses’ knowledge of pain management, with a focused ethnographic design for data collection, at a tertiary teaching hospital. The study found that these nurses had inadequate knowledge, which was related to the curriculum gaps during their training, inadequate clinical supervision, and a lack of follow-up workshops related to pain management. However, this was a qualitative study with a small sample size.

Although there are wide range of studies conducted globally, limited studies have been conducted in KSA. One of these studies is a study conducted in KSA by
Kaki, Daghistani and Msabeh (2009). In this study, the researchers assessed 118 nurses’ (working at King Abdulaziz Medical City and King Khalid National Guard Hospital, Jeddah) beliefs, knowledge and attitudes regarding post-operative pain assessment and management. The results demonstrated that the nurses’ knowledge of acute pain was lacking in regard to many aspects of pain management. This study identified that nurses and student nurses in KSA had limited information about pain management. This might be related to poor preparation of nurses at the bachelor level, however, the study only explored knowledge of pain management from the perspective of the student nurse or nurses caring for patients with only acute pain.

A number of studies examined nurses’ knowledge compared to other health care professionals, such as physicians and pharmacists (Huijer, Dimassi & Abboud, 2009; Watt-Watson et al., 2009; Wells, McDowell, Hendricks, Dietrich & Murphy, 2011; Wells et al., 2011; Xue, Green, Czaplinski, Harris & McCorkle, 2007). A retrospective study conducted by Wells et al. (2011) examined relationship between physicians, nurse practitioners, and nurses’ knowledge, documentation of assessments, treatment and pain reduction. The results revealed that health care providers documented pain assessment in a comprehensive manner, however, they did not relate this assessment to treatment regimen. In other words, knowledge was the main principle for high quality pain management among healthcare providers, but poor pain management was evident in all healthcare groups (Wells et al., 2011). The second study was undertaken in Lebanon, by Huijer et al. (2008). In this case, a cross-sectional descriptive survey was undertaken to assess the knowledge, attitudes and practices of 868 physicians and nurses in oncology palliative care. The response rate was 23 per cent, which included 74.31 per cent nurses.
(645) and 25.69 per cent physicians (223). The findings indicated significant differences between the medical and surgical nurses and physicians concerning their perceptions of patient and family annoyances and concerns. Additionally, the practice scores were found to be associated with the participants’ degrees. Acute critical care and oncology had lower practice scores than other specialties. Importantly, a survey of the university curricula (in medicine, nursing, dentistry, pharmacy and veterinary medicine) found that two-thirds of the undergraduate curriculum did not include specific teaching on pain. For instance, the veterinary students were exposed to five times more instruction on pain management topics than the medical or nursing students (Watt-Watson et al., 2009).

The fourth study was conducted by Xue et al. (2007), who assessed the attitudes and knowledge of 96 inpatient oncology healthcare providers regarding pain management at a large, urban teaching hospital in the northeastern USA. The results indicated that oncology nurses correctly answered almost 60 per cent of 27 questions on knowledge of pain management. A lack of understanding about pharmacological knowledge of pain control was evident. The nurses indicated that they lacked confidence about which indications required attention when patients with cancer needed an increased dose of opioids to relieve their pain. They also lacked confidence regarding the calculation of equianalgesic doses of intravenous morphine to oxycodone.

Similarly, a retrospective study by Wells and colleagues (2011) examined the relationships between physicians and nurses regarding their levels of knowledge, documentation of assessment, treatment, and pain reduction in ambulatory settings by reviewing the records of patients treated for cancer-related pain in eight cancer clinics in southeastern USA. Sixty-one point nine per cent of the records revealed that patients
reported no relief of pain, and the assessment and treatment were unrelated to reported pain relief. These findings suggest that health care providers’ knowledge of pain was not related to the provided pain management, as indicated by the analysis of the documentation in patients’ records.

2.8 Barriers to Pain Management

Barriers to effective pain management are numerous and pervasive. Despite relief from cancer pain being possible in about 90 per cent of patients, studies have proven that cancer pain is often undertreated and poorly managed (Elcigil, Maltepe, Esrefgil & Mutafoglu, 2011; Sawyer, Haslam, Daines & Stilos, 2010). Several barriers can hinder pain management. These barriers can be classified into three main categories: a) health care provider barriers (nurses); b) patient barriers; and c) healthcare system (organisational) barriers. These barriers are discussed thoroughly in the following sections.

2.8.1 Healthcare provider barriers (Nurses).

Several studies have documented a lack of knowledge concerning cancer pain management among healthcare providers (Al-Khalaileh & Al Qadire, 2012; Elcigil, et al., 2011; Rustøen et al., 2009; Sawyer et al., 2010; Shahnazi et al., 2013). According to these studies, this could be due to inadequate understanding of pharmacology, such as the mechanisms of action, regulatory, and the side effects of pain medications (Sawyer et al., 2010; Shahnazi, et al., 2013).

Other problems identified in relation to knowledge include a fear of addiction when using opioid analgesics, as well as a fear of respiratory depression when high doses of opioids are used (Kaki et al., 2009; Yava, Çicek, Tosun, Özcan, Yildiz & Dizer, 43
Bernardi et al. (2007) found that nurses had incorrect knowledge about the use of placebos in pain management. This study found that some nurses insisted on using placebos with many patients, despite their ineffectiveness. These barriers are also illustrated in a study conducted in KSA by Kaki et al. (2009). This study asked a total of 300 nurses working in King Khalid National Hospital about their opinion of pain management. Despite the fact that morphine is a commonly used medication, many nurses knew nothing about its duration, peak effect, ceiling effect or safe amounts to be administered. Half of the nurses believed that increasing the dose of morphine was unnecessary, even if the patient had severe pain (Kaki et al., 2009). In contrast, 41.6 per cent of nurses reported a fear of addiction, and could not distinguish between tolerance and physical dependence.

Nurses have a critical role in pain management. They deliver direct patient care, and they need to assess and manage cancer pain throughout the day and night (Machira et al., 2013). Studies have found that many nurses hold negative attitudes or beliefs regarding pain and pain management (Elcigil et al., 2011; Machira et al., 2013; Yava et al., 2013). These negative attitudes and beliefs could contribute to the under-treatment of pain. Some nurses do not view pain relief as important; neither do they invest the time to assess pain properly (Berben, Meijs, Grunswen, Schoonhoven & van Achterberg, 2012; Elcigil et al., 2011). Other studies have found that nurses felt reluctant to accept that a patient’s self-report is the most trustworthy indicator of pain. They believed that patients sought attention rather than reported real pain (Al Qadire & Al-Khalaileh, 2014a; Aziato & Adejumo, 2014, McCaffery, Ferrell & Pasero, 2000; Pasero & McCaffery, 2010). In contrast, many studies have shown that although nurses
have inadequate knowledge of pain management, they have positive attitudes towards pain relief. They also believed that managing pain was crucial to providing quality pain management (Machira et al., 2013; Yava et al., 2013).

Studies indicate the need for interdisciplinary team (nurses, physician, pharmacist) involvement in pain management to ensure more accurate pain management (Xue et al., 2007). However, a lack of clear communication between healthcare providers—especially physicians—was negatively related to perceived barriers to pain management (Wang & Tsai 2010; Xue et al., 2007). Rejeh, Ahmadi, Mohammadi, and Anoosheh (2009) conducted a qualitative study to clarify Iranian nurses’ perceptions of the barriers and facilitators influencing their management of post-operative pain. The results revealed that inadequate communication between nurses and physicians was a significant barrier to pain management. This study concluded that establishing a healthy relationship between nurses and patients was vital for good pain management (Rejeh et al., 2009).

Nurse-patient communication is crucial to effectively assess the patient’s pain. Studies have reported that a lack of nurse-patient communication led to inadequate pain management. In this regard, inadequate time for health teaching and conducting a full pain assessment with patients hinders the nurse’s ability to provide effective pain management (Elcigil et al., 2011). Rustøen et al. (2009) asked 18 Norwegian advanced cancer patients about their experiences of nursing pain management during hospitalisation. Many patients stated they needed support and information about the incidence of pain and medications. This helped these patients feel comfortable and satisfied with the pain management process provided by nurses (Rustøen et al., 2009).
Finally, the majority of studies suggested that the main barrier to providing effective pain management was the lack of continuing education programmes or experiences for healthcare providers, as discussed earlier (Al Qadire & Al-Khalaileh, 2014a; Berben et al., 2012; Yava et al., 2013; Tsai & Wang, 2009). In addition, there is a need to include advances in pain management, innovative advances in drug therapy and improvements in assessment techniques in the education programmes provided for nurses in oncology units (Aziato & Adejumo, 2013; Elcigil, et al., 2011; Rejeh et al., 2008).

2.8.2 Patient-related barriers.

Many cancer patients are reluctant to report their pain to healthcare providers, mostly because they have a mistaken belief about opioid medication (Oldenmenger et al., 2009). A fear of addiction and a fear of tolerance were prominent among patients with advanced cancer (Borneman et al., 2008; Rushton et al., 2003). In addition, some patients fear taking analgesics because of their anticipated side effects (Oldenmenger et al., 2009). Although physicians prescribe laxatives regularly with opioid medications, many patients avoid taking opioids, especially morphine, because they are worried about having opioid-related constipation (Thomas, 2008). This is supported by a randomised trial study by Sun, Borneman, Piper, Koczywas and Ferrell (2008), who described pain-related issues of three cancer survivors to remove barriers to pain management. The cases were selected from a total list of 50 patients at the National Cancer Institute. The researchers found a number of barriers, including the fear of medication side effects and addiction, lack of healthcare provider knowledge about pain management, and the difficulty in accessing pain medications at the right time.
In addition, the experience of pain management among cancer patients was related to their perception of the cancer’s progression. Many patients and their families viewed opioid drugs as a path to death. Thus, opioids became their last option (Silbermann, 2011). Additionally, many patients believed that opioids hastened death; they felt an offer of opioids indicated their imminent death (Silbermann, 2011). Further, according to Burton, Fanciullo, Beasley and Fisch (2007), cancer patients under-reported their pain, fearing a relapse. They thought an increase in the severity of pain might indicate the disease’s progression and a consequent poor prognosis. As a result, these patients might slowly decrease their level of activity and use other coping strategies to avoid inducing additional pain and the need for analgesia. Similarly, Edrington et al. (2009) described the barriers to cancer pain management among 50 Chinese-American patients in outpatient department. The study revealed that the patients’ barriers included fear of tolerance to pain medicine, the time intervals used for such dosages, panic about the disease progression and addiction.

A decrease in the adherence of the patients to prescribed pain medication was evident in the literature review related to barriers hindering adequate cancer pain management. A total of 14 studies reported that the rates of adherence to medications had decreased from 20 to 95 per cent, with the majority of cancer patients taking their medications only as needed (Oldenmenger et al., 2009). In this regard, Kutluturkan, Fesci and Gorgulu’s (2010) study investigated the opinion of 66 nurses and 20 doctors working for hospital oncology departments regarding pain control medications. Two reasons were identified for inadequate pain control: firstly, the patients’ inability to clearly describe their pain to healthcare providers, and; secondly, the patients’ lack of
compliance with analgesic medications, especially for patients in the advanced stages or terminal period of their cancer (Kutluturkan’s et al., 2010).

Similarly, Li et al. (2011) used an experimental design to explore the effects of music therapy on pain reduction in 120 breast cancer patients after radical mastectomy. The results revealed that the more patients believed they could control their own pain, the less likely they were to adhere to the prescribed medication regime.

Further, ineffective nurse-patient communication may result in inadequate pain assessment. In turn, this may lead to poor pain management. For example, Solman, Wruble, Rosen and Rom (2006) found in their study that communication barriers impacted negatively on managing pain. Communication challenges revolved mainly around language differences. The difficulty for foreign language-speaking nurses in communicating effectively with Arab patients in KSA is obvious and inevitable. For instance, Brennan, Carr and Cousins (2007) and Schafheutle et al. (2001) reported that cancer patients, who had communication problems with nurses or physicians, had worse pain compared to those who did not face language barriers. Thus, the language barrier was a commonly described problem among these patients. Similarly, in their study, Rustøen et al. (2009) interviewed 18 Norwegian cancer patients (with advanced cancer) about their experiences of nursing pain management during hospitalisation for cancer treatment. The patients confirmed that they needed support with communication and information about the incidence of pain and pain medications. The patients confirmed that such information helped them feel comfortable and satisfied about the pain management process provided by the nurses. This further highlights the importance of effective communication between nurse and patient.
2.8.3 System (organisational)-related barriers.

Systemic or organisational-related processes in which pain management occurs often imposes a number of constraints. These barriers then may unintentionally hinder the effective management of pain. These barriers include such things as the availability of opioid drugs, lack of a national policy, and hospital regulations that impede the nurses’ job performance.

From a global perspective, WHO (2003) declared that most cancer patients in developing countries received inadequate amounts of opioid analgesics, especially morphine, when compared with developing countries. Two reasons exist for this undertreatment of severe pain using opioid medications: the absence of national policies on cancer pain relief, and; the increased restrictions on prescription and supply of morphine (WHO, 2003).

The scarcity of morphine and other opioid medications has also been identified as a barrier to pain management. Recent statistics indicate that the ten richest developing countries in the world consume more than 90 per cent of the world’s supply of morphine, while the remaining 10 per cent is distributed across the rest of the world (Silbermann, 2011). In KSA, the average amount of morphine consumption is 16.4 kg for a population of around 28 million people; this compares with 48.8 kg in Australia, with a population of 23.24 million (O’Brien, 2014). Consequently, many patients in developing countries suffer from severe pain and do not receive adequate analgesic medications (O’Brien, 2014).

Another barrier is that often, hospital policies regarding drug administration and available resources can influence the availability of analgesics. For example, Jacobsen et
al. (2014) found that patient pain was poorly relieved as a consequence of inadequate opioid doses being prescribed to cancer patients. A further reason for this outcome was that patients did not receive sufficient analgesic medication if they lived in rural areas where there was no hospital policy in relation to supplying patients with analgesic medications at home (Alnems, 2012).

Further, hospital regulations and policies may unintentionally impede the effective management of pain, by causing unnecessary delays in the administration of analgesics. Carr (2007) reported that a hospital policy requiring two nurses to double check opioid drugs (such as morphine) before administration might delay the patient receiving analgesics. Hence, patients have to endure further and extended pain while a physician writes the prescription; then, two nurses need to check, prepare and administer the opioid analgesics. Finding another nurse who is available to do this in a busy ward is not always straightforward, further extending this process.

Other organisational barriers to effective pain management were identified in a study conducted by Duignan and Dunn (2009) on 81 nurses from four western countries. This study undertook a descriptive analysis of the factors that influenced the barriers to pain management in emergency departments. The most common institutional barriers identified from this study included the failure to administer analgesia until a diagnosis was confirmed, time shortages to assess and control pain adequately, and the burden to care for other acutely ill patients, in addition to patients with pain.

The lack of clear pain management policies and guidelines has also been emphasised in many other studies (Duignan & Dunn, 2009; Elcigil et al., 2011; Rejeh et al., 2009). Rejeh et al. (2009) determined similar nurses’ perceptions of the barriers and
facilitators influencing their management of post-operative pain through semi-structured interviews with 26 Iranian nurses. The study found that nurses felt powerless in making decisions regarding pain management; this feeling was associated with the hospital policy, where the physician was the decision maker for any treatment related to pain management. The findings indicated that hospital policy might negatively affect the nurses’ attitudes towards effective pain management; many nurses believed that pain management was a physician’s duty.

The nurses also mentioned in their interviews that their heavy workload and staff shortages hindered their ability to provide pain education to their patients (Rejeh et al., 2009). Similar findings came from a study undertaken by Elcigil et al. (2011), who explored the barriers to pain management. This study utilised a self-report questionnaire with 114 nurses working in medical, oncology and surgery clinics. The results indicated that most nurses perceived barriers to pain management were systems-related. That is, 65 per cent of the nurses reported a lack of psycho-social support services, high patient to nurse ratios, and inadequate time for nurses to engage in health education with patients. In addition, Ware, Bruckenthal, Davis and O’Conner-Von (2011) conducted an international survey of 188 nurses working at the American Society for Pain. The nurses reported the biggest barrier was that nurses did not have the time to support patients suffering from severe pain.

2.9 Culture of Pain

Within the health care organisations, the relationship between culture and pain is strongly related. For example, the patient’s cultural background and nurse’s culture and
beliefs about pain management are intertwined. In the following sections, this issue is discussed in depth.

Firstly, pain perceptions and behaviours are greatly influenced by culture and by the socio-cultural context of the patients (Callister, 2003). The pain that is experienced by the majority of cancer patients is described as severe and overwhelming; it affects all the physiological, psychological and spiritual aspects of the patient’s life, as well as their family’s life (Tu & Chiou, 2007). Although pain is considered an individual experience, many patients are influenced by their cultural context when interpreting their pain, or accepting their pain management regime (Alnems, 2012). Thus, a patient’s or nurse’s culture may influence the meaning they give, and the beliefs they hold, about pain. In addition, the responses to pain may differ from one patient to another and from one nurse to another. This variation may arise as a result of patients’ cultural patterns, different languages, and/or the use of different words to describe pain (Davidhizar & Giger, 2004; Narayan, 2010). In some cultures, including Arab cultures, when male patients are in pain they like to project themselves as being ‘a man’; they attempt to face pain bravely and avoid expressing pain verbally (Callister, 2003). As a consequence, such patients may under-report their pain to nurses for the fear of being judged weak. Further, some people also refuse to take pain medications because of cultural prohibitions or fears about addiction (Lovering, 2006). Yet, other people are more comfortable using culture-based remedies, such as herbs or energy therapies (Cherniack et al., 2008). Understanding these diverse needs is essential to better plan pain management strategies. This knowledge has a bearing on an individual’s perception of the pain experience (Magnusson & Fennell, 2011). Considering the cultural background
of an individual patient might help nurses plan effective pain management strategies for the patient, and involve the patient in the treatment regiments (Narayan, 2010; Richardson, 2012).

Further, nurses’ cultural backgrounds and beliefs may affect cancer pain management in many ways. For example, patients may speak languages other than English, while the nurses speak English as a native language. This language conflict might affect a patient’s pain assessment, especially if a nurse is unable to understand the patient’s expression of pain. Speaking a different language and lacking a skilled translator may negatively affect pain assessment and pain management (Narayan, 2010). This observation was also evident in the study conducted by Lovering (2006), who confirmed the influence of culture on the experience of pain. The findings were based on a series of interviews related to Filipino, Irish, Asian and South African nurses’ knowledge and experiences of patients’ pain in KSA hospitals. This study revealed that some nurses, because of cultural and language differences, could not understand the patients’ expressions of pain. This then hindered their ability to provide effective pain management to their patients (Lovering, 2006).

Additionally, in situations where healthcare providers came from culturally diverse backgrounds, their means of expressing pain and pain tolerance influenced how they perceived other people’s cultural backgrounds, their language and their beliefs about pain (Alnems, 2012; Callister, 2003). As explained by Magnusson and Fennell (2011), the ‘culture of pain’ refers to the way a society interprets the meaning and treatment of pain. Therefore, culture offers the metaphors of behaviour to express pain, based on the meanings attached to it by that society. According to Bloch (2012), the
cultural beliefs of 143 Hispanic nurses, working at the National Association of Hispanic Nurses (NAHN), had negative effects on pain management. The nurses completed the KARP Instrument, Hispanic Pain Treatment Survey (HPS) Instrument, and the Short Acculturation Scale for Hispanics (SASH), in a clinical setting. The findings indicated that the nurses’ cultural beliefs influenced their decisions regarding pain management; 30 per cent of their decisions were correct for the Hispanic case studies, while 20 per cent were correct for the non-Hispanic patients. The influence of the patients’ culture and religion appeared resilient, being based on pain management regimes.

This is supported by Becker et al. (2006) who performed a randomised, double-blind, placebo-controlled prospective trial study to explore the role of religious beliefs in coping with disease symptoms and treatment related side effects, including pain in patients with head and neck cancer undergoing radiotherapy. The subjects were 157 patients, recruited from the Department of Radiotherapy at Freiburg University Hospital, Germany. The researchers concluded that religion and spirituality had an effect on the pain intensity at the end of radiotherapy. Many patients had faith in God to remove the cancer pain, with 48.3 per cent of believers feeling that God took away their pain.

Within the KSA there is a shortage of locally qualified healthcare staff, and nursing staff in particular. The MoH, as well as other governmental and private sectors, depend mainly on international recruiting. Therefore, ethnic and cultural diversity exists in many healthcare systems in KSA (MoH, 2011). However, the nurses’ cultural differences, language problems and diverse educational backgrounds have complicated the assessment and management of pain processes (Alnems, 2012).
2.10 Theoretical Framework of the Study

In philosophy, a theory can analyse how humans make decisions to achieve their desired outcome. Similarly, in clinical nursing practice, a theory can enhance our understanding of how nurses care for oncology patients and manage their pain. Oncology patients demand complex care regardless of where they are within the disease continuum. Understanding how nurses in oncology units provide care is also complex. One way of understanding the process of thoughts nurses undergo when making decisions and delivering care is through the theory of reasoned action (TRA) (Ajzen & Fishbein, 1980), which postulates that they undergo a process of weighing their skills and the benefits of their action. It is only after being convinced of the outcome that they decide to take the appropriate actions.

The TRA, as the theoretical background for the current research, facilitates understanding of the attitudes and behaviour of nurses in the oncology units. The TRA deals with individuals’ attitudes and their behaviour towards a given situation, while considering a number of important factors involved in the process. Prior to choosing this particular theory, the researcher reviewed a number of potential theoretical models to underpin the current research. The TRA was deemed appropriate to expand theoretical understanding of the clinical setting, attitudes and beliefs of nurses in the oncology units and other significant background factors. In addition, the TRA enhanced the researcher’s understanding of the study’s findings by pinpointing key variables, guiding and leading the discussion, and facilitating the conclusions.
2.11 The Theory of Reasoned Action

Historically, the TRA has been used in a number of settings that investigate participants’ intentions to act within a given scenario, as well as to predict their attitudes and behaviours in social research. For instance, the TRA has been widely used to forecast and explain health behaviours, including smoking habits, clinical reasoning, pain management behaviour, intention to leave, and social participation (Glynn & Ahern, 2000; Ajzen, 2005; Higgs, 2008). In clinical nursing practice, the TRA has been applied to evaluate the quality of nursing care to drug addicts (Natan, Beyil & Neta, 2009), and nurses’ intention to use physical restraints with older people (Werner & Mendelsson, 2001). Ajzen and Fishbein’s (1980) TRA is a model for predicting behavioural choices in a broad range of settings.

The TRA states that behaviours result from behavioural intentions which, in turn, are based on attitudes and beliefs. According to this theory, knowledge and attitudes are a reflection of past experiences that have been developed over time and have a strong influence on individual behaviour and decision making. Therefore, individuals may develop varying attitudinal positions towards a given scenario, choice, object or person. The outcome behaviour results from conclusions formed upon previous experiences with similar situations; thus, a behaviour can be viewed as negative, neutral or positive (Ajzen & Fishbein, 1980). Similarly, nurses who deal with pain in everyday practice constantly weigh their abilities and knowledge to effectively assess and manage patients’ pain. Over time, nurses develop attitudinal positions towards their experiences, and these can be reflected in their pain management practice and clinical decision
making. Integral to the TRA is the social pressure associated with decisions, which can also affect the decision (intention) and the behaviour (Ajzen, 2005).

An advantage of the TRA is that it offers a process map that allows for the anticipation of people’s behavioural actions. The surrounding factors that may influence individuals’ decisions and intentions to behave in a particular manner are considered influential factors. For instance, the social surroundings where people live or work have a strong influence on individual attitudes, as they are part of those surroundings. Their behaviours are formed within the limitations of their environment. Thus, nurses’ attitudes and behaviours—in relation to pain management practices—in the oncology units are shaped, to a large extent, by the socio-cultural settings where they work and live. Accordingly, nurses who work in KSA, and manage patients’ pain, have strong behavioural influencing factors that must be considered. Hence, the work environment plays a key role in shaping and influencing nurses’ attitudes, behaviours and, ultimately, their decisions about pain management practices (Ajzen & Fishbein, 1980). In other words, the interpretation of a patient’s self-report of pain, as well as the decisions made in relation to best management practices, are all made within the social limits of that given environment. For instance, studies (Abdul Rahman, Abu-Saad & Noureddine, 2013; Al-Shaer et al., 2011; Rushton et al., 2003; Yildirim, et al, 2008) have investigated the knowledge and attitudes of nurses towards pain management, with varying results for different societies. Nevertheless, in all studies, the socio-cultural and environmental factors were critical factors in pain management practice.

A key component in the TRA is the person’s intention to accomplish certain behaviours, which is the only direct predictor of that behaviour. According to this
model, two independent determinants of intention exist: attitude towards the behaviour, and the subjective norm. Attitude towards the behaviour refers to the level to which an individual has a positive or negative perception of the specified behaviour. The subjective norm indicates the social pressure factor; that is, the likely social pressure to be considered when taking the action (Ajzen & Fishbein, 1980). The TRA entails the decision-making process, as well as the intentions and behavioural actions of the individual: this practice is complex and never occurs in a vacuum. The consequences of the behaviour affect the belief about it and, therefore, the intention to act. The subjective norm is the result of social awareness; namely, what others in the society may consider legitimate.

The TRA suggests links between attitudes and behaviour, as shown in Figure 3.1, with the actions being controlled by behavioural intentions. Other variables that can influence the belief and behaviour of individuals include personal profiles, type of task intended, system design (work policy), and past experiences (Ajzen & Fishbein, 1980). However, the TRA suggests that in certain circumstances related to external variables, a positive intention may not lead to the intended behaviour. These variables may relate to personality, educational, social, religious or cultural factors. It is not clear how these factors can directly or indirectly affect the behaviour within the model, as they are considered external and embedded within the background of the theory. Nevertheless, by understanding intentions, based on cognitive components (such as personal beliefs about the behavioural determinants and perceptions of subjective norms), nurses’ attitudes can be best understood. The TRA could provide a basis to examine and correlate these variables to understand nurses’ attitudes about pain management.
practice. Thus, strategies can be formed to address nurses’ deficiencies, to improve patient outcomes, and their overall satisfaction with pain management practices.

Figure 2.1. A schematic map of TRA highlighting the key factors that contribute to behaviour (Ajzen & Fishbein, 1980).

2.12 Chapter Summary

This chapter reviewed the literature relating to cancer pain management, nurses’ knowledge and attitudes towards pain management for oncology patients, and the culture of pain. The following points summarise the gap in the literature:

- The literature reviewed emphasised that nurses worldwide have insufficient knowledge, along with certain myths about and negative attitudes relating to cancer pain management.
- The majority of the reviewed studies used quantitative cross-sectional or survey design and depended on questionnaires for data collection; therefore, they did
not provide a detailed assessment of the situation, nor did they explain why the
nurses had inadequate knowledge.

- There was a lack of knowledge related to WHO policy regarding cancer pain
  management.
- There was a significant lack of data regarding nursing attitudes, and the practice
  of cancer pain management, among nurses with different cultural backgrounds,
  especially in eastern Arab cultures (such as KSA).

To achieve its purposes, the current study has examined nurses’ knowledge,
attitudes and beliefs towards management of pain in KSA oncology units. The following
chapter will present the study’s methodology.
Chapter 3: Methodology

3.1 Introduction

A research methodology is the research strategy applied to investigate a given topic. It involves a detailed description of the various steps adapted to accomplish research and the logic behind them (Bryman, 2012). Other criticisms that have been levelled at mixed methods is the perception from the wider research community that one paradigm will taint or interfere with the other and should therefore not be mixed. In addition it is viewed as being more time consuming and involved, be resource intensive and generate more complex data. On the other hand, using mixed methods provides a more holistic understanding of the research problem which in turn improves the rigor of the research. It also means that the best methodological tools can be utilised in answering the research question (Denzin & Lincoln, 2011; Schneider, Whitehead, Elliott, LoBiondo-Wood & Haber, 2007).

Accordingly, in this chapter the research methodology of the current two phases mixed methods study is explained and justified. The details of each step undertaken in completing the research are presented. This includes the research design, setting, aim and questions, recruitment and sampling of the two phases, population and inclusion criteria, tools, instruments, data analysis, rigour and the ethical conduct of the study.

3.2 Research Design

Mixed methods approach was used to assess and explore nurses’ knowledge, attitudes and beliefs in the oncology units towards pain management. Mixed methods are approaches to research that use a combination of more than one research strategy in
a single investigation (Speziale, Streubert & Carpenter, 2011). The reason for using this design was to apply the pragmatist inquiry paradigm, which proposes that using both quantitative and qualitative approaches provides better understanding of a research problem than either approach alone (Creswell & Garrett, 2008). Neither quantitative nor qualitative research methodologies are without their limitations; combining the two helps to address their respective weaknesses (Denzin & Lincoln, 2009). Combining the two methodologies also means that the strengths of both approaches can contribute immensely to the exploration and comprehension of a phenomenon (Salehi & Golafshani, 2010). Using mixed methods approach results in the integration of data collection and analysis processes from both quantitative and qualitative perspective. These can then be incorporated or triangulated to meet the research objectives comprehensively. This process can be undertaken either at the same time or sequentially (Creswell & Garrett, 2008). In this research, the process was undertaken sequentially.

The mixed methods approach is not without its criticisms, which range from issues of incompatibility and the impossibility of combining a quantitative and qualitative approach, to the fact that because of the differences between the two methodologies, they should remain independent (Creswell & Garrett, 2008). In addition, combining the two methodologies is not an easy task, because of the complexities of using different methods and frameworks. A further difficulty identified by Salehi and Golafshani (2010) with the use of this approach is the challenges that may be encountered if the results from one approach differ or contradict the results from the other. Despite these identified difficulties, there is general agreement that using mixed
methods approach increases the accuracy of the research results (Risjord, Dunbar & Maloney, 2002; Salahi & Golafshani, 2010).

Accordingly, the current study was conducted in two phases using a mixed methodology: (a) a survey involving statistical analysis of numerical data elicited from a sample of nurses using questionnaire items, based on numerically scored scales; and (b) the qualitative analysis of the responses of a purposive sample of nurses who participated in focus groups. The researcher followed Morgan’s (1997) method for analysing focus group discussions which consists of three elements: coding the data, interpreting the data, and reporting the data. The quantitative and qualitative parts of the study required the nurses to answer different questions revealing their knowledge, attitudes and beliefs about pain management in light of the research objectives and questions.

Mixed methods approach was used in this study because it allowed the researcher to explore the topic from multiple perspectives and to obtain more meaningful and reliable information (Creswell & Clark, 2011). In the first phase, the knowledge, attitudes and beliefs of nurses could only be summarised and generalised in terms of statistics; however, the richer qualitative information collected in the second phase was essential to expand the basic findings provided by the statistics. To permit the integration of qualitative and quantitative data, this study applied a triangulation design (Hussein, 2009). The essential features of this design were that quantitative and qualitative information from different sources were integrated to address and discuss the research questions and meet the research objectives. Using this triangulation approach
can support and integrate the results elucidated by the two methods. It can also clarify the information obtained from participants and provide a more holistic view.

3.3 Research Aim

The aim of this study was to examine the knowledge, attitudes and beliefs of nurses in the designated oncology units in KSA towards pain management. The study aimed to examine and explore current nursing practices in oncology units, and the level of knowledge they possessed about pain and pain management. In addition, the study wanted to identify the barriers to effective pain management in clinical settings. The study was designed into two separate phases to enhance the findings and facilitate validation of data through a triangulation process. To achieve this, the study involved two separate phases: a survey enquiry, followed by focus group interviews.

A secondary purpose of the current study was to enhance pain and pain management-related policies by exploring nurses’ knowledge, attitudes and practices towards pain. The study also deemed it was appropriate to oncology unit mangers and decision makers in KSA, as it would identify pain management barriers experienced by the nurses who participated in this study.

3.4 Research Objectives

The objectives of the study were to:

- Examine the level of nurses’ knowledge of pain management in designated oncology units in KSA hospitals.

- Examine the nurses’ attitudes towards pain management in designated oncology units at KSA hospitals.
• Examine the nurses’ beliefs about pain management in the oncology units at KSA hospitals.

• Explore the perceived barriers to effective pain management in the oncology units.

3.5 Research Questions

The research questions that underpinned the study were:

• What is the level of knowledge that nurses working in KSA hospital oncology units have regarding pain management?

• What are the attitudes of nurses working in KSA hospital oncology units towards pain management?

• What are the beliefs of nurses working in KSA hospital oncology units towards pain management?

• What are the perceived barriers that nurses working in KSA hospital oncology units face in the delivery of effective pain management?

3.6 Research Setting

Each phase of the present study was conducted in five hospitals central to KSA. For privacy reasons, the healthcare centres where the data collection took place are not mentioned. Every hospital was given a code for easy identification in the current study: these have been named Hospitals A, B, C, D and E. The details about the location, size, type of hospital and services included are outlined below:

• Hospital A is located in the capital city, the central region of KSA, and has a 1,400-bed capacity. Hospital A is major public referral centre in the country
offering highly specialised tertiary healthcare services, including a 103-bed oncology centre.

- Hospital B is a public healthcare specialist centre with a 1,000-bed capacity. The centre is located in the capital city and is operated and managed by the MoH; it accepts referrals from all other hospitals across the country, including those in rural areas.

- Hospital C is a 600-bed government hospital located in a highly populated central city. The hospital accepts referral and offers specialised oncology and palliative services.

- Hospital D is a 500-bed medical complex located in the eastern region of the country. It has an oncology department offering full in- and outpatient specialised services. Hospital D accepts patients by referral only from local and regional hospitals.

- Hospital E is a 300-bed regional hospital located in the eastern region of the country. The hospital has an oncology unit and outpatient weekly clinics.

Generally, patients requiring oncology management are cared for in a specialised hospital setting in KSA. General hospitals routinely refer patients who need oncology services to those better-equipped hospitals, where specialised healthcare services can be delivered. All of the above hospitals provide that care.
3.7 Population and Sampling

3.7.1 Phase 1.

Knowledge, Attitudes and Beliefs of Oncology Units Nurses towards Pain Management in Saudi Arabia were assessed and examined by employing a descriptive self-report survey design. This design is useful to understand the phenomenon under investigation and develop appropriate change strategies (LoBiondo-Wood & Haber, 2013). Moreover, it is an efficient means of collecting a large amount of data about a problem and discovering a large number of interrelationships in a relatively short period of time. Further, the use of a self-report questionnaire reduces the effects of the researcher on participants, which encourages them to answer the questions honestly and openly (Rea & Parker, 2012).

The quantitative survey in this phase involved a total sample of 320 nurses who worked in the oncology units included in this study, to provide estimates of the knowledge, attitudes and beliefs of nurses towards pain and pain management. Using a survey in this phase helped provide a general view of nurses’ knowledge, attitudes and beliefs in this area. As little is currently known about pain management in KSA, surveys can be extremely important sources of data (LoBiondo-Wood & Haber, 2013).

3.7.1.1 Inclusion criteria.

Any nurse who worked at any of the included oncology units of the nominated hospitals (A, B, C, D and E) and met the following inclusion criteria were subsequently included and invited to participate. The inclusion criteria were: registered nurses working in oncology units and providing direct care to patients, aged 21 to 60 years old, and with at least three months of work experience at KSA oncology units.
3.7.1.2 Exclusion criteria.

The focus of the current study was the adult population; therefore, nurses who worked in paediatric oncology units of the included hospitals (A, B, C, D and E) were excluded. This was because nurses working with children have unique and special communication needs compared to those working with adults. Additionally, nurses who worked in managerial and educational positions, such as nursing managers (directors of nursing services) were also excluded. These groups of nurses were excluded because their knowledge of pain management would not be equivalent to those who provide direct daily care for adult patients.

3.7.2 Phase 2.

Following the completion of the Phase 1 survey, the participants were asked at the end of survey if they were willing to participate in a focus group interview for Phase 2. If they were happy to be in a focus group, they provided their contact details for communication and invitation to participate. These contact details were known only to the researcher and were kept separate from the data. From this list of potential participants, the researcher selected a purposive sample of participants to form the focus groups. The selection was based on the results of the questionnaire scores to create balanced groups (that is, high and low scores, younger and older age clusters). The researcher then emailed potential nurses the objectives and the plain language statement (Appendix A), inviting them to participate in this part of the study. Once the arrangements for the focus group were made, the participant was allocated a code. Subsequently, a purposive sample of 35 nurses was chosen to participate in Phase 2 of the study. Nurses in Phase 2 were clustered according to their location (hospital), age,
nationality, and high/low score response on the questionnaire (Creswell & Clark, 2011). Five focus groups were organised and completed in total. Each hospital from Phase 1 of the study hosted one focus group to facilitate attendance.

3.8 Recruitment

The recruitment process began in March 2012, and continued through to July 2012. After obtaining all ethical approvals (further explained in Section 3.15), the data collection procedure took place as follows:

- Formal letters were sent to the directors of nursing at the selected five hospitals seeking approval for data collection. Copies of ethical approvals and a summary of the study were also attached to the request.

- The researcher then contacted the head nurse/manager of each selected oncology unit separately to organise the data collection process and clarify any issues related to the study. The researcher reviewed all included oncology unit head nurse/managers regarding the following: the purpose of the study, the two phases included, the method of data collection, the time required to participate in each phase, and the criteria of registered nurses required for inclusion in the study. In addition, the steps required to complete Phase 1 and Phase 2 of the study were agreed upon, the Phase 1 survey questionnaire distribution was discussed and the Phase 2 date, time and venue were arranged.

- The unit head nurse/manager then helped in preparing the list of nurses’ names. Nurses were then screened for their eligibility to participate and the study sample was known.
3.9 Data Collection Instruments

The current study employed two different tools to collect data from participants: these are detailed in the following sections.

3.9.1 Phase 1: quantitative.

The KASRP, which was developed by Ferrel and McCaffery (2008), was used with permission, to collect the Phase 1 quantitative data. The tool was designed to measure the knowledge and attitudes of nurses towards pain management practice. Since it was developed, the tool has been used widely, and has been revised and validated over the years (Ferrel & McCaffery, 2008). A reliability study of the original survey revealed an overall Cronbach’s alpha of 0.80 of the questionnaire items (Ferrell, McGuire & Donovan, 1993).

The KASRP is a 38-item questionnaire consisting of 22 true or false questions, 14 multiple choice questions and two case study question. However, the published KASRP did not have a demographic section, which was added by the researcher. The ‘Demographic and Contextual Characteristics’ section consisted of 16 items related to the demographic and contextual characteristics of the participants. Most of the items in this section were developed by the researcher, based on reviews of various research studies and recommendations mentioned therein. Some of these items were added by the expert panel. The demographic characteristics included (items 1 to 9) age, gender, marital status, level of education, years of experience, religion, ethnic background, and geographic background. The contextual characteristics affecting pain management were included in items 10 to 16 (Appendix H).
Following the demographic characteristics of participants, the KASRP instrument had 22 true/false questions to measure knowledge, 14 multiple choice questions to measure attitude, and two case studies with two questions each. Slight modifications to the original survey were done, which included the application of Arabic names to the two case studies given in the survey (Ferrel & McCaffery, 2008). A copy of the final used questionnaire is attached to the appendixes (see Appendix B).

3.9.2 Phase 2: qualitative.

The aim of using focus groups in this study was to confirm the data from Phase 1 and to provide recommendations for the nurses working in designated oncology units in KSA. Thus, Phase 2 was conducted after performing basic analyses (descriptive analyses) of the Phase 1 data. The interview guide was developed by the researcher, based on the extensive literature review and the results from Phase 1 (Appendix C). The group composition and size was set to allow heterogeneity (Ritchie, Lewis, Nicholls & Ormston, 2013). The researcher identified and clustered the participants for the focus group based on their demographic profile and scores in Phase 1 (for example, high and low scores, younger and older age clusters, male and female). Each eligible nurse in the proposed hospital who participated in Phase 1 and agreed to participate in Phase 2 received an email inviting him or her to participate in a focus group, including a date, location, time, and room number for nominated focus group sessions. Eligibility was predicated on the predetermined criteria (high and low scores) and according to the factors described in the sample section.
3.10 Content Validity

To evaluate the content validity of the instruments used in this study, the researcher consulted an expert panel to review and rate the instruments of both phases of the research.

3.10.1 Phase 1.

The study questionnaire was designed in English and was originally derived from research studies written in English (Ferrel & McCaffery, 2008). The questionnaire was tested for face and content validity by an expert panel composed of three senior oncology nurses and two academic nurses external to the main study, but working in KSA. All comments from the expert panel were considered, and the applicability of the survey, as well as the clarity of the questions, was known. The final version of the questionnaire was approved by the researcher’s supervisor and co-supervisor, and the five members of the expert panel, as being a suitable tool to gather data from the intended participants (Appendix B).

3.10.2 Phase 2.

The interview guide for the focus groups was content validated by the same expert panel of Phase 1. The content of the Phase 2 interview guide and suggested questions were circulated to experts to rate the relevance of the discussion content. During the validation process, a review of the relevant literature was conducted to extract the key concepts, and for ongoing refinement of key construct definitions to enhance the group discussions. The expert panel recommended expanding the focus group discussion and allowing more time for the focus group session—up to 90 minutes.
each—which was carried out. Additionally, the panel approved the interview guide, including the suggested questions for focus groups discussions (Appendix D).

3.11 Pilot Study

3.11.1 Phase 1.

The final version of the questionnaire was examined through a pilot study on ten registered nurses from two public hospitals different from the hospitals included in the main study. Piloting was done to assess the feasibility of the study, time required to complete the questionnaire, the clarity and suitability of the questions and to test the psychometric properties of the questionnaire. In addition, the nurses who participated in the pilot testing were asked to rate and evaluate the questions, the general comprehension, logic, flow and coherence, as well as the cultural suitability of the questions and the given scenarios’ relevance. The pilot testing was also helpful in determining the time required by nurses to complete the survey. Open comments were also allowed to maximise the pilot study outcome (Blaxter, Hughes & Tight, 2010).

3.11.2 Phase 2.

To pilot test the Phase 2 interview guide, the researcher (interview moderator) conducted one focus group employing a purposive sample of five nurses working in oncology units in KSA external to the main study. This familiarised the researcher with conducting focus group discussions and helped identify the difficulties that could occur during discussion. The length of time initially allocated to each focus group was confirmed as too short; therefore, discussion time was extended to up to 90 minutes for each interview session (expert panel recommendation). The cultural setting, where this study was conducted, required some extra preparation. For example, the male and
female seating and the physical arrangement of the meeting room, including comfortable
distances between each participant, were better known to encourage discussion. The best
time to hold the meetings was also understood based on participants’ preferences and
routine duty activities. It was ascertained that focus group discussions were best held
between 10 and 11 am, but before 12 pm, to allow participants to have lunch breaks and
not miss prayer time.

Conducting a pilot focus group also gave the researcher opportunity to
familiarise himself with conducting a focus group discussion and identify possible
difficulties. Further, the researcher enhanced the interview moderating skills to balance
the discussion, while allowing equal participation. Following the pilot testing, the
interview guide required no structural modification, as the questions were determined to
be clear and engaging. The focus groups were then arranged with the nurses who were
selected from the five hospitals. Discussions and meetings took place in the nursing
meeting rooms, the education rooms within oncology departments, or in a convenient
meeting room within the proposed hospital.

3.12 Data Collection

3.12.1 Phase 1.

Nurses who met the inclusion criteria were provided with a package, including a
cover letter and a copy of the questionnaire. A total of 400 packages were distributed in
all five hospitals. Participants were asked to return the questionnaires through a
designated box in the office of the unit head nurse/manager. The researcher then
contacted each head nurse/manager, and followed up with them weekly by telephone to
check the status of questionnaire completion. A friendly reminder was placed on the
noteboard (with the assistance of the head nurse/manager) of each unit, at the beginning of the second, third and fourth weeks of survey distribution, to encourage nurses to complete and return their questionnaires. The researcher allowed four weeks before collecting the returned questionnaires from each designated box. A total of 320 completed survey questionnaires were collected from all five hospitals. Subsequently, each hospital’s returned questionnaires were kept in a separate envelope; the questionnaire data were screened and checked, coded and prepared for analysis.

3.12.2 Phase 2.

Phase 2 of the study involved five focus groups with nurses recruited from Phase1 to develop recommendations for pain management practice. A focus group is defined as an ‘interview [that] taps into human tendencies, where attitudes and perceptions related to concepts, products, and services are developed in part by interaction with other people’ (Krueger, 1994, pp. 10–11). The researcher’s main role during the focus group discussion is to encourage participants to become more involved in the interaction, thus encouraging them to elaborate on the topic being investigated. In addition, using a focus group provides a high level of face validity, because participants’ ideas and discussions can be confirmed, reinforced or contradicted during the discussion process (Ritchie et al., 2013). The combination of focus group discussions and survey research can help provide new domains and insights to survey items. These insights can help provide explanations about the interrelated items and examples provided by group members (Salehi & Golafshani, 2010).

The group composition and size was set for heterogeneity (Ritchie et al., 2013). The researcher identified and clustered the participants for the focus groups based on
their demographic profile and scores in Phase 1 (that is, high and low scores, younger and older age clusters, male and female). Each eligible nurse in the proposed hospital who participated in Phase 1 and agreed to participate in Phase 2 received an email inviting him or her to participate in a focus group, including a date, location, time, and room number for nominated focus group sessions. Eligibility was predicated on the predetermined criteria (for example, high and low scores) and according to the factors described in the sample section.

One 90-minute focus group discussion was organised for each included hospital. The researcher applied Finch and Lewis (2003) method of group discussion to conduct the focus groups. Prior to conducting the focus group discussion, each participant was given a plain language statement explaining the study, a consent form to sign and a brief demographic survey to complete. The method for conducting the focus group then consisted of five main stages, discussed in the following paragraphs.

**Part I: Scene setting and ground rules.**

I prepared the meeting room for convenience (e.g., room organisation, seating, tables, lighting, flipcharts, blank papers, data showing, and presentation material).

I welcomed the participants, thanked them warmly for their attendance, and introduced myself to them. I then provided a short overview of the study (the aim, outline of the focus group discussion).

I outlined the confidentiality and anonymity of the group information and explained how their accounts would be reported through the digital audio recorder.
Part II: Individual introduction.

I asked participant’s to introduce themselves (by saying their names and providing simple background information). At the same time, I distributed blank paper and pens to the participants (if they wished to take notes).

Part III: The opening topic.

I provided the aim of the discussion and the main results according to the Phase I results. I then asked the participants to explore their views and perspectives on the results using the semi-structured interview guide.

Part IV: Discussion.

I encouraged group interaction and active engagement in the discussion. I attempted to involve all participants in the discussion (this was followed by a coffee break).

Part V: Ending the discussion.

I thanked the entire group for their participation and stressed how helpful the discussion had been.

3.13 Quantitative Data Analysis (Phase 1)

In conducting the analysis of Phase 1 of the study, the quantitative data were processed as detailed in the following sections.

3.13.1 Data coding, entry and cleaning.

Data from the study questionnaires were checked and coded manually, using the corresponding codebook as a guide (Pallant, 2010). All data were entered into the Statistical Package for Social Sciences (SPSS) software, version 19. The data were reviewed extensively for any entry errors by the researcher from the data matrix. To
overcome problems of missing data, each questionnaire was checked for completeness upon receipt. The entered data were then screened and cleaned in the SPSS application. To avoid errors in statistical analysis, any missing data values were replaced with the mean, median or mode, according to type for the corresponding item (Pallant, 2010). The mean is one of the most frequently used ways of replacing scores, as long as there is no consistent or regular pattern identified from the missing values (Hair, Anderson, Babin, Tatman & Black, 2010). Following the initial screening and cleaning of the data, the data analysis proceeded in three stages. The first stage was to define the demographic/contextual characteristics of the participants. The second stage was to analyse the responses to each item using frequency distributions (counts and percentages), summarise the responses to each item using descriptive statistics (median, mean and standard deviation) and determine the reliability of the item scores. The aim of the third stage was to explore the relationships between the reliably measured scales extracted from four sections of the instrument (dependent variables) and the demographic/contextual characteristics of the participants (independent variables), using inferential statistics.

3.13.2 Demographic and contextual profiles.

Demographic and contextual profiles were included in the first section of the survey questionnaire. As mentioned earlier in this chapter, the original KASRP did not have a demographic section. Therefore, this section was developed and added by the researcher, based on extensive literature reviewing and expert consultations. A 16-item section was included that contained the following items: age, gender, marital status, level of education, years of experience, religion, ethnic background and geographic
background (items 1–9); the contextual characteristics affecting pain management were included in items 10 to 16.

3.13.3 Analytical strategy.

Means, standard deviations, frequencies and actual ranges of all major study variables were examined prior to the analysis of research questions. All independent variables were checked for multi-collinearity (high correlation, $r \geq .90$) to determine the contribution of each variable to pain management (the dependent variable). The data distribution was examined for normality. For missing categorical data (open-ended questions), no information was substituted. Total scores of nurses’ knowledge and attitudes were calculated as a sum of these items. In analysing the data, descriptive and inferential statistics were performed.

3.13.4 Descriptive statistics.

Descriptive statistics (means, standard deviations and ranges) were used to describe the following variables: age, years of experience and total scores of knowledge and attitudes on pain management. Additionally, frequencies and percentages were used to describe the other demographic variables, including gender, marital status, level of education, religion, ethnic background and geographic background and other recorded contextual variables affecting pain management (including items 10 to 16).

The frequency distributions of the correct answers (counts and percentages) for each question were tabulated. The total correct answers were computed by adding up the scores for each participant, and then converting to percentages. The frequency distributions of the correct answers were visualised using histograms. As the total scores were normally distributed, approximating bell-shaped curves, parametric descriptive
statistics (for example, mean and standard deviation) and parametric inferential statistics (for example, analysis of variance (ANOVA) were appropriate for analysis (Cronk, 2012).

3.13.5 Inferential statistics.

Chi-Square tests were used to analyse the demographic and contextual profiles of the participants. The deviation between the observed frequencies and the expected equal frequencies of participants in each mutually exclusive group (for example, gender, age, religion, and nationality) was computed using the Chi-Squared goodness-of-fit statistic. If the p-value of the Chi-Square statistic was less than .05, then the frequencies were assumed to deviate from equal proportions (Field, 2009).

ANOVA was used to compare the mean values between two or more groups of participants. The differences between the mean correct (%) scores for each groups were visualised using error bar charts, where the bars represented the mean values, and vertical lines represented the 95 per cent confidence intervals. A t-test was also used to compare the mean scores between two groups; however, the inferences of a t-test and ANOVA are exactly equivalent (because $F = t^2$, and the p-value is the same), so it makes no difference whether a t-test or ANOVA was applied in practice, to compare two groups (Field, 2009).

A major problem with ANOVA is that Type II errors may arise if the group sizes are too small or highly unequal in size. A minimum number (n) in a group size was necessary to perform tests. To test for the effects of age, nationality, religion, qualification and experience, two or more categories had to be combined to ensure that there were enough participants in each group (Stevens, 2012).
In theory, the dependent variable should be normally distributed; however, ANOVA is very robust to deviations from normality. As long as the frequency distribution is approximately mound-shaped and symmetrical, with the mode close to the centre, and the data are not biased by extreme outliers (that is, very large or small values at the tail ends of the distribution), then the statistical inferences obtained using ANOVA are not compromised (Hair et al., 2010). However, violating the assumption of homogeneity of variance may compromise the results of ANOVA. Levene’s test was used to check that the variances of the dependent variable were equal across the groups.

Inferential statistics are rooted in null hypotheses (H₀), which are statements proposing that no relationships exist among the data. The following 10 null hypotheses were tested using ANOVA:

- H₀₁: the mean correct answers (%) did not differ significantly with respect to age.
- H₀₂: the mean correct answers (%) did not differ significantly with respect to gender.
- H₀₃: the mean correct answers (%) did not differ significantly with respect to nationality.
- H₀₄: the mean correct answers (%) did not differ significantly with respect to race.
- H₀₅: the mean correct answers (%) did not differ significantly with respect to religion.
- H₀₆: the mean correct answers (%) did not differ significantly with respect to education.
H07: the mean correct answers (%) did not differ significantly with respect to experience.

H08: the mean correct answers (%) did not differ significantly with respect to whether or not the nurses participated in research.

H09: the mean correct answers (%) did not differ significantly with respect to whether or not the nurses attended scientific conferences.

H010: the mean correct answers (%) did not differ significantly with respect to whether or not the nurses had attended specialist courses.

The decision rule was to reject the null hypothesis if $p < .05$ for the variance ratio ($F$) statistic computed by SPSS. Rejection of the null hypothesis inferred that the mean correct answers (%) varied significantly with respect to the demographic/contextual factor, more than could be expected by chance. If $p \geq .05$ for the $F$ statistic, then the null hypothesis would not be rejected, implying that the demographic/contextual factor had no significant effect on the correct answers. The prescription of $\alpha = .05$ meant that a Type I error could occur by chance in one in 20 null tests. The effect size was also computed by SPSS, as Eta Squared, reflecting the proportion of the variance in the dependent variable explained by the independent variable. The effect size provided an indication of practical/clinical significance; that is, the extent to which the results were meaningful in the context of the research. A negligible effect was indicated if $\eta^2 < .05$, a medium effect if $\eta^2 = .25$, and a large effect if $\eta^2 > .5$ (Field, 2009).
3.14 Qualitative Data Analysis (Phase 2)

The second phase of the current study involved implementing focus groups to collect, understand and interpret the nurses’ information, and subsequently extract meaningful themes. The researcher followed Morgan’s (1997) method for analysing focus group discussions which consists of three elements: coding the data, interpreting the data, and reporting the data. The interview guide for the focus groups was developed by the researcher, based on an extensive literature review, expert opinion and the results from Phase 1 of the study, which made this particular interview guide very informative for the interviewed nurses (Ritchie et al., 2013). The researcher had initially scheduled five focus groups with participants, which was sufficient to gather information. Data saturation was reached after the completion of the fourth scheduled focus group. Consequently, the researcher decided not to organise further focus groups beyond the fifth (already scheduled) focus group (Mason, 2010). To facilitate data analysis, all focus group interviews were audio recorded and transcribed verbatim by the researcher.

Analysing the focus group discussions followed a very meticulous process. Initially, each focus group transcript was read and then re-read to gain a general understanding. The transcript was then read again carefully, to identify significant information. Audio recordings were listened to attentively and matched with the corresponding transcript. In addition, the researcher asked another person to check the transcriptions against the original recordings of the interview audio data, to ensure accuracy (Silverman, 2011). The next step, which involved data indexing and sorting, was performed to grasp the basic aspects of the analytic process. As the analysis progressed, the researcher started to interpret and label data to identify common themes
(developing categories). As more categories were developed, the researcher was able to capture the essential meaning of data, describe and explain the phenomena and address the main research questions (Ritchie et al., 2013). Figure 3.1 highlights the qualitative analysis process involved in this study.

In the current phase of the study, qualitative data analysis involved the use of a Computer-Assisted Qualitative Analysis Software package (CAQDAS). The Nvivo was chosen as one of the best CAQDAS, offering unique capabilities, strengths and user-friendly interfaces (Ritchie et al., 2013). The Nvivo was used as analytic support during the analysis stages. Throughout the analytic process, the researcher kept a log of emergent analytic ideas, which were entered as memos into the Nvivo programme.

Figure 3.1. An illustrative summary of the QAP (Ritchie et al., 2013, p. 281).
3.14.1 Rigour.

Rigour has its roots in science; however, in qualitative research it refers to the thoroughness and competency of research. The term ‘rigour’ has become a very important tool in evaluating and analysing research projects. In qualitative enquiry, rigour is demonstrated by enabling confirmation of the discovered information (Holloway & Wheeler, 2013). Grbich (1998) defines rigour as ‘the researcher’s attempt to use as tight a research design as possible’ (p. 61). Correspondingly, in the present study, the researcher has taken the necessary steps in designing, conducting and presenting the research to ensure rigour. In particular, extra efforts were taken during the data collection of focus group interviews, analysis of transcripts and reporting of emerged themes and sub-themes, to presented them in a concise, transparent and trustworthy manner. Rigour requires qualitative research be conducted to a high standard, and seeks details, accuracy, trustworthiness and credibility (Holloway & Wheeler, 2013). The criteria for judging the rigour of qualitative research includes: credibility, dependability, confirmability and transformability. These criteria will be highlighted further in the following subsections.

3.14.1.1 Credibility.

Credibility includes any measures taken to increase the chances of producing credible findings (Speziale et al., 2011). In other words, it refers to confidence in qualitative data and the interpretation of those date (Morse, 2003). To achieve this, investigators are advised to extend their involvement with the subject under study. Another significant technique commonly applied by researchers is to report the findings of the investigation back to the participants, for them to check if the findings relate to
their experiences (member checking). Participants may be asked to evaluate their responses against the overall findings (themes) (Creswell & Clark, 2011). Credibility in this study was achieved through a number of strategies. These included logically establishing the research method, audio recording the focus group data, member checking and using a pilot focus group.

In the present study, the researcher spent ample time studying the nurses’ cultural and religious backgrounds, and engaged with their work regulations and surroundings. The nurses who participated in the study were diverse in terms of cultural and religious background. The researcher examined all relevant issues surrounding the nurses to enhance his understanding of the group and maximise finding credibility. Within the cultural norms, international and nurses used their own words to explain their opinions during the focus group discussions; these were then used as quotations when the analysis was written up.

3.14.1.2 Confirmability.

Confirmability is a process that enables other researchers to follow and audit the research. That is, by being clear and objective in conducting, documenting, managing and reporting the research process, the drawn conclusions can be traceable and confirmable (Speziale et al., 2011). Only the involved researcher, who performed the data collection, can confirm the findings (De Witt & Ploeg, 2006). Confirmability is therefore, the confirmation of findings, conclusions and recommendations by the data obtained (Hoskins, 2004). To ensure confirmability in this research, the researcher audio recorded the focus group, established an audit trail and Nvivo. In order to obtain descriptive validity two researchers analyzed the data independently and after many
discussions they researchers were in agreement about the subthemes and the themes. Finally, the emerged data were checked with the participants to obtain participants’ validation.

3.14.1.3 Transferability.

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 concerned others (Speziale et al., 2011). Unlike quantitative research measures, where the generalisability of results can be determined by the author(s), deciding the transferability or ‘fittingness’ of qualitative research findings to other settings is the responsibility of potential users of the findings, not the author(s) (Graneheim & Lundman, 2004). This is because the original author is not fully aware of the implementation scenarios (Saini & Shlonsky, 2012). Qualitative researchers must be thoughtful to maximise their work’s potentials. Unless they provide a rigour report of their investigation, the transferability of their findings could be otherwise diminished. To achieve this, the focus groups participants were purposively sampled to represent a variety of different circumstances, providing rich contextual data.

3.14.1.4 Triangulation.

Triangulation in research refers to ‘combining multiple theories, methods, observers and empirical material, to produce a more accurate, comprehensive and objective representation of the object of study’ (Silverman, 2011, p. 369). Triangulation is a technique this researcher used to strengthen the research’s rigour by examining the subject under study from different perspectives. In qualitative research design, the most common application of triangulation is the use of multiple methods (e.g., survey and
focus groups) (Silverman, 2011). If the two employed methods resulted in similar findings, then it is assumed that the validity of those findings has been already established. This is because the two methods employed in triangulation used different sources of information, and in resulted similar conclusions (Creswell & Clark, 2011).

Further, triangulation employs comprehensive, multi-perspective views and procedures to reduce potential biases within the research design (Silverman, 2011). However, different sources of information are not necessarily equivalent, as what respondents say at a focus group is not always the same as what they actually do in reality; it may also not be consistent with what they write in a questionnaire (Finch & Lewis, 2003). Nevertheless, the researcher in the current study developed an informative interview guide for the focus groups (Phase 2), based on participants’ responses and scores from Phase 1 of the study.

**3.14.2 Ethical considerations.**

In conducting the current study, the researcher maintained the ethical standards from the designing stage, right through to the reporting of findings. The survey questionnaire used in this study was gathered from work by Ferrel and McCaffery (2008), the creators of the KASRP, who gave permission for the survey to be used. Approval to recruit participants was obtained from the Human Research Ethics Committee (HREC) from the Royal Melbourne Institute of Technology (RMIT) University (BSEHAPP 37–11 ALQAHTANI) (see Appendix E), and from the Institutional Review Board (IRB) of the included hospitals (Appendix F). The plain language statement (PLS) was attached to the questionnaire (Appendix I). It included information about the purpose and significance of the study, and stated that participation
was voluntary and that participants were free to withdraw at any time. In addition, the phone number of the researcher was provided so that participants could ask questions regarding ambiguous or unclear aspects of the study, prior to agreeing to participate.

Further, participants were instructed that completing the questionnaire would be considered their written consent for participation, and that the information would be used only for the purposes of the study. Additionally, information that could have revealed their identity was not recorded, and only aggregated data was communicated. All completed study questionnaires and study software were stored in locked password protected files, where only the researcher had access.

In Phase 2 of the study and during focus groups, the researcher protected participants’ confidentiality and anonymity, as participants and their contributions, identifying individuals through pseudonyms given by the researcher upon participation, rather than real names, and by ensuring that participants’ real names did not appear on any documentation. The researcher also restricted access to collected data to the researcher only, ensuring that transcribed data was checked for accuracy, validated by the participant, and de-identified for anonymity prior to sharing results with others. Prior to being interviewed, each participant in the focus group discussions received the PLS and then signed a consent form (Appendix G). These documents explained to the participants the aim of the study and required participants to sign their consent. In addition, the researcher asserted that participation was purely voluntary. The focus group discussions had the researcher as moderator, who guided the discussion in the focus groups, asked the participants to keep their names confidential. The moderator discussed any concerns with participants and suggested appropriate follow up if
necessary. Participants were informed that the research data would be kept secure at RMIT University for a period of five years before being destroyed, any identifying information would be removed and that data would be presented as an aggregate.

The printed hard copy data, as well as all recorded data and the researchers’ notes and observations during the data collection process, were kept in safe locked cabinets, accessed by the researcher only, for a period of five years (RMIT-HREC). Electronic and soft copy data were saved in high quality hard drives, protected with passwords, encrypted and kept in the safety cabinets (Blaxter et al., 2010).

3.15 Chapter Summary

This chapter presented the research design and the methodology applied to answer the research questions. The chapter detailed and structured all the steps taken to successfully complete the study. The two phases of the research—quantitative survey followed by a qualitative focus group interviews—were distinguished and discussed in detail. The study followed strict ethical principles, from the planning stage through to completion. The following two chapters will present the results of the quantitative analysis (Chapter 5), and the qualitative analysis (Chapter 6).
Chapter 4: Quantitative Results

4.1 Introduction

In this chapter, a descriptive analysis is presented, and indicates the correct responses obtained from all participants to each question in the survey. The ANOVA analysis was performed to test the ten null hypotheses concerning mutually exclusive groups of participants. These 10 null hypotheses were developed from the aims of the current study, which were to investigate the demographic and cultural factors that affect the delivery of effective pain management. To assess nurses’ knowledge and attitudes regarding pain management, the KASRP survey items were used. Therefore, the data has been analysed as a complete score, and analysis for each item individually was performed, rather than distinguishing between items that measured knowledge or attitudes, as the KASRP authors suggested (Ferrell & McCaffery, 2008). In the following sections, a detailed description of the conducted analyses will be displayed to present the results of Phase 1 of this study.

4.2 Demographic and Contextual Profile of the Participants

Four hundred surveys were distributed to the participants. Three-hundred and 40 were returned, out of which 20 surveys were incomplete. Consequently, a total number of 320 nurses provided valid responses for the analysis, representing a response rate of 80 per cent. The demographic profile of the participants is summarised in Table 4.1.

Chi-Square goodness-of-fit tests indicate that the observed frequencies of nurses within each demographic group deviated significantly \( p < .001 \) from the expected equal proportions in each group. The sample was found to be dominated by female
nurses (n = 284, 89%). Their ages ranged from 24 to 65 years (M = 34.2, SD = 8.6). The majority (n = 247, 77.2%) of participants were between the ages of 24 and 39 years. About three-quarters (n = 236, 73.8%) of the participating nurses were expatriates; they were Christians. The expatriates included Filipino nurses (n = 176, 55.0%) and Indian nurses (n = 90, 28.1%). The majority of expatriates were Asian (n = 272, 85.0%). Less than one-quarter of the nurses (n = 70, 22%) were Muslims, and very few (n = 23, 7.2%) were from Saudi Arabia. The contextual characteristics of the participants are summarised in Table 4.2. Chi-Square goodness-of-fit tests indicate that the observed frequencies of nurses within each demographic group deviated significantly (p < .002) from the expected equal proportions in each group. Less than half (n = 132, 41.2%) of the participants had previously worked in KSA. About three-quarters of the nurses (n = 238, 74.4%) had more than 24 months hospital experience. Their experience in nursing ranged widely, from one to 38 years (M = 10.8, SD = 7.5).
Table 4.1

*Demographic Profile of the Participants (N = 320)*

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Group</th>
<th>Frequency</th>
<th>%</th>
<th>Chi-Square Goodness-of-Fit</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Male</td>
<td>36</td>
<td>11.2%</td>
<td>192.2</td>
<td>&lt;.001</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>284</td>
<td>88.8%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age (Years)</td>
<td>21–29</td>
<td>124</td>
<td>38.8%</td>
<td>196.3</td>
<td>&lt;.001</td>
</tr>
<tr>
<td></td>
<td>30–39</td>
<td>123</td>
<td>38.4%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>40–49</td>
<td>46</td>
<td>14.4%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>50–59</td>
<td>19</td>
<td>5.9%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>60+</td>
<td>8</td>
<td>2.5%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Religion</td>
<td>Islam</td>
<td>70</td>
<td>21.9%</td>
<td>438.7</td>
<td>&lt;.001</td>
</tr>
<tr>
<td></td>
<td>Hindu</td>
<td>7</td>
<td>2.2%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Christian</td>
<td>236</td>
<td>73.8%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Others</td>
<td>7</td>
<td>2.2%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nationality</td>
<td>Saudi</td>
<td>23</td>
<td>7.2%</td>
<td>429.6</td>
<td>&lt;.001</td>
</tr>
<tr>
<td></td>
<td>Filipino</td>
<td>176</td>
<td>55.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Indian</td>
<td>90</td>
<td>28.1%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>South African</td>
<td>6</td>
<td>1.9%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Middle Eastern</td>
<td>16</td>
<td>5.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>9</td>
<td>2.8%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Race</td>
<td>Caucasian</td>
<td>4</td>
<td>1.2%</td>
<td>860.3</td>
<td>&lt;.001</td>
</tr>
<tr>
<td></td>
<td>Arabic</td>
<td>39</td>
<td>12.2%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>American Indian</td>
<td>3</td>
<td>.9%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Asian</td>
<td>272</td>
<td>85.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>African</td>
<td>2</td>
<td>.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marital Status</td>
<td>Single</td>
<td>102</td>
<td>31.9%</td>
<td>476.1</td>
<td>&lt;.001</td>
</tr>
<tr>
<td></td>
<td>Married</td>
<td>201</td>
<td>66.2%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Separated</td>
<td>11</td>
<td>3.4%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Divorced</td>
<td>1</td>
<td>.3%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Widowed</td>
<td>5</td>
<td>1.6%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 4.2

*Contextual Profile of Participants (N = 320)*

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Group</th>
<th>Frequency</th>
<th>%</th>
<th>Chi-Square Goodness-of-Fit</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Previously worked in KSA</td>
<td>Yes</td>
<td>132</td>
<td>41.2%</td>
<td>9.8</td>
<td>.002</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>188</td>
<td>58.8%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hospital Experience (Months)</td>
<td>1–4 months</td>
<td>18</td>
<td>5.6%</td>
<td>591.5</td>
<td>&lt;.001</td>
</tr>
<tr>
<td></td>
<td>4–8 months</td>
<td>20</td>
<td>6.2%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>8–12 months</td>
<td>22</td>
<td>6.9%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>12–24 months</td>
<td>22</td>
<td>6.9%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&gt; 24 months</td>
<td>238</td>
<td>74.4%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work Experience (Years)</td>
<td>&lt; 5</td>
<td>45</td>
<td>14.1%</td>
<td>265.5</td>
<td>&lt;.001</td>
</tr>
<tr>
<td></td>
<td>6–10</td>
<td>157</td>
<td>49.1%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>11–15</td>
<td>57</td>
<td>17.8%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>16–20</td>
<td>26</td>
<td>8.1%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>21–25</td>
<td>15</td>
<td>4.7%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&gt; 25</td>
<td>20</td>
<td>6.3%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Education</td>
<td>Diploma</td>
<td>110</td>
<td>34.4%</td>
<td>191.4</td>
<td>&lt;.001</td>
</tr>
<tr>
<td></td>
<td>Bachelor</td>
<td>206</td>
<td>64.4%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Masters</td>
<td>4</td>
<td>1.2%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Participated in research</td>
<td>Yes</td>
<td>48</td>
<td>15.0%</td>
<td>156.7</td>
<td>&lt;.001</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>272</td>
<td>85.0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attended pain-related courses</td>
<td>Pain management</td>
<td>38</td>
<td>11.9%</td>
<td>72.97</td>
<td>&lt;.001</td>
</tr>
<tr>
<td></td>
<td>Chemotherapy</td>
<td>57</td>
<td>17.8%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Patient safety</td>
<td>36</td>
<td>11.2%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Multiple courses</td>
<td>120</td>
<td>37.5%</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>None</td>
<td>69</td>
<td>21.6%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attended conferences</td>
<td>Yes</td>
<td>104</td>
<td>32.5%</td>
<td>39.2</td>
<td>&lt;.001</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>216</td>
<td>67.5%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Used Pain Assessment Scale</td>
<td>Yes</td>
<td>314</td>
<td>98.1%</td>
<td>296.5</td>
<td>&lt;.001</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>6</td>
<td>1.9%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Used Pain Grading Tool</td>
<td>Yes</td>
<td>303</td>
<td>94.7%</td>
<td>255.6</td>
<td>&lt;.001</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>17</td>
<td>5.3%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
As can be seen from Table 4.2, the nurses were asked a number of questions related to education. The nurses were asked ‘Have you undertaken specialist courses related to pain management?’ ‘Have you ever attended any scientific nursing conferences about pain management?’ and ‘Have you ever participated in a research study about pain management?’ The results indicate that most nurses (n = 251, 78.4%) had attended specialist courses; however, relatively few (n = 48, 15.0%) had participated in research, or attended conferences concerned with pain management (n = 104, 32.5%). The nurses were asked ‘Is there a pain assessment scale in your area of practice?’ and ‘Is there a pain management grading tool used in your area of practice?’ Virtually all had used a pain assessment scale (n = 314, 98.1%) and/or a pain grading tool (303, 94.7%).

4.3 Frequency Distributions of the Responses to the Knowledge and Attitudes Survey Regarding Pain

All participants completed the KASRP, which consisted of 38 items (Ferrel & McCaffery, 2008). The developers’ instructions for this instrument were followed with respect to: (a) avoidance of distinguishing between items as measuring either knowledge or attitudes; and (b) analysing the responses in terms of the percentages of correct scores. The frequencies of the participants (frequencies and percentages) who obtained correct answers for each of the 38 items are presented in Table 4.3. The percentages are sorted into order, from high to low.

The results reveal that the majority of participating nurses (> 70%) were able to answer questions about the administration of analgesics and addiction requiring factual answers. These included:
Item 14, adjustment of the dose in accordance with the individual patients response

- Item 6, combining analgesics that work by different mechanisms

- Item 20, definition of narcotic/opioid addiction

- Item 22, the recommended route administration of opioid analgesics for patients with brief, severe pain

- Item 23, when analgesic medication is considered the drug of choice

- Item 25, when analgesics for post-operative pain should initially be given

- Item 31, the time to peak effect for morphine.
Table 4.3

Frequency Distribution of Correct Answers

<table>
<thead>
<tr>
<th>Item</th>
<th>Correct Answers</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>16. After an initial dose of opioid analgesic is given, subsequent doses should be adjusted in accordance with the individual patient’s response.</td>
<td>266</td>
<td>83.1%</td>
</tr>
<tr>
<td>22. Narcotic/opioid addiction is defined as a chronic neurobiologic disease, characterised by behaviours that include one or more of the following: impaired control over drug use, compulsive use, continued use despite harm, and craving.</td>
<td>259</td>
<td>80.9%</td>
</tr>
<tr>
<td>25. Which of the following analgesic medication is considered the drug of choice for the treatment of prolonged moderate to severe pain for cancer patients?</td>
<td>255</td>
<td>79.7%</td>
</tr>
<tr>
<td>27. Analgesics for post-operative pain should initially be given:</td>
<td>254</td>
<td>79.4%</td>
</tr>
<tr>
<td>34. The time to peak effect for morphine given IV is:</td>
<td>244</td>
<td>76.3%</td>
</tr>
<tr>
<td>7. Combining analgesics that work by different mechanisms (e.g., combining an opioid with an NSAID) may result in better pain control with fewer side effects than using a single analgesic agent.</td>
<td>239</td>
<td>74.7%</td>
</tr>
<tr>
<td>24. The recommended route administration of opioid analgesics for patients with brief, severe pain of sudden onset such as trauma or post-operative pain:</td>
<td>229</td>
<td>71.6%</td>
</tr>
<tr>
<td>31. The most accurate judge of the intensity of the patient’s pain is:</td>
<td>228</td>
<td>71.3%</td>
</tr>
<tr>
<td>6. Respiratory depression rarely occurs in patients who have been receiving stable doses of opioids over a period of months.</td>
<td>214</td>
<td>66.9%</td>
</tr>
<tr>
<td>12. Elderly patients cannot tolerate opioids for pain relief.</td>
<td>203</td>
<td>63.4%</td>
</tr>
<tr>
<td>29. The most likely reason a patient with pain would request increased doses of pain medication is:</td>
<td>199</td>
<td>62.2%</td>
</tr>
<tr>
<td>15. Patients’ spiritual beliefs may lead them to think pain and suffering are necessary.</td>
<td>196</td>
<td>61.3%</td>
</tr>
<tr>
<td>21. Benzodiazepines are not effective pain relievers unless the pain is due to muscle spasm.</td>
<td>190</td>
<td>59.4%</td>
</tr>
<tr>
<td>13. Patients should be encouraged to endure as much pain as possible before using an opioid.</td>
<td>179</td>
<td>55.9%</td>
</tr>
<tr>
<td>14. Children less than 11 years old cannot reliably report pain, so nurses should rely solely on the parent’s assessment of the child’s pain intensity.</td>
<td>179</td>
<td>55.9%</td>
</tr>
<tr>
<td>32. Which of the following describes the best approach for cultural considerations in caring for patients in pain?</td>
<td>160</td>
<td>50.0%</td>
</tr>
<tr>
<td>33. How likely is it that patients who develop pain already have an alcohol and/or drug abuse problem?</td>
<td>160</td>
<td>50.0%</td>
</tr>
<tr>
<td>20. Anticonvulsant drugs such as gabapentin (Neurontin) produce optimal pain relief after a single dose.</td>
<td>151</td>
<td>47.2%</td>
</tr>
<tr>
<td>Item</td>
<td>Correct Answers</td>
<td>%</td>
</tr>
<tr>
<td>---------------------------------------------------------------------</td>
<td>-----------------</td>
<td>------</td>
</tr>
<tr>
<td>17. Giving patients sterile water by injection (placebo), is a useful test to determine if the pain is real.</td>
<td>149</td>
<td>46.6%</td>
</tr>
<tr>
<td>5. Aspirin and other non-steroidal anti-inflammatory agents are NOT effective analgesic for painful bone metastasis.</td>
<td>147</td>
<td>45.9%</td>
</tr>
<tr>
<td>18. Vicodin (hydrocodone 5mg+ acetaminophen 500mg) PO is approximately equal to 5–10mg of morphine PO.</td>
<td>143</td>
<td>44.7%</td>
</tr>
<tr>
<td>3. Patients who can be distracted from pain usually do not have severe pain.</td>
<td>142</td>
<td>44.4%</td>
</tr>
<tr>
<td>30. Which of the following is useful for treatment of cancer pain?</td>
<td>131</td>
<td>40.9%</td>
</tr>
<tr>
<td>11. Morphine has a dose ceiling (i.e., a dose above which no greater pain relief can be obtained).</td>
<td>126</td>
<td>39.4%</td>
</tr>
<tr>
<td>9. Research shows that promethazine (Phenergan) and hydroxyzine (Vistaril) are reliable potentiators of opioid analgesics.</td>
<td>123</td>
<td>38.4%</td>
</tr>
<tr>
<td>35. The time to peak effect for morphine given IV orally.</td>
<td>111</td>
<td>34.7%</td>
</tr>
<tr>
<td>38 A. Circle the number that represents your assessment of Ahmad’s pain.</td>
<td>110</td>
<td>34.4%</td>
</tr>
<tr>
<td>8. The usual duration of analgesia of 1–2mg morphine IV is 4–5 hours.</td>
<td>106</td>
<td>33.1%</td>
</tr>
<tr>
<td>10. Opioids should not be used in patients with a history of substance abuse.</td>
<td>94</td>
<td>29.4%</td>
</tr>
<tr>
<td>26. Which of the following IV doses of morphine administered over a 4-hour period would be equivalent to 30mg of oral morphine given q 4 hours?</td>
<td>79</td>
<td>24.7%</td>
</tr>
<tr>
<td>1. Vital signs are always reliable indicators of the intensity of patient’s pain.</td>
<td>74</td>
<td>23.1%</td>
</tr>
<tr>
<td>37 A. Circle the number that represents your assessment of Mohammad’s pain.</td>
<td>57</td>
<td>17.8%</td>
</tr>
<tr>
<td>38 B. Check the action you will take this time.</td>
<td>51</td>
<td>15.9%</td>
</tr>
<tr>
<td>4. Patients may sleep in spite of severe pain.</td>
<td>47</td>
<td>14.7%</td>
</tr>
<tr>
<td>19. If the source of the patient’s pain is unknown, opioids should not be used during the pain evaluation period, as this could mask the ability to correctly diagnose the cause of pain.</td>
<td>45</td>
<td>14.1%</td>
</tr>
<tr>
<td>36. Following abrupt discontinuation of an opioid, physical dependence is manifested by the following:</td>
<td>45</td>
<td>14.1%</td>
</tr>
<tr>
<td>28. The likelihood of the patient developing clinically significant respiratory depression in the absence of new comorbidity is:</td>
<td>35</td>
<td>10.9%</td>
</tr>
<tr>
<td>37 B. Check the action you will take this time.</td>
<td>31</td>
<td>9.7%</td>
</tr>
<tr>
<td>23. The recommended route of administration of opioid analgesics for patients with persistent cancer-related pain.</td>
<td>26</td>
<td>8.1%</td>
</tr>
</tbody>
</table>
Between 50 and 70 per cent of the participating nurses were able to answer further questions concerning their knowledge and beliefs about the administration of analgesics, including: Item 6, respiratory depression; Item 12, tolerance of elderly patients for opioids for pain relief; Item 29, the most likely reason a patient with pain would request increased doses of medication; Item 15, patients’ spiritual beliefs; Item 21, the effectiveness of Benzodiazepines; Item 13, how much pain patients should be encouraged to endure before using an opioid; and Item 14, how much nurses should refer to the parent’s assessment of the child’s pain intensity for children less than 11 years old. Item 32 describes the best approach for cultural considerations in caring for patients in pain, and Item 33, how likely is it that patients who develop pain already have an alcohol and/or drug abuse problem.

The questions that very few (less than 25%) of the participants could answer correctly involved making value judgements rather than providing factual answers concerning analgesic administration. These included: Item 26, which doses of morphine administered over a four-hour period would be equivalent to 30mg of oral morphine given in 24 hours?; Item 1, whether vital signs are always reliable indicators of the intensity of patients’ pain; Item 37 A, circling a number that represents an assessment of Mohammad’s pain; Item 38 B, checking an action that they would take; Item 4, whether patients may sleep despite severe pain; Item 19, opioids should not be used during the pain evaluation period; Item 36, manifestation of physical dependence on opioids; Item 28, the likelihood of the patient developing clinically significant respiratory depression in the absence of new comorbidity; Items 37 B and 23, the recommended route of administration of opioid analgesics for patients with persistent cancer-related pain.
The total number of correct answers provided by each nurse was expressed as a percentage. For example, if a participant achieved 20 correct answers out of 40, then the score would be 50 per cent. A histogram was constructed to visualise the frequency distribution of the percentage scores. The percentages of correct answers were approximately normally distributed, indicated by a bell-shaped histogram (Figure 4.1).

![Figure 4.1](image_url)

*Figure 4.1. Frequency distribution histogram of the total correct answers (%) for 38 items.*

Figure 4.1 illustrates that over three-quarters of the participants (n = 249, 77.8%) scored within a narrow central range of the frequency distribution, obtaining between 35 and 55 per cent of the correct answers. The tendency of the scores to cluster within a narrow range indicated that most nurses were relatively similar with respect to their knowledge and attitudes. Very few nurses (n = 4, 1.2%) correctly answered more than 80 per cent of the questions. These nurses can be identified in Figure 4.1 as outliers, isolated from the main body of the frequency distribution, on the extreme right hand side.
side of the histogram. Only three nurses scored less than 25 per cent, located on the extreme left hand side of the histogram. The descriptive statistics for the total correct answers expressed as percentages, depicted in the histogram in Figure 4.1, are presented in Table 4.1. The mean and median scores (M = 45.08%; Md = 43.24%) reflected relatively poor overall knowledge and attitudes towards pain management, as less than half the answers were correct. The dispersion of the scores was wide, indicated by a standard deviation that was almost 25 per cent of the mean, reflecting the very wide variability in nurses’ knowledge and attitudes. The reliability coefficient was above 0.7 (Kuder Richardson-20 reliability coefficient = .75), indicating that the scores exhibited relatively sufficient internal consistency within and between each participant to measure a unifying construct defining the knowledge and attitudes towards pain management. A summary of the demographic characteristics and frequency distributions of the responses to the KASRP is presented at the end of this chapter.

4.4 Testing of Hypotheses

The following 10 null hypotheses were tested using univariate ANOVA:

Hₐ₁: The mean correct answers (%) did not differ significantly with respect to age.

Hₐ₂: The mean correct answers (%) did not differ significantly with respect to gender.

Hₐ₃: The mean correct answers (%) did not differ significantly with respect to nationality.

Hₐ₄: The mean correct answers (%) did not differ significantly with respect to race.
H$_0$5: the mean correct answers (%) did not differ significantly with respect to religion.

H$_0$6: the mean correct answers (%) did not differ significantly with respect to education.

H$_0$7: the mean correct answers (%) did not differ significantly with respect to experience.

H$_0$8: the mean correct answers (%) did not differ significantly with respect to whether or not the nurses participated in research.

H$_0$9: the mean correct answers (%) did not differ significantly with respect to whether or not the nurses attended scientific conferences.

H$_0$10: the mean correct answers (%) did not differ significantly with respect to whether or not the nurses had attended specialist courses.

The theoretical assumption that the variances were equal was checked using Levene’s test at $\alpha = .05$ (although $\alpha = .01$ is used by many researchers). If the variances were not equal, then the Welch correction was applied. The Welch correction is the most appropriate method to interpret the results of ANOVA when the variances are unequal. The Kruskal-Wallis test (i.e., the non-parametric alternative to univariate ANOVA) was not used, because the results of this test are also compromised if the variances of the dependent variable are not equal across mutually exclusive groups of participants.
4.4.1 $H_0$1: the mean correct answers did not differ significantly with respect to age.

The null hypothesis—that the mean correct answers (%) did not differ significantly with respect to the different age groups of the nurses—was tested visually using an error bar chart, and statistically using the F statistic and p-value computed using univariate ANOVA. The mean correct answers (%) ± 95% CI for the four age groups of nurses are compared in Figure 4.2. It appeared that the mean scores for the younger nurses were lower than the mean scores for the older nurses. The descriptive statistics and results of ANOVA are presented in Table 4.4.

The variances were not equal at $\alpha = .05$, indicated by Levene’s $F (3, 316) = 2.864, p = .037$. The p-value of the F statistic computed using the Welch correction ( $p = .466$) was not significant at $\alpha = .05$, indicating that $H_0$1 could not be rejected. The effect size was negligible ($\eta^2 < .01$). It is inferred therefore, that the ages of the nurses had no significant effect on the scores.
Figure 4.2. Error bar chart for correct answers (%) with respect to age group.

Table 4.4

Statistics to Compare Correct Answers (%) with Respect to Age Group

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>M</th>
<th>SD</th>
<th>F (3,90.5)</th>
<th>p</th>
<th>Eta²</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-29</td>
<td>124</td>
<td>45.03</td>
<td>8.792</td>
<td>.858</td>
<td>.466</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>30-39</td>
<td>123</td>
<td>44.12</td>
<td>11.691</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40-49</td>
<td>46</td>
<td>46.89</td>
<td>12.103</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50+</td>
<td>27</td>
<td>46.65</td>
<td>9.320</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: a Computed using the Welch correction
4.4.2 H02: the mean correct answers did not differ significantly with respect to gender.

The null hypothesis—that the mean correct answers (%) did not differ significantly with respect to the gender of the nurses—was tested visually using an error bar chart, and statistically using the F statistic and p-value computed using univariate ANOVA.

The mean correct answers (%) ± 95% CI for male and female nurses are compared in Figure 4.3. The scores for the female nurses appeared lower than the scores of males. The descriptive statistics and results of ANOVA are presented in Table 4.5.

![Error bar chart for correct answers (%) with respect to gender.](image-url)

*Figure 4.3. Error bar chart for correct answers (%) with respect to gender.*
Table 4.5

Statistics to Compare Correct Answers (%) with Respect to Gender

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>M</th>
<th>SD</th>
<th>F (1, 318)</th>
<th>p</th>
<th>Eta $^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>36</td>
<td>47.22</td>
<td>8.893</td>
<td>1.676</td>
<td>.196</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>Female</td>
<td>284</td>
<td>44.81</td>
<td>10.701</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The variances were equal at $\alpha = .05$, indicated by Levene’s $F (1, 318) = .292$, $p = .589$, and so the Welch correction was not applied. The F statistic was not significant at $\alpha = .05$ ($p = .196$), inferring that $H_0^2$ could not be rejected, and the effect size was negligible ($Eta^2 < .01$). It is inferred therefore, that there was no significant difference between the scores of male and female nurses.

4.4.3 $H_0^3$: the mean correct answers did not differ significantly with respect to nationality.

The null hypothesis—that the mean correct answers (%) did not differ significantly with respect to the nationality or country of origin of the nurses—was tested visually using an error bar chart, and statistically using the F statistic and p-value computed using ANOVA. The mean correct answers (%) $\pm$ 95% CI for four nationalities are compared in Figure 4.4. The mean scores for the Saudi and Indian nurses appeared to be lower than those of the Filipino and other nurses. The descriptive statistics and results of ANOVA are presented in Table 4.6.
Figure 4.4. Error bar chart for correct answers (%) with respect to nationality.

Table 4.6

Statistics to Compare Correct Answers (%) with Respect to Nationality

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>M</th>
<th>SD</th>
<th>F (3,78.9)</th>
<th>p</th>
<th>Eta²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saudi</td>
<td>23</td>
<td>44.77</td>
<td>5.077</td>
<td>4.418</td>
<td>.006</td>
<td>.047</td>
</tr>
<tr>
<td>Filipino</td>
<td>176</td>
<td>45.95</td>
<td>10.293</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indian</td>
<td>90</td>
<td>41.92</td>
<td>10.721</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>31</td>
<td>49.61</td>
<td>12.057</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: * Significant at α = .05; * computed using the Welch correction
The variances were not equal at $\alpha = .05$, indicated by Levene’s $F (3, 316) = 3.099$, $p = .027$, and so the Welch correction was applied. The F statistic was significant ($p = .006$), indicating that $H_0$ could be rejected; however, the effect size ($\eta^2 = .047$) was low. Scheffé’s post-hoc test indicated that the mean scores for the Indian nurses ($M = 41.92$) and Saudi nurses ($M = 44.77$) were significantly lower than the means scores for the Filipino nurses ($M = 45.95$), and the nurses from other countries ($M = 49.61$). It is inferred, therefore, that the test scores varied significantly with respect to the nationalities of the nurses. The Indian and Saudi nurses achieved lower scores than the nurses from the Philippines and other countries.

4.4.4 H04: the mean correct answers did not differ significantly with respect to race.

The null hypothesis—that the mean correct answers (%) did not differ significantly with respect to the race or ethnicity of the nurses—was tested visually using an error bar chart, and statistically using the F statistic and p-value computed using ANOVA.

The mean correct answers (%) ± 95% CI for three races are compared in Figure 4.5.
The mean scores for the Arabic and Asian nurses appeared to be lower than for other races. The descriptive statistics and results of ANOVA are presented in Table 4.7.

Table 4.7

Statistics to Compare Correct Answers (%) with Respect to Race

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>M</th>
<th>SD</th>
<th>F (2, 19.3)</th>
<th>p</th>
<th>Eta²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other</td>
<td>9</td>
<td>54.66</td>
<td>15.513</td>
<td>2.436</td>
<td>.114</td>
<td>.03</td>
</tr>
<tr>
<td>Arabic</td>
<td>39</td>
<td>46.29</td>
<td>7.419</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asian</td>
<td>272</td>
<td>44.59</td>
<td>10.592</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: a Computed using the Welch correction

The variances were not equal at α = .05, indicated by Levene’s F (2, 317) = 4.666, p = .010; therefore, the Welch correction was applied. The F statistic was not significant (p = .114), indicating that H₀₄ could not be rejected and the effect size (Eta² = .03) was negligible. It is inferred therefore, that race had no significant effect on the test scores.
4.4.5 H05: the mean correct answers did not differ significantly with respect to religion.

The null hypothesis—that the mean correct answers (%) did not differ significantly with respect to the religions of the nurses—was tested visually using an error bar chart and statistically using the F statistic and p-value computed using ANOVA.

The mean correct answers (%) ± 95% CI for three religious groups are compared in Figure 4.6. The mean scores for the nurses affiliated to Islam, Christianity and other religions appeared to be relatively similar.

The descriptive statistics and results of ANOVA are presented in Table 4.8. The variances were equal, indicated by Levene’s F (2,137) = 1.592, p = .205, and therefore the Welch correction was not applied. The F statistic was not significant at α = .05 (p = .056), indicating that H05 could be rejected. The effect size (Eta^2 = .03) was negligible. It is inferred therefore, that the test scores did not vary significantly with respect to the religions of the nurses.
Figure 4.6. Error bar chart for correct answers (%) with respect to religion.

Table 4.8

Statistics to Compare Correct Answers (%) with Respect to Religion

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>M</th>
<th>SD</th>
<th>F(2,137)</th>
<th>p</th>
<th>Eta²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Islam</td>
<td>70</td>
<td>48.19</td>
<td>12.121</td>
<td>2.167</td>
<td>.056</td>
<td>.03</td>
</tr>
<tr>
<td>Christian</td>
<td>236</td>
<td>44.11</td>
<td>9.568</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>14</td>
<td>45.95</td>
<td>14.689</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4.4.6 H06: the mean correct answers did not differ significantly with respect to education.

The null hypothesis—that the mean correct answers (%) did not differ significantly with respect to the educational levels of the nurses (diploma, or Bachelors/Masters)—was tested visually using an error bar chart, and statistically using ANOVA.
The mean correct answers (%) ± 95% CI for two levels of education are compared in Figure 4.7. The scores for graduate nurses with an Bachelors /Masters appeared to be higher than those of the nurses with a diploma. The descriptive statistics and results of ANOVA are presented in Table 4.9. The variances were equal, indicated by Levene’s F (1, 318) = .186, p = .667; therefore, the Welch correction was not applied. The F statistic was significant (p = .005), indicating that H06 could be rejected; however, the effect size (Eta² = .03) was negligible, indicating that this result had little practical/clinical significance.

![Error bar chart for correct answers (%) with respect to education.](image)

*Figure 4.7.* Error bar chart for correct answers (%) with respect to education.
Table 4.9

Statistics to Compare Correct Answers (%) with Respect to Education

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>M</th>
<th>SD</th>
<th>F (1,318)</th>
<th>p</th>
<th>Eta $^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diploma</td>
<td>110</td>
<td>42.80</td>
<td>10.319</td>
<td>8.058</td>
<td>.005*</td>
<td>.03</td>
</tr>
<tr>
<td>BSc/MSc</td>
<td>220</td>
<td>46.28</td>
<td>10.464</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: * Significant at $\alpha = .05$

4.4.7 H07: the mean correct answers did not differ significantly with respect to experience.

The null hypothesis—that the mean correct answers (%) did not differ significantly with respect to the years of experience of the nurses, classified into six ordinal levels—was tested visually using an error bar chart, and statistically using ANOVA.

The mean correct answers (%) ± 95% CI for the six groups of nurses are compared in Figure 4.8. The scores did not appear to vary much with respect to the experience of the nurses, expressed in terms of the number of years worked. The descriptive statistics and results of ANOVA are presented in Table 4.10. The variances were not equal at $\alpha = .05$, indicated by Levene’s F (5, 314) = 2.983, $p = .012$.

Consequently, the Welch correction was applied. The F statistic was not significant ($p = .317$), indicating that H$_{05}$ could not be rejected. The effect size ($\text{Eta}^2 = .01$) was negligible. It is inferred therefore, that the test scores of the nurses did not vary significantly with respect to their years of experience.
Figure 4.8. Error bar chart for correct answers (%) with respect to years of experience.

Table 4.10

Statistics $^A$ to Compare Correct Answers (%) with Respect to Experience

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>M</th>
<th>SD</th>
<th>F (5, 67.6)</th>
<th>p</th>
<th>Eta $^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;5</td>
<td>45</td>
<td>43.66</td>
<td>5.404</td>
<td>1.203</td>
<td>.317</td>
<td>.01</td>
</tr>
<tr>
<td>6-10</td>
<td>157</td>
<td>45.07</td>
<td>11.072</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11-15</td>
<td>57</td>
<td>46.75</td>
<td>12.236</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16-20</td>
<td>26</td>
<td>42.31</td>
<td>10.782</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21-25</td>
<td>15</td>
<td>45.77</td>
<td>12.021</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;25</td>
<td>20</td>
<td>46.76</td>
<td>7.699</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: $^A$ Computed using the Welch correction
4.4.8 H08: the mean correct answers did not differ significantly with respect to whether or not the nurses participated in research.

The null hypothesis—that the mean correct answers (%) did not differ significantly with respect to whether or not the nurses participated in research—was tested visually using an error bar chart, and statistically using ANOVA.

The mean correct answers (%) ± 95% CI for nurses who had not and who had participated in research on pain management are compared in the Figure 4.9. The scores for nurses who had participated in research appeared to be higher than those of the nurses who had not. The descriptive statistics and results of ANOVA are presented in Table 4.11. The variances were not equal at α = .05, indicated by Levene’s F (1, 318) = 5.315, p = .022, so the Welch correction was applied. The F statistic was significant at α = .05 (p = .005), indicating that H08 could be rejected; however, the effect size (Eta $^2$ = .03) was negligible. It is inferred therefore, that, although the mean test scores of the nurses who had participated in research were higher than those of the nurses who had not participated in research, this difference had limited clinical/practical significance.
Figure 4.9. Error bar chart for correct answers (%) with respect to research experience.

Table 4.11

Statistics to Compare Correct Answers (%) with Respect to Research

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>M</th>
<th>SD</th>
<th>F (1,86.9)</th>
<th>p</th>
<th>Eta $^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>272</td>
<td>42.00</td>
<td>7.458</td>
<td>8.227</td>
<td>.005*</td>
<td>.03</td>
</tr>
<tr>
<td>Yes</td>
<td>48</td>
<td>45.63</td>
<td>10.903</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: * Significant at $\alpha = .05$; $^*$ computed using the Welch correction
4.4.9 H09: the mean correct answers did not differ significantly with respect to whether or not the nurses attended scientific conferences.

The null hypothesis—that the mean correct answers (%) did not differ significantly with respect to whether or not the nurses attended scientific conferences—was tested visually using an error bar chart, and statistically using ANOVA.

The mean correct answers (%) ± 95% CI for nurses who had not, and who had, attended conferences on pain management are compared in Figure 4.10. The descriptive statistics and results of ANOVA are presented in Table 4.12.

![Figure 4.10. Error bar chart for correct answers (%) with respect to conferences.](image)

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>M</th>
<th>SD</th>
<th>F (1, 318)</th>
<th>p</th>
<th>Eta²</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>104</td>
<td>45.06</td>
<td>8.61</td>
<td>0.004</td>
<td>.948</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>Yes</td>
<td>216</td>
<td>45.14</td>
<td>11.35</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The scores for nurses who had participated in conferences appeared to be similar to those of the nurses who had not. The variances were equal, indicated by Levene’s F (1, 138) = 3.341, p = .069, so the Welch correction was not applied. The F statistic was not significant at α = .05 (p = .948), indicating that H₀ could not be rejected, and the effect size (Eta² = .01) was negligible. It is inferred therefore, that attending conferences had no significant effect on the test scores of the nurses.

4.4.10 H₀₁₀: the mean correct answers did not differ significantly with respect to whether or not the nurses had attended pain management courses.

The null hypothesis—that the mean correct answers (%) did not differ significantly with respect to whether or not the nurses attended pain management courses—was tested visually using an error bar chart and statistically using ANOVA. The mean correct answers (%) ± 95% CI for nurses who had not, and who had, attended courses concerned with pain management are compared in Figure 4.11.
The mean score for nurses who had participated in courses appeared visually to be higher than that of the nurses who had not. The descriptive statistics and results of ANOVA are presented in Table 4.13. The variances were equal, indicated by Levene’s F (1, 318) = 1.130, p = .289, and so the Welch correction was not necessary. The F statistic was not significant at α = .05 (p = .601), indicating that H₀₁₀ could not be rejected. The effect size (Eta² < .01) was negligible. It is inferred therefore, that the mean test score of the nurses who attended pain management courses was not significantly different from that of the nurses who attended pain management courses.
Table 4.13

Statistics to Compare Correct Answers (%) with Respect to Courses

<table>
<thead>
<tr>
<th>Group</th>
<th>n</th>
<th>M</th>
<th>SD</th>
<th>F (1,138)</th>
<th>p</th>
<th>Eta $^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>69</td>
<td>44.50</td>
<td>13.660</td>
<td>.274</td>
<td>.601</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>Yes</td>
<td>251</td>
<td>45.25</td>
<td>9.517</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4.5 Chapter Summary

In summary, ANOVA analysis was used to test the ten null hypotheses concerning mutually exclusive groups of participants. These 10 null hypotheses were developed from the aims of the research, to investigate the demographic and cultural factors that affect the delivery of effective pain management. Consequently, the results showed that demographic and cultural factors did not differ significantly between the nurses who worked in KSA hospitals, with respect to age, gender, race, religion, experience, whether or not the nurses had attended scientific conferences, and whether or not the nurses had attended specialist courses. In contrast, only three of the ten hypotheses showed significant differences regarding nationality, education and nurse participation in research. This chapter has provided an overview of the analysis from the survey of Phase 1. In the following chapter, the qualitative analysis will be presented.
Chapter 5: Qualitative Results

5.1 Introduction

This chapter presents the analysis of the focus group responses. The aim of using focus group discussions in this study was to confirm the data from Phase 1 (quantitative survey) to strengthen the evidence obtained from both methods and to facilitate the implication of the study findings to be more empirically useful. Accordingly, focus group discussions were conducted after performing the basic analyses of Phase 1 data to identify and cluster the participated nurses based on the questionnaire scores and the demographic data. As mentioned in the methodology chapter, Phase 2 was conducted in five hospitals in the KSA. The focus group discussions occurred in places convenient for the participating nurses. Five focus group discussions were conducted using purposive sampling of six to eight nurses in each group clustered according to their age, nationality and high/low score responses on the questionnaire. A total sample of 35 nurses participated in the group discussions. The results that emerged from the analysis of the qualitative part of this study (Phase 2) are presented in this chapter. First, descriptions of participating nurses illustrate their personal characteristics. This includes how they were clustered to meet the study purpose. Second, the five thematic categories revealed in the analysis of the focus group data are presented, along with examples from the verbatim textual responses of participating nurses and the findings, to provide in depth understanding of the thematic categories.
5.2 Recruitment and Sampling

Following completion of the survey for Phase 1, participants were asked if they would be willing to participate in a focus group, and provide their contact details accordingly. From this list of participants, the researcher selected a purposive sample of participants to form the focus groups. The selection was based on scores from the questionnaire to create balanced groups (that is, high and low scores, younger and older age clusters). These participants were then contacted, sent the PLS and invited to participate in the focus groups. We then arranged when and where these would occur. Subsequently, a purposive sample of 35 nurses was chosen to participate in the focus groups. These nurses were clustered according to their location (hospital), age, nationality, and high/low score response on the questionnaire (Creswell & Clark, 2011). The group composition and size was set to allow heterogeneity (Ritchie et al., 2013). This was done to stimulate discussion, diversity and to allow comparison and clustering of data collection from different groups. In this study, the anticipated point of saturation was reached after the fourth focus group discussion. However, one additional focus group discussion was conducted to add confidence that no more data would emerge or be missed. In total, five focus group discussions were conducted, consisting of six to eight participants in each group.

The researcher applied Finch and Lewis (2003) method of focus group discussion for managing the scene setting, introducing participants, presenting the results of Phase 1, running the discussions and ending the sessions. All the discussions were undertaken in English, in which most of the participants were proficient. The focus groups were digitally audio recorded and these lasted for around 90 minutes on average.
Prior to commencing the focus group, participants were given a consent form to sign and a brief demographic form to complete. Although the researcher had previous concerns that a group member may dominate the discussions, as can often occur with focus group discussions, the participants’ responses were spontaneous, and most of the members in the group joined in the discussion. To facilitate this, the researcher—who was the moderator of the group—ensured that every member in the focus group had an opportunity to speak so that the discussion was not dominated by a few individuals. The researcher used an interview guide to lead group discussion and to focus on the objectives of the study, examples of the questions are included in Appendix D.

Data were collected from 35 registered nurses working in KSA hospital oncology units. The demographic profile of the participants is summarised in Table 5.1. The majority of the participants were female nurses (n = 30, 85.7%). Their ages ranged from 25 to 35 years (M = 29.4, SD = 2.5). The majority of the participants (n = 30, 85.7%) were expatriates and only 5 (14.3%) of the participants were Saudi Arabian. The expatriates included Filipino nurses (n = 14, 40%) Indian nurses (n = 9, 25.7%), Indonesian nurses (n = 2, 5.7%) and Jordanian nurses (n = 5, 14.3%). Around two-thirds of the participants (n = 24, 68.6%) were Christians. In regards to the years of experience, the focus groups contained nurses with experience ranging from two to eight years with an average of 5.3 years. For further details of the participants' demographics and characteristics for each specific group, see Table 5.2.
Table 5.1

*Demographic and Background Data of Participants N = 35*

<table>
<thead>
<tr>
<th>The Variables</th>
<th>n (%)</th>
<th>Range (mean; standard deviation)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>30 (85.7)</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>5 (14.3)</td>
<td></td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25–27</td>
<td>8 (22.9)</td>
<td>25-35 (29.4; 2.5)</td>
</tr>
<tr>
<td>28–30</td>
<td>17 (48.5)</td>
<td></td>
</tr>
<tr>
<td>31–33</td>
<td>8 (22.9)</td>
<td></td>
</tr>
<tr>
<td>34–36</td>
<td>2 (5.7)</td>
<td></td>
</tr>
<tr>
<td><strong>Religion</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Muslim</td>
<td>11 (31.4)</td>
<td></td>
</tr>
<tr>
<td>Christian</td>
<td>24 (68.6)</td>
<td></td>
</tr>
<tr>
<td><strong>Nationality</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Saudi Arabian</td>
<td>5 (14.3)</td>
<td></td>
</tr>
<tr>
<td>Jordanian</td>
<td>5 (14.3)</td>
<td></td>
</tr>
<tr>
<td>Filipino</td>
<td>14 (40.0)</td>
<td></td>
</tr>
<tr>
<td>Indonesian</td>
<td>2 (5.7)</td>
<td></td>
</tr>
<tr>
<td>Indian</td>
<td>9 (25.7)</td>
<td></td>
</tr>
<tr>
<td><strong>Years of experience</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 3</td>
<td>1 (2.9)</td>
<td>2-8 (5.3; 1.7)</td>
</tr>
<tr>
<td>3–4</td>
<td>11(31.4)</td>
<td></td>
</tr>
<tr>
<td>5–6</td>
<td>13 (37.1)</td>
<td></td>
</tr>
<tr>
<td>7–8</td>
<td>10 (28.6)</td>
<td></td>
</tr>
</tbody>
</table>
Table 5.2

Demographic and Background Data of Participants in Each Focus Group (N = 35)

<table>
<thead>
<tr>
<th>The Variables</th>
<th>FG1 (n=8)</th>
<th>FG2 (n=6)</th>
<th>FG3 (n=7)</th>
<th>FG4 (n=7)</th>
<th>FG5 (n=8)</th>
<th>Total (n=35)</th>
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<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
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<td>25–27</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>28–30</td>
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<td>4</td>
<td>4</td>
<td>3</td>
<td>17</td>
</tr>
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<td>31–33</td>
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<td>1</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>34–36</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
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<td>3</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>11</td>
</tr>
<tr>
<td>Christian</td>
<td>6</td>
<td>3</td>
<td>6</td>
<td>5</td>
<td>4</td>
<td>24</td>
</tr>
<tr>
<td>Nationality</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Saudi Arabian</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Jordanian</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Filipino</td>
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<td>2</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>14</td>
</tr>
<tr>
<td>Indonesian</td>
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<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Indian</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>Years of experience</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 3</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>3–4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>11</td>
</tr>
<tr>
<td>5–6</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>1</td>
<td>3</td>
<td>13</td>
</tr>
<tr>
<td>7–8</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>10</td>
</tr>
</tbody>
</table>

* FG = Focus Group

5.3 Focus Group Analysis

Following collection of the interview data, the researcher followed Morgan’s (1997) method for analysing focus group discussions which consists of three elements: coding the data, interpreting the data, and reporting the data. The common responses among participants both within and between the different focus group discussions were arranged and grouped systematically to generate the codes and later the subcategories.
using thematic analysis. NVivo 10® qualitative analysis software was used during the analysis as a means to assist in the coding and the development of categories. This method assisted the researcher in finding the commonality and patterns in the data by tracking the frequency of occurrences across the data, classifying, sorting and organising the texts in order to drive conclusions on the final thematic categories (Morse, 2003).

The data analysis process incorporated the initial coding and documentation of common relevant occurrences (focus group participant responses, statements or expressed perceptions or thoughts), which were then categorised into related thematic categories. A comprehensive review and interpretation of the codes and subcategories with a focus on high frequency elements provided the final thematic categories that emerged from the analysed data. The concluding themes that were revealed represent the perceptions of the participated nurses from all the five focus group discussion. As the findings of the analysis, the thematic categories are presented individually along with textual examples to create an in depth understanding of the responses given by participants. The participants are identified by pseudonyms and the focus group numbers.

The themes that emerged from the data analysis of focus groups consisting of nurses working in oncology the units, in relation to issues encountered with the delivery of effective pain management, were categorised into: communication barriers, cultural differences, nurses’ workloads, lack of knowledge, and absence of health team collaboration. These five thematic categories revealed in the analysis of the focus group data were reflective of factors perceived to influence nurses’ effective pain management.
5.3.1 Communication barriers.

The first thematic category revealed from the analysis of the focus group discussions was the communication barrier that strongly influenced the nurses’ delivery of effective pain management. Communication barriers resulted in poor communication due to a lack of a common language in a multicultural setting, not only between the nurse and the patients, but also between the nurses. This communication difficulty was attributed to three factors: firstly, that Arabic was considered a complex language to learn and speak, and therefore, often difficult for expatriate nurses to embrace (Habash & Sadat, 2006). The second aspect was the fact that most of the patients, being predominantly elderly, did not speak English, which compounded the situation for the non-Arabic-speaking nurses. Finally, these patients may use a different dialect as they come from different regional areas, or where the word from one dialect means a different thing in another dialect. English remains the most widely used language between staff in KSA hospitals. A number of participants from the focus groups noted this communication difficulty with oncology patients, specifically from those expatriate nurses who were non-Arabic speakers. For instance, one of the participants said:

*I think the big failure here we are facing as a foreigner or English-speaking nurses is the language.* (Diana, FG 4)

It was mentioned in the data that communication between patients and nurses was vital while assessing oncology patients’ pain, as the nurses in the unit play a critical role in ensuring high quality of care through the adequate assessment of their patients. The majority of non-Arabic-speaking nurses reported that they had difficulties with communicating with patients who spoke Arabic language, which then hindered their
ability to be able to effectively manage their patients’ pain. This was clearly explained by a participant who said:

*I think the most important problem that we’re facing here, when we want to assess our patients’ pain is the communication. Half of us are not Arabic speakers, and all of the patients are Arabic speakers...so I find the language is one of the major barriers to properly assessing the patients’ pain characteristics.* (Hadi, FG 1)

As can be seen from this quote, participants commented that although nurses understood that cancer patients felt pain frequently, nurses were not always able to assess pain effectively because of the language difficulties. Consequently, the patients may not receive the most appropriate treatment for their pain because of the language barrier that hinders the nurses’ ability to determine the intensity of pain. Specifically, as highlighted by the participants, the issue about this communication barrier related to the interpretation of patients’ words regards the nature of pain or its quality. As a consequence, misunderstandings or wrong perceptions may occur. For instance, it was reported by one of the respondents that:

*I think language barrier is the problem....because sometimes; the patient will say things and express his feelings in Arabic words that we do not understand. And sometimes we would wrongly understand the patient description of pain intensity and nature, so, we usually not administrating the right medication or treatment for the patient.* (Janki, FG 3).
Another non-Arabic-speaking participant confirmed this issue, which expressed the frustration that was felt as a result:

*Yeah, for us, it’s the language barrier. Although we know that our patient still in pain, but because we cannot communicate with the patient and determine the pain on a scale, they mostly still have some degree of pain.* (Elisa, FG 3)

The other side to these communication differences is the effect they had on the nurses’ ability to undertake their tasks adequately. It was clear from the data that expatriate nurses felt reluctant to explain the side effects of medications to their patients, because they were afraid that patients would not be able to understand them or might become angry with them. From this it can be seen that the nurse’s role of explaining issues to the patient was limited. This could then relate to many other aspects of nursing care that they provided. In other words:

*We are responsible for explaining to the patient. Sometimes we have a problem to explain to the patient. Like the drug side effects, they cannot understand.*

(Prevena, FG1).

Language barrier also affects how Arabic nurses (not Saudi nurses) interpret the Arabic language used by Saudi patients. Participants in the focus group discussions stressed that they faced difficulty in interpreting what the patients said about their pain, partially, because most of the patients talked using either colloquial language (non-formal Arabic language) or a different dialect to their own. For instance, one of the nurses commented that:

*Yeah, for us Arabic-speaking nurses, we could not understand all the patients’ language. You know many patients talked in their own regional language. We*
understand the formal Arabic not the slang one. Sometimes I cannot get all the words. And this is way I found it difficult to interpret the meaning conveyed by the patient. (Mahmoud, FG 2)

Further, language barriers were not only identified to be a problem for the expatriate nurses. They also became a problem for the Arabic-speaking nurses, who were not necessarily proficient at understanding English. Local nurses were constantly being asked to translate from English into Arabic language to help the non-Arabic nurses communicate with their cancer patient regarding pain management. Focus group discussions conducted with participants from the Arabic-speaking nurses emphasised that they did not always understand what the non-Arabic-speaking nurses were asking them to translate from the English language into Arabic language. This then had a tendency to become a problem of mistranslation. To confound this issue further, the non-Arabic-speaking nurse would probably not be aware that what they had asked to be translated was not necessarily understood by the Arabic-speaking nurse. They would therefore not necessarily realise that a mistranslation had occurred. The other issue is that this adds greatly to the workload for the Arabic-speaking nurse, who has to leave caring for their own patient to assist with translations. This issue of mistranslation is illustrated in the following:

*I am an Arabic speaker but not proficient in English. I'm facing a problem which is the language and the communication. My colleagues who cannot speak Arabic ask me to translate instructions to patient or when they need to present something to a patient, I do my effort to send the proper message, but often, I miss the right translation.* (Ali, FG 4)
One of the other problems with the communication barriers is that it affects not only the patients but also their families. Participants in focus group discussions stressed the need to communicate with the patient's family in order to fully provide patient care. This is because, as highlighted in the data, clear communication when educating the patient’s family would help the patient to understand the pain management process. The nurses explained that the family needs to be involved and understand as they are the ones who provide the care and follow the pain medications at home. Providing education to the patient’s family becomes difficult, however, because of the language differences which may lead to misinterpreting of what the nurse is explaining about pain management, as illustrated in the following:

*For me, I think it’s a clear communication with the patient and family members.*

*As we all know, for oncology patient, there is always a complaint of pain ...*

*Even when they go home ... we need to explain to the family to help them understand how their relative feel, they need this piece of information, but we have a language problem that stands in our way.* (Anna, FG2)

This has illustrated that generally, the nurse’s ability to effectively manage pain was greatly influenced by the various issues of communication difficulties that occurred between the nurse and the patients, as well as their family members.

**5.3.2 Cultural differences.**

According to the data analysis, cultural differences also emerged as a major theme in all the five focus groups as having an influence on the nurse’s ability to effectively undertake pain management. Participants in the focus groups highlighted issues related to the religious and cultural differences between patients and nurses.
impacted the quality of pain management in the oncology units in KSA. Participating nurses noted differences between their previous experiences in their own culture and patients with what they had experienced in caring for Saudi patients. For example, nurses stated that patients in their country of origin depend on and have faith in the advice from healthcare providers to treat their pain. In contrast, the Saudi patients depend on their religious advice and beliefs, as given to them by religious men. This was clearly described as:

for the knowledge of the people in our country, as we believe in the physicians’ advice, we follow their prescription of the therapy, but for patients which I care for here, they prefer what is traditional... they (Saudi patients) mostly get advice from the religious people, from the sheikh who will describe special remedies for pain and the patients will follow. (Christine, FG 5)

This difference in belief went much further than this, to the extent that nurses reported that the Saudi patients did not comply with their advice about pain management methods. This then added greatly to their workload. As one of the participants said:

...in our country, we don’t have any problem regarding the prescribed method to relieve pain. But here in this country we find difficulty in applying these methods. Saudi patients have doubts in following the therapy we often spend a lot of time explaining and discussing to persuade them to take the pain killer medications (Vivian, FG 2).

Another commonly discussed element related to religious and cultural influences was the notion that some Saudi patients had a different view of the aetiology of the pain than the medical viewpoint. For instance, the argument that the pain was not caused by
injury or other causes, but rather resulted from an evil eye or a punishment from God. This influenced the nurses’ perception of losing power from a medical philosophy perspective, as they were unable to change the patients’ beliefs or attitudes towards pain management. As one of the participants in group one described:

... their (Saudi patients) beliefs about pain is different. They think that the cause of pain is related to superpower such as an evil eye or something similar. Some patients believe pain comes as a punishment from God. So, we respect what they are saying I mean you can’t argue with this, we cannot change what they think is right ... it is very hard. (Hadi, FG 1)

This was also described by other participants who added that because patients believed that the pain was a punishment, they spent most of their time reading from the holy Quran, instead of seeking pain relief:

Maybe they are thinking about ways to defeat the evil eye by reading from the Holy Quran, or they may be feel guilty about something and returning to the Holy book will clear them from sin ....Um, I guess, but this is wrong perception, Allah will not put the cancer on people to punish them and make them suffer (Muneerah, FG 2).

Moreover, some participants in the focus group discussions stressed that many patients felt reluctant to take strong pain medications like opioids, as the Saudi patients described that enduring pain would help them to get rid of their sins. Many patients, therefore, substituted analgesic medications with practising religious rituals, such as praying to God and asking God for cure (making Dua'a), drinking from the holy water (Zamzam) [ a holy water from Mecca that is used by Muslim people for treatment] to
relive their suffering from severe cancer pain. However, participants from the same
Islamic and cultural background as the Saudi patients tended to support and respect the
patients' religious beliefs and encouraged them with some of these practices to relieve
their suffering. As this clearly mentioned with one of the participants:

*I find out that most of the people here prefer to read Quran or drink zamzam
water or sometimes eating honey, olive, and date instead of taking the prescribed
pain medication. We as Muslim nurses sometimes have similar things believes
....we respect the patient belief and we acknowledge sometimes what they are
eating or drinking.* (Moaueh, FG 3)

However, it was clear from the data that not all of the nurses were comfortable
with the beliefs of Saudi patients who insisted on avoiding any pain medication, mainly
the opioids, describing this as a ‘forbidden drug’ or ‘haram’. Participants mentioned that
the patients replaced with following religious rituals, as previously mentioned. One
nurse described this as:

*Yes, they think its haram. Some of our cancer patients refuse to take narcotics
because it causes addictions, so they will not take it because it is forbidden in
Islamic culture. Some of them are thinking, okay, instead of taking medication
for the pain I can read from the Holy Quran or do things to please God.*

(Muneerah, FG 2)

As can be seen from these quotations, nurses almost felt that they had therefore
failed to provide adequate care from a medical/nursing viewpoint and were
consequently conflicted. The reason for this conflict, as discussed by the participants in
the focus group discussions related to the cultural differences with nurses being
confused between respecting the patient’s right to decide what is important from their own perspective, and the priority to manage the patients’ pain using the available analgesic medicine and follow the guidelines. In other words:

Yeah but in the end, we need to focus on the pain because as a healthcare team provider, we try to manage the pain this is our goal ... so we have differences between their belief as a patient and our belief as a healthcare provider, we have the guidelines and what we learn in school of nursing. (Fatima, FG 4)

The participants commented that the goal of nursing is to relieve the patient’s pain and to manage it effectively, but ultimately nurses need to respect the wishes of their patients, and therein lies the conflict:

That is the rights of our patients. We have to respect their beliefs we feel with them ... in Saudi Arabia, if you are living far from the cities in the urban areas they will have common beliefs that we should respect. (Cecily, FG 5)

A confounding factor to the effective management of pain that was identified from the data was that patients were not necessarily providing honest and truthful responses, due to their fears about treatment or medication, and/or cultural beliefs. For instance, nurses mentioned that many Saudi patients did not ask for relief, or ignored their pain due to the fear of being regarded as addicted, which adversely affected the care they provided. This was described by several participants in different focus groups:

Sometimes, the patients are ignoring the pain, for example, not asking for medication, because they feel guilty. They are afraid of being accused by nurses and doctors as addicted. So they will deny the pain ... So it affects us as nurses
to manage those patients ... they give you a wrong pain score so they will avoid taking this medication. (Hadi, FG 1)

In addition, the participants also identified that they found family beliefs about pain management could form an obstacle to effective pain management. Participants commented that the family’s fears about drug addiction made them intervene in the process of administering pain medication. This is clearly illustrated in the following quotation:

Sometimes the patient’s family are also afraid that their son or daughter would be addicted so they say, don’t give this medication ... so they interfere with our role and delay the administration of drugs to relief the patient’s pain. (Asefa, FG 5)

It can be understood that generally the nurses’ ability to effectively manage pain was greatly influenced by the various cultural differences and the beliefs about pain management by the patients and their families.

5.3.3 Nurse’s workloads.

The third thematic category identified from the data that the participants felt influenced their ability to be able to provide effective pain management, was the high nurses’ workload. The participants commented that nurses in the oncology units have very heavy workloads and this impacted on their ability to provide high quality of pain management to cancer patients. Consequently, this heavy workload contributed to nurses’ inability to provide pain medication to the patient, either on the scheduled time or immediately when requested by the patients. In addition, there was a lack of time available for educating patients, and limited time to comprehensively document in the
nurses’ notes related to pain assessment and management. This was clearly described in the following:

*We have extra workload in our oncology unit, it affects us as nurses, we could not deliver the high quality of care for our patients ... Many nurses had limited time to write nurses notes, especially when too many patients complaining of pain.* (Mahmoud, FG 2)

The majority of the participants believed that heavy workloads were closely interlinked with high patient to nurse ratios. Common responses among the fifth focus groups revealed that caring for too many patients forced the nurses to classify the patient’s needs according to priority. This priority was not necessarily based on attending to the patient who was the sickest first, if two needed pain management at the same time, as can be illustrated in the quotation that follows. This resulted in some delay in responding to the patients’ needs, especially when they were in pain:

*Actually here we are facing a lot of work loads. So when attending one patient we are neglecting other patients. Of course, when this happens, I mean having patients with many needs to be met at the same time, we select to attend patients before the others, for example, if one patient is crying from severe pain. After a long period of time we see the other patients and try to meet their pain needs.*

(Nelie, FG 1)

As a consequence of not being able to respond to their patients’ needs immediately, many nurses felt dissatisfied with pain management care they provided. This meant that nurses became stressed and felt hopelessness towards their patients. The
following example demonstrates the nurses’ perceptions and experiences related to workload and the associated stress that results:

*Yes, we are stressed, if we are unable to provide the medication on time when the patient is in need, it affects us because we feel bad since we are not helping our patients.* (Shnomeen, FG 3)

Not only did the heavy workload affect the nurse’s ability to provide effective pain management, the participants reported that this also affected the quality of nursing care they were able to deliver. For instance, it was noted by one participant that:

*If we have many task to do in one day at the oncology unit, nurses will not deliver quality of nursing care to cancer patients in pain* (Mahmoud, FG 2).

In addition, it was also interesting that the participants noted that heavy nursing workload not only resulted in nurses’ inability to meet the needs of patients but also affected their attitudes towards the patients. As a result of the heavy workload, nurses felt negatively about the patients’ pain, which further resulted in sub-optimal pain management because they just did not have the time. This led to reduced satisfaction with pain management overall:

*In my oncology unit, nurses handling six patients who are sick and you have one patient who is asking for morphine every hour, it will affect my attitude towards that patient. I will start thinking that maybe he is lying or addicted. Why do you need this medication? And sometime I ask the patients not call the nurses for this purpose.* (Ali, FG 4)
This heavy workload affected the nurses’ attitudes towards pain management in other ways as well. Many participants in this study mentioned that the focus of pain management was on giving pain medication and the heavy workload prohibited them from using non-pharmacological techniques of pain management. The participants reported that the reason for this was because they did not have enough time to apply such techniques. This was clearly described by participants, who emphasised the importance of using non-pharmacological techniques in managing pain but noted that this lack of time prevented its application. As one of the participants said:

*Actually, if you’re handling many patients such as seven patients in an oncology unit you will only focus on treating pain by analgesic medication. I know that there are other kinds of pain management, I mean non-pharmacological, like relaxation, guided imagery and so on, but we have no time to do so. And this is not for the benefit of our patients.* (Cecily, FG 5)

Finally, another important element in providing care for patients who suffer from pain was to consider the psychological support available to these patients. Another consequence of the heavy workload many nurses reported was that the psychological support crucial to pain management was missed when nurses were too busy to provide that extra care. One participant noted this association with workload and quality of care:

*I have more than four patients at a time, from my experience I used to miss the psychological aspect of care. But if I have less number, for me I will give a professional treatment with psychological support* (Muneerah, FG 2).
Needless to say, the participant made the suggestion that this heavy workload could be resolved by decreasing the nurse-patient ratio:

*I think we need to think about reducing the number of patients per nurses, which will help us to do our job properly, but the workload is overwhelming keep us busy all the time* (Kathy, FG 1).

The perceived need for a reduction in workload was clearly expressed among many of the participating nurses and the rationale for this was very clear. For example, one participant explained that:

... *we are dealing with oncology patients, they are sick and need a lot of care, we need to reduce the workload to be able to do so. For example, reducing the ratio from six patients per nurse to three nurses, two or three patients for a nurse is more than enough in an oncology unit.* (Dorace, FG 4)

It was clear that the nurses’ workloads had a big impact on their ability to effectively manage the patients’ pain for a number of reasons. This added to their inability to provide effective pain management to oncology patients in these KSA hospitals.

**5.3.4 Lack of knowledge.**

The fourth thematic category that emerged from the data was the nurses’ identification of their lack of knowledge about cancer pain and its management, which influenced nurses’ ability to provide effective pain management. There were a number of areas that were identified in the data in which this knowledge deficit was evident. Firstly, the lack of clarity about the cancer pain assessment and management was evident in the participants' discussions. Some participants readily confessed during the
focus groups discussions that they lacked clarity about different characteristics of cancer pain, and what they should be asking the patients about when assessing the cancer pain.

In addition, some nurses stated that their knowledge about the proper assessment tools to be used for oncology patients was limited to the numeric rating scale to measure the intensity of pain only. There are a number of other pain assessment scales that are used in nursing, including one that demonstrates facial expressions identifying the level of pain being experienced (Ferrell & Coyle, 2010). This deficit in knowledge regarding pain assessment was clearly described in the following:

... at nursing school we had some basics about how to assess pain in general, but this is not enough to assess the complexity of cancer pain ... we only use the ‘zero to ten’ scale to assess pain but we need more to assess other aspects of cancer pain. (Asefa, FG 5)

What became clear from the data was that these nurses could see the need for knowledge in how to assess cancer patients’ pain using other pain assessment tools, especially for patients who could not clearly communicate the severity of the pain due to the language and cultural issues, as identified above. There was also a need to have different means of assessing pain in unconscious patients, something that the participants also identified in the focus group discussions. As a consequence of this lack of knowledge, nurses commented that they instead had to develop their own means of pain assessment for such patients. For instance, a participant in focus group four said:

Okay. If the patient said it’s eight, then you write eight out of ten in a pain scale.

But if the patient is unconscious or uncommunicative, then you should notice their non-verbal behaviour such as grimacing crying, or shouting, but nurses
here they don’t know, some of us do not know that the unconscious patients feel pain (Jorenah, FG 4).

Another aspect outlined in the data that clearly indicated the nurses’ lack of knowledge about pain management was the fact that nurses expressed they were concerned that cancer patients might become addicted if they had high doses of opioids. The participants’ lack of understanding of the nature of cancer pain made them acquire false perceptions about the possibility of opioid addiction. This lack of understanding was evidenced by many nurses complaining about the patients continually requesting pain medication, or a specific opioid. These nurses then accused the patients of drug-seeking behaviour that indicated they had an addictive state, and that was why they continually demanded pain medication. During one focus group discussion, one participant stated the following and all the other participants in that group agreed:

In my oncology unit, nurses are handling six cancer patients at a time, who are sick and on the other side, you have a patient who is asking for morphine every one hour, what I will think? I will start thinking that maybe he is addicted. Why he keep requesting for the drug? (Ali, FG 4)

Another example of this level of ignorance regarding cancer pain and addiction is illustrated in the following where the practitioners were using the excuse to advise the patient to accept the pain and tolerate it because that is the nature of cancer disease:

cancer patients are always complaining of pain. And when they do, many nurses and physicians asking the patient to be patient and not to ask for pain killers ...

they explain to the patients that they have to tolerate the pain because it’s
natural to feel some pains in the cancer disease, they also tell them to do that in order not to develop narcotic addition. (Iman, FG 1)

This problem regarding the lack of knowledge was reported by the participants to be higher in the newly arrived nurses who also lacked experience working in an oncology unit. Needless to say, the consequence of having inexperienced nurses who had limited knowledge regarding cancer pain management had a negative impact on providing effective pain management to these patients. This was described by a participant who also outlined what the solution should be for these nurses:

- many new hired nurses do not know anything about cancer pain, and of course they do not know how to manage it ... they need educational courses. (Josephine, FG 2)

The issue regarding the need for continuing education about the nature of cancer pain and the use of appropriate assessment tools and management technique was identified by many of the participants as being critical to providing effective pain management:

- So it should be better if we give more training for the nurses over the recent management how we can manage the pain...it would be helpful for the nurses to be aware of that (Shony, FG 3).

A suggestion was made by one participant on the need for continuous education for nurses on a monthly schedule. This further emphasised the importance that this group of nurses had regarding their need for education on pain management. These were described in the following:
The factor that helps us to improve our care is that we need some monthly in-services and we’re contacting education, workshop pain management for all our nurses. (Joslin, FG 4)

The need for ongoing education was very evident from the data, but there were also a number of barriers to achieving this that were identified by the participants. For instance, it was evident from the data that there was a lack of support from the hospital administration for the nurses to attend courses in pain management. Specifically, participants described that their healthcare system offered limited time to attend such courses and they did not financially support continuing education for nurses. In other words:

*If we need to continuing education courses, we need to pay from our pocket. We need to do it in our own time and not giving us brief symposium. They are not giving us permission to leave early from work or to have off days. It’s something individual. We need to do it in our own time and from our money.* (Joana, FG 1)

Many participants emphasised that they needed more education related to the management of cancer pain as these courses would help them to gain the necessary knowledge in order to provide more effective pain management. It was clear from the data, however, that increasing their education through the opportunity of attending courses at different times was a challenge due to lack of time emanating from the heavy workload in the oncology units. The issue as to why this is the case was illustrated in the following:
For us, there is no time for the courses because we are so busy. We have only one day off per week. We could not have a study leave; they would not give it to us, because of the lack of nurses, and understaffing. (Cecily, FG 5)

Even if the nurses were supported by the hospital to attend courses on pain management, these courses would not be able to be conducted due to a shortage of educators to even undertake them. There was therefore identified in the data that there were a lack of educators in order to provide this education even for the oncology unit. Many of the nurses in the focus group discussions identified this limitation related to the lack of opportunities for continuing education:

The limitation is the availability of the educator to teach these programs. We have one, for example, somebody certified to do that, sometimes he’s not here and cannot do these courses. (Christine, FG 4)

A suggestion was made in the focus group discussion as to how this issue of receiving education could be resolved. This could be done by having a dedicated pain management team in the oncology unit or the hospital. This team would then spend some time with the nurses in the unit in order to help them and the patients to manage their pain effectively:

for example to have a specific team for pain management in the oncology unit or in the hospital to enable the nurses to help the patients in reducing their pains ... and give services to us for example for to give some courses in pain management and update us about pain management. (Mohsen, FG 5)
This would require more staff achieve this, which would not necessarily be easy, as nursing shortages appear to be a major factor in providing effective pain management in general.

5.3.5 Absence of health team collaboration.

Lack of health team collaboration in relation to cancer pain and its management was perceived as the fifth theme among the participants from the focus group discussions that influenced nurses’ abilities to provide effective pain management. From the data, the participants identified that they believed the hospital policy and pain guidelines, including narcotic policy, played a major role in effectively managing pain. Needless to say, these policies and guidelines needed to be clear and applicable. The current guidelines were identified by the participants as making a difference when compared to what was previously available, as outlined in the following:

Yes, pain management is improving, because before issuing the policy, just three years ago, there was no policy for pain management. Before, there were no tools for assessing patients’ pain intensity, everyone was using his own way for assessing the pain. Now, we follow specific assessment tool, we know when to assess and how. (Elisa, FG 3)

The problem identified from the data, however, was that to achieve and implement clear and applicable guidelines, there needed to be collaboration between the health care professionals involved in providing care to cancer patients and this was just not happening. In other words, the nurses and physicians specifically were not collaboratively following these guidelines in order to provide effective pain management. The participants identified that it was difficult, therefore, to apply these
guidelines because of the deficiency in the collaboration between the physicians and nurses. For instance, as noted by one participant:

*The guidelines and the policy of the narcotics here is clear. The guideline, for example, guide in how to prescribe the drug, how to administer it, so it must help us in managing our patients’ pain and understand their concern, but this needs nurses and physicians to be cooperation in this matter.* (Fatima, FG 4)

Certainly, the guidelines have improved compared to the previous guidelines as far as the participants were concerned in helping them manage pain effectively. The problem still, however remained that not everybody adhered to the guidelines. There is no point having comprehensive guidelines if all of the players in the process of managing pain do not adhere to them. One of the specific issues identified from the data was that the physicians were rarely present to prescribe the pain medication in the first place and this needlessly caused a delay in drug administration to cancer patients. Nurses cannot give pain medication in Saudi without it being written up or prescribed by a physician beforehand:

*But ... when the patient need pain drug, we call the physician and most of the time he or she is not present to write the prescription, so it will take a long time before giving the drug for the patient.* (Iman, FG 1)

As the participants identified, this availability of physicians was affected by the fact that they had to be available across many hospital departments. These other departments also required the physicians to write up medications or assess patients and perform other medical duties. As a consequence, physicians could be anywhere in the hospital undertaking some medical task. Nurses often had to wait some time before the
physician was able to come and write up the pain relief medication prescriptions, before the medication could be administered by the nurse. This delay in giving the medication meant that the patients suffered more pain and this influenced the quality of nursing care that they received. The effect of this on the patient is clear from the following:

*I think we have a problem related to the presence of the physician. Sometimes, the physician is not in the unit to write the medication order, he is covering some area and he needs time to come to our unit ... Sometimes, it will take hours ... Patients were in pain and cannot wait this time and start to scream at the nurse.*

(Dorase, FG4)

In addition, the participants identified that physicians did not always comply with the pain management policy in two aspects. Firstly, there needed to be a prescription of medications written up for the whole time that the patient was in hospital, with the nurse not having to keep asking the physician to write up more of the medication. Further, pain relief medication should be given on a regular and ongoing basis, for example, every four hours, rather than when the patient requested it. As a consequence of what the physician had prescribed, this forced the nurses to administer the medication according to the patient’s request. Every time they did that they must wait for the physician to attend to the unit and write the prescriptions. For example, one of the focus group participants commented that:

*Yes, the patient complains of pain and there is no prescribed medication, no written orders to follow, and patients will suffer until we call the physician and arrive to write the order, we learned that we should give the medication in*
around the o’clock basis for cancer patients, but because of what happens here, we wait till the patient ask for the drug. (Mohsen, FG5)

Another aspect mentioned in the focus group discussions was related to the communication issues between the pharmacist, physicians and nurses regarding the narcotic prescription protocol. The participants explained that the prescription needed to have a special stamp from physicians and it was then to be taken by the nurse to the pharmacists. Nurses were then given the medication to take back to the ward and administer to the patient. This process made it hard for the nurses to manage the patients’ pain on time, as they often had to wait in a long queue to get the medicine plus get the stamp for the prescription from the physician in the first place. In essence, a participant clarified that:

For us we are encountering a problem in our unit, most of our physicians do not have the stamp, pharmacy code and the computer password and this form a big problem that we have to wait for the doctor with the code to come. Even in the pharmacy, we should wait for the long time ... Always delayed. (Sonia, FG 2)

In addition, there were sometimes difficulties with accessing the pharmacy. A lack of access to the pharmacy sometimes created a situation in which the nurse had no access to the needed medication. In particular, a detailed explanation was provided by one of the participants, who said:

I’d like to share a really short story about the difficulty of getting medication from the pharmacy. It is very crowded... one of my patient’s post-mastectomy. She was complaining of pain. So I tried to give her prescribed opioids, as the doctor wrote the prescription and stamped it ... but the medication nurse was
busy in the pharmacy. The pharmacy is crowded and they told her to wait there.

So maybe after 40 minutes when I get the medicine, when I came to the patient she was sleeping from exhaustion I guess. (Soidah, FG 4)

As can be seen from this, the policies and guidelines were very useful for the participants. The problem was the reality that prevented them from being effective. The lack of collaboration between the health professionals further impeded their implementation.

5.4 Chapter Summary

This chapter has presented and provided an analysis of the key themes raised by the participants during the focus group discussions. From the analysis of the data from Phase 2, five categories emerged, which represent the issues raised by nurses in the oncology units in relation to effective pain management. These categories were: communication barriers; cultural differences; nurses’ workloads; lack of knowledge and absence of health team collaboration. In the next chapter, both findings of the quantitative and qualitative phases of the study are integrated and discussed in detail, in light of the study purposes and questions.
Chapter 6: Discussion

6.1 Introduction

This chapter discusses and integrates the significant results of the quantitative and qualitative components of the data collection, which informs the questions of the study within the context of the existing literature. Additionally, it encompasses attainment of the study’s aims, which are to explore the knowledge, attitudes and beliefs of nurses in the oncology units in KSA regarding pain management practice, and to identify the perceived barriers to effective pain management at KSA hospital oncology units. A brief summary of the study and the participants’ characteristics are discussed at the beginning of the chapter. The following sections then discuss the nurses’ knowledge, attitudes and beliefs regarding pain management that emerged from the quantitative approach of the data collection (Phase 1). The later section of this chapter discusses the barriers that the participating nurses have in relation to the delivery of effective pain management, which emerged from the analysis of the qualitative data (Phase 2).

6.2 Summary of the Study

The main purpose of this study was to examine the knowledge, attitudes and beliefs of nurses working in oncology units in KSA. To achieve this purpose, the study employed mixed methods approach to enable a broader understanding of the phenomena under study, enhancing discussion of the findings. In the first phase of the study, 320 oncology units nurses, were surveyed using the KASRP. In Phase 2, a purposive sample of oncology units nurses was allocated to five focus group discussions, and they were interviewed on different occasions.
In Phase 1, the results of the survey revealed that the oncology units nurses’ knowledge and attitudes towards pain management were far from optimal. The mean correct scores of the KASRP tool were less than 50 per cent (M=45.08), while 77 per cent (n=249) of the participating nurses answered 35 to 55 per cent of answers correctly, indicating low levels of knowledge and attitudes towards pain management. Consequently, the oncology units nurses seemed to have a low level knowledge of pain assessment and management in comparison with international standards (Ferrell & McCaffery, 2012). Such a low score indicates that the participating nurses in the oncology units lacked sufficient knowledge regarding pain management, requiring further training in relation to pain management.

In Phase 2 of the current study, a total of five focus group discussions, using a purposive sampling technique to identify six to eight nurses in each group, were selected. The interviewed nurses were recruited from Phase 1 to identify the perceived barriers to effective pain management practices, and to develop recommendations. A number of barriers were identified, as reported by nurses in the oncology units, including communication barriers, cultural differences, nurses’ workloads, a lack of knowledge, and the absence of health team collaboration; these are discussed in detail in the later section of this chapter.

### 6.3 Demographic and Contextual Profile

In Phase 1 of the study, 320 surveys were completed and returned by the participating nurses, representing a response rate of 80 per cent. The demographic profile of the participants revealed that the frequencies of nurses within each demographic group deviated significantly (p < .001) from the expected equal
proportions in each group. The sample was dominated by female nurses (n = 284, 89%).
Their ages ranged from 24 to 65 years. About three-quarters (n = 236, 73.8%) of the
participating nurses were Asian expatriates of Christian background (n = 272, 85.0%).
The Asian expatriates included Filipino (n = 176, 55.0%) and Indian nurses (n = 90,
28.1%). Less than one-quarter of the nurses (n = 70, 22%) were Muslim, and very few
(n = 23, 7.2%) were Saudi. Highly specialised units, such as oncology units, require
special skills, experience and levels of education. These demographic statistics are
unsurprising as the nursing profession in KSA is a relatively new career. Combined with
nursing staff shortages, the government of KSA is heavily dependent on the expatriate
nursing workforce to fulfil demand (Almalki et al., 2011). This is particularly evident in
critical care areas and specialised hospital units, such as the oncology units included in
the current study.

The participating nurses’ experience in the nursing profession varied widely
from one to 38 years. Almost three-quarters of the participating nurses (74%) had more
than two years of professional experience, while less than half (41.2%) had previously
worked in KSA. Most of the participating nurses (78.4%) had attended specialist courses
related to pain management; however, relatively few (n = 48, 15.0%) had participated in
research, or attended conferences concerned with pain management (n = 104, 32.5%).
Almost all of the surveyed nurses reported they had used a pain assessment scale (n =
314, 98.1%) and/or a pain grading tool (303, 94.7%). Although the present study
revealed an overall relatively poor understanding of pain management among the
participating nurses, some demographic and contextual variables were significant in
relation to the nurses’ knowledge and attitudes towards pain management. These
variables included nurses’ nationality, education and participation in research activities, which are further discussed in the following section.

6.4 Nurses’ Knowledge and Attitudes towards Pain Management

The results of the quantitative part of this study indicate nurses’ levels of knowledge, attitudes and beliefs in relation to pain management practices at KSA hospital oncology units. The analysis of the survey questions of this study revealed that nurses’ knowledge and attitudes towards pain management at these units in KSA were far from optimal. The mean correct scores of KASRP were less than 50 per cent (M=45.08), while 77 per cent (n=249) of the participating nurses answered 35 to 55 per cent of the answers correctly, indicating low levels of knowledge and attitudes towards pain management. In view of that result, participating nurses in KSA seemed to have low levels of knowledge of pain assessment and management, taking into account the recommendations of KASRP authors, who suggest a minimum of 80 per cent as a passing score (Ferrell & McCaffery, 2012). Similar to the current findings, significant lower levels of nurse knowledge and attitudes regarding pain management were reported in a Turkish study (Yildirim et al., 2008). In addition, although all the participants in this study were experienced registered nurses, their mean KASRP score was little more than those achieved by student nurses in Iran (Rahimi-Madiseh, Tavakol & Dennick, 2010), and in Jordan (Al-Khawaldeh et al., 2013). These results supported previous results in KSA hospitals; that the knowledge of pain management among nurses working in KSA is generally deficient (Kaki et al., 2009).

There are a number of possible explanations offered in the literature for this low KASRP score by participating nurses. One explanation is the minimal curriculum
content of pain and pain management in the education and training for nurses (Twycross & Roderique, 2011). On top of this, as identified in Chapter 2, there is a lack of knowledge in nursing textbooks regarding pain assessment and management in most bachelor degree textbooks (Ferrell et al., 2000). Another explanation might be related to the limited specialised continuous education on topics such as pain management skills and updates, as reported by some nurses during focus group discussions. The interviewed nurses disclosed that they needed more courses and training related to pain management practice. This claim is also supported by the results of this study, which demonstrated that only 11.9 per cent (n=38) of the participating nurses attended pain management courses at their hospitals. Nevertheless, the low KASRP score is comparable with other studies done elsewhere in the Middle East (Al-Khawaldeh et al., 2013; Rahimi-Madiseh et al., 2010) and east Asia (Lui et al., 2008; Wang & Tsai, 2010).

The sample of nurses recruited for this study showed considerable racial, cultural, religious and professional diversity, which is typical of the KSA nurse population (Almalki et al., 2011; van Rooyen, Telford-Smith & Strömpl, 2010). Consequently, this study differed from other studies using the KASRP, which focused mainly on culturally homogeneous nurse populations. Significant differences between the mean KASRP scores were identified between nurses from South Africa, the KSA, Middle East, the Philippines and India. Variability in the competencies of nurses has previously been related to cultural factors (Purnell, 2009), and corroborates the findings of this study. As such, nurse nationality in the current study was a significant variable, and differed greatly with respect to the mean correct scores of KASRP (p=0.006). For instance, the Indian and Filipino nurses achieved lower scores (41.9% and 45.9%
respectively) than the nurses from South Africa and other countries (49.6%). These differences indicate possible inconsistency in the undergraduate education of nurses regarding pain management in different countries. In addition, the mean correct answers differed with respect to the educational level of the nurses (diploma or BSc/ MSc). Higher KASRP scores were correlated with higher educational levels. About 34.4 per cent (n=110) of the participating nurses had diplomas in nursing. Thus, it appears that having a higher education (for example, MSc) results in higher scores (M=46.28) on KASRP; nurses with diploma degrees scored lower (M=42.80).

Another significant point is nurse participation in research activities related to pain management. The present study revealed that nurses who had participated in research had a higher pain management score than nurses who had not. The mean KASRP score of the nurses who had attended pain-related courses (45.9%) was 3.8 per cent higher than the nurses who had not attended such courses (p<0.05). The mean KASRP score of the nurses who had participated in research (50.9%) was 7.2 per cent higher than the nurses who had not participated in research. These results are consistent with other studies that linked nurses’ participation in research and courses on pain management with higher KASRP scores (Al-Khawaldeh et al., 2013; Lai et al., 2003). It is therefore beneficial for nurses in the oncology units, as well as their healthcare organisations, to encourage nurse participation in pain-related courses, conferences and research activities. This will increase their knowledge about pain and optimise pain management practice.

Further, the current study distinguished between the nurses’ overall hospital experience and their experience in oncology units. Although there was no statistically
significant difference between years of work experience at the oncology unit and the nurses’ knowledge and attitudes scores, nurses who had worked more than 10 years at the oncology unit scored noticeably lower on KASRP. This result supports and adds to an earlier study conducted in Turkey by Yildirim et al. (2008), which concluded that nurses with more than 10 years of professional experience scored the lowest on the KASRP tool. However, other studies conducted in Asia reported contradictory findings; that the KASRP score correlated positively with professional nursing experience (Lai et al., 2003; Lui et al., 2008; Tse & Chan, 2004). Similarly, McCaffery and Robinson (2002) and Rieman and Gordon (2007) reported a positive relationship between years of professional experience and nurses’ knowledge and attitudes towards pain management practice. It is not clear whether years of nursing experience would continue to be correlated with higher scores of knowledge and attitudes towards pain beyond 10 years of professional nursing experience. Further studies may need to examine the association between nursing experience and their level of knowledge on pain management to better explain the correlation.

It has been recognised that many nurses prefer to acquire and develop their practice knowledge of patient care through personal work experience, rather than through formal training and educational interventions (Berragan, 2013). Consequently, it could be argued that nurses in KSA should acquire and develop their knowledge and attitudes towards pain management through personal work experience. It has also been suggested that nurses’ competencies in effective pain assessment and management should ideally be centred on research-based experience (Barr et al., 2013). The finding of this study—that is, that the nurses who participated in research achieved significantly
higher KASRP scores than the nurses who did not—was therefore salutary. As nurses who participate in research may acquire and develop more knowledge than nurses with limited or no involvement in research, the participation of nurses in research projects may be a vehicle for knowledge generation (Tranmer, Lochhaus & Lam, 2002). These findings provide a challenge for KSA hospitals to provide managerial and organisational support, promoting the more active participation of the nurses in research. However, realistically this may not be possible, because not all nurses may want, or be able, to participate in research.

A contradictory point was identified between the nurses’ knowledge and attitudes and their actual clinical practice. Although the participating nurses accepted that the most accurate judge of pain intensity is the patient (71.3%, n=228), about half of the participating nurses (46.6%, n= 149) believed that giving patients sterile water (placebo) was a useful test to determine if the pain was real or not. This finding revealed a discrepancy between the nurses’ attitudes and the actual clinical practice, which encouraged patients to tolerate their pain more. However, this practice may have led nurses in the oncology units to underestimate patients’ evaluations of their pain. The participating nurses reported, during the group discussions, that they feared patients’ addiction to the drugs. Some nurses referred to the strict narcotics policy in their hospital, which necessitated a long process between prescribing and dispensing. It is possible that the oncology units nurses may have tried to test patients’ pain by administering a placebo and would only administer the prescribed narcotics when they were fully convinced of the intensity of pain. Considering the workload in oncology units, nurses may have intended to avoid the lengthy processing and ordering of
narcotics and the associated paper work, as they reported during the interviews. The surrounding environment may have influenced this attitude. According to the TRA, outcome behaviour results from conclusions formed based on previous experiences with similar situations. The influence of social pressure factors is immense in such scenarios in KSA, where nurses consider colleagues and other healthcare professionals; that indeed affects their decisions (intention) and therefore their behaviour (Ajzen, 2005).

Notably, the items least likely to be answered correctly by the participating nurses were related to knowledge of pharmacologic pain medications (dose, recommended route of administration, and fear of addiction). These results were consistent with findings reported by earlier studies (Bernardi et al., 2007; Lewthwaite et al. 2011; Yildirim et al., 2008). Fear of addiction is one of the most common reasons reported by nurses to withdraw or limit opioid administration (Beck, 2000; Edrington, et al., 2009; Finley et al., 2008; Randall-David, 2003;). For example, the current results demonstrated that 29.4 per cent (n=94) of the participating nurses believed that opioids should not be used for patients with a history of substance abuse. Similarly, when interviewed in the current study, nurses in the oncology units expressed their fear about addiction, especially for those cancer patients who needed continuous infusions and frequent doses of opioids. Obviously this shows the nurses’ lack of knowledge about pain management. This result was congruent with Broekmans, Vanderschveren, Morlion, Kumar and Evers’s (2004) study in Belgium, of 350 nurses’ attitudes towards pain management with opioids. These nurses too had irrational fears related to the use of opioids, because of the risk of addiction. Finley, Forgeron and Arnaout (2008) also drew similar conclusions in their study at a cancer centre in Jordan. These authors determined
that health professionals had poor knowledge about the meaning of addiction, and had a prevailing fear of opioid addiction that restrained their use. Such erroneous knowledge meant that their patients felt compelled to lie about their pain, and they failed to receive the analgesics they deserved.

It is important to mention that symptomatic treatment of cancer pain aims to keep patients pain free. As a patient may have progressive disease, it is expected that pain will increase. Therefore, cancer patients need regular analgesia to control their pain and doses should be modified according to the individual patient’s response. WHO (1986) has published international guidelines for the management of cancer pain, guided by an analgesic ladder which comprises a step-wise approach to pain relief (McMahon, Koltzenburg, Tracey & Turk, 2013). At each step, revision and changes should be made daily to the prescribed pain relief medication. If the cancer patient’s condition requires strong opioids, the recommended choice is oral morphine, prescribed four-hourly at a standard starting dose of 5–10 mg per dose. This dose can be modified each day until the pain is relieved (The British Society of Pain, 2013). Patients and healthcare providers may have misconceptions about addiction; accordingly, patients need to be reassured that they will not become dependent on morphine and to understand that being prescribed morphine does not infer they are at the end of their life (Department of Health, Social Services and Public Safety, 2003).

Overall, the findings of this study revealed that many nurses working at oncology units in KSA have knowledge deficits and incorrect beliefs about pain assessments, similar to those found elsewhere in the Middle East (Al-Khawaldeh et al., 2013; Rahimi-Madesh, Tavakol & Dennick, 2010) and east Asia (Lui et al., 2008; Tse &
Chan, 2004; Wang & Tsai, 2010). Many of the questions that the nurses answered incorrectly involved making value judgements rather than providing factual answers concerning analgesic administration, including how they would evaluate the level of a patient’s pain, and deciding upon the course of action that they would take in response to a given pain management situation. For example, most of the nurses: (a) would assess the pain of a smiling patient to be less than that of a grimacing patient, even though their pain scores were the same; (b) believed it was likely that patients who developed pain already had an alcohol and/or drug abuse problem; (c) believed that opioids should not be used in patients with a history of substance abuse.

It is clear there is an urgent need to develop the practice knowledge of nurses working in the oncology units with respect to pain management in the KSA health sector and elsewhere. Otherwise, patients might be treated ineffectively for pain, which in turn might lead to an increase in patient stress and their dissatisfaction with nursing care. The hospital management is challenged to provide managerial and organisational support to promote the continuing education of nurses to correct their deficiencies. Although 78.4 per cent of the nurses in this study had attended pain-related courses, the effect of this on knowledge and attitudes regarding pain management was minimal. The mean KASRP score of the nurses who attended such courses was only 3.8 per cent higher than in the nurses who had not. As traditional formal courses are not necessarily an effective solution, new evidence-based educational interventions have been developed throughout the world in the last five years to improve nurses’ knowledge and attitudes in relation to pain management. Modern programmes have been implemented in Australia (Williams et al., 2012), the USA (Schreiber et al., 2014; Thomas et al., 2012), Sweden (Borglin et al., 2012), and elsewhere.
al., 2011) and Germany (Jahn et al., 2010); however, no similar programmes have been developed in KSA, suggesting considerable room for local improvement.

6.5 Barriers Influencing the Delivery of Effective Pain Management

The qualitative analysis of focus group discussions revealed five categories that represent the perceived barriers that the oncology units nurses had in relation to the delivery of effective pain management. These categories were: the communication barrier, cultural differences, nurses’ workload, lack of knowledge, and absence of health team collaboration. The following subsections present a discussion of each of these categories.

6.5.1 Communication barriers.

The focus group data revealed that communication formed a major barrier to effective pain assessment and management in KSA oncology units. One of the biggest reasons for this communication barrier was that most nurses were not native Arabic speakers. The statistics showed that KSA is extensively dependent on foreign nurses; 73 per cent of the total nursing workforce is foreign, with the majority of nurses originating from the Philippines and India. Similarly in the current study, the majority of participants were Filipino (55.0%) and Indian nurses (28.1%); very few (7.2%) were from KSA.

According to McCaffery and Pasero (2002), pain is a subjective experience and, consequently, a patient’s self-report is the most reliable indicator for assessing the pain. Although the participants in this study agreed that verbal communication between patients and nurses was vital for pain assessment, especially among cancer patients, being a non-Arabic nurse was identified by the participants as an obstacle to identifying
the characteristics of pain, such as pain quality and intensity. Indeed, the literature review revealed that the most common reason for the under-treatment of pain was the failure of healthcare providers to correctly assess pain. This was due mainly to the underestimation of pain intensity (Manias, 2003; Dihle, Bjölseth & Helseth, 2006; Qadri, Abdulrahim, Majali, Stomberg & Bergbom, 2012). For example, Manias (2003) conducted a study aimed at examining prescription and administering practices for sedative and analgesic therapy post-operatively, and to audit nurses’ documentation for pain management. The results of Manias’ (2003) study revealed that patients were prescribed fixed-order analgesics that were not appropriate to the patients’ intensity of pain. In addition, the majority of nurses did not document any information about pain assessment and pain drug administration and outcomes. Similar findings occurred in a recent study conducted by Qadri and colleagues (2012), who assessed the quality of the nurses’ pain assessment using a numerical rating scale from 0 (no pain) to 10 (greatest pain). The results confirmed that the nurses were not accurate in assessing patients’ pain and tended to underestimate patients’ pain intensity.

The language barrier also appears to affect the communication of pain experiences, even for nurses who are Arabic speakers, but who do not originate from KSA. The patients’ use of slang (informal Arabic language) results in misinterpretations of the words or phrases used by Saudi cancer patients. The problem is exacerbated when the Saudi nurses are asked to translate the patients’ words in English for the expatriate nurses. The results are often misinterpretations and misunderstandings from an incorrect translation. As a result, the pain level assessment will be less accurate and, consequently, improper pain management will be provided.
From the data, it is evident that the communication barriers also extended to patients’ families. Although the nurses understood the importance of communication with the patient’s family (to help the patient understand the pain management process), nurses faced the same language problem and the same misinterpretation of the information being received from the patient about his complaint of pain. Several studies (Fatahi, Hellström, Skott & Mattsson, 2008; Fatahi, Mattsson, Lundgren & Hellström, 2010) have described the problem of involving family members in conveying information related to the patient’s expression of pain. Further, there is also the problem of an incorrect translation, and the patient avoiding his or her sharing of sensitive personal information to the family who are translating. Hence, important data may not be disclosed to the nurses when the family is present. In the literature, controversial views were noted regarding the use of family members as interpreters. Addressing the family interpreter instead of the patient saves time—he or she can provide additional information that the patient is unable to recall, and is not costly—however, their presence may hinder communicating sensitive topics, such as family violence and drug abuse, and the quality of the translation is not assured when it relates to subjective experiences such as pain (Flores, 2006; Meyer, Bührig, Kliche & Pawlack, 2010). The use of professional certified medical interpreters is recommended to solve the interpretation problem as they can be more objective, accurate in translation, and knowledgeable about medical terminology (Mátir & Willis, 2004).

The lack of effective communication strategies with patients and families can, therefore, hinder the management of the patient’s pain (McLennon, Uhrich, Lasiter, Chamness, & Helft, 2013). If patients do not receive appropriate treatment to relieve
their pain, they may experience states of anxiety, depression or anger. Eventually, they learn to mask their symptoms of pain. The end result is inadequate pain assessment by the healthcare professionals (Lewthwaite et al., 2011). For cancer patients, their pain treatment is symptomatic of the goal of effective pain relief and the maintenance of the patient’s quality of life. Therefore, if the pain is not treated sufficiently, the patient’s diminished quality of life will increase with the progression of the disease (Schenk, Urnauer, Schug, Jaehnichen & Harper, 2008). To prevent this communication barrier, nurses should adopt patient-centred communication that emphasises the individualisation of care, leading to enhanced pain control (Price, Windish, Magaziner & Cooper, 2008). However, some healthcare providers may find this approach difficult and time consuming, especially in circumstances where language is as a barrier to communication, as discussed earlier.

**6.5.2 Cultural differences.**

The second barrier—cultural differences—was also found to influence the nurses’ effective pain management practices. Culture has been defined as the ‘knowledge, beliefs, behaviours, ideas, attitudes, values, habits, customs, languages, symbols, rituals, ceremonies, and practices that are unique to a particular group of people’ (Purnell & Paulanka, 1998, p. 4). Differences are found among individuals from different cultural groups and among individuals within a single culture. Importantly, culture explains how individuals perceive their health; how information provided by healthcare worker is received by the patient; how individuals define the health problem; and how they express the symptoms of a disease. According to Ross and Deverell
(2004), different cultures allot different meanings to health and wellness that determine how to act in a time of illness.

The participating nurses in the focus group discussions clarified their view of the influence of culture in regard to optimal pain management. This topic was discussed with two main aspects: patients’ adherence to therapy, and beliefs about healthcare practices. The first aspect (patients’ adherence to therapy) explains why Saudi patients do not comply with the prescribed therapy. In this instance, as explained by the nurses, patients in KSA prefer to consult religious advisors about the treatment of their disease, rather than follow medical advice. This approach is understandable in a nation like KSA, where the national constitution is governed by the laws of the country, and these laws are directed by the holy Quraan (words of God as revealed to the Prophet Mohammad) and the Shariah (Islamic laws). Further, the model of Saudi life is presented by the Sunnah, which reflects the Prophet Mohammad’s (peace be upon him) sayings, actions, behaviours and sanctions (Al-Rasheed, 2010).

Since 100 per cent of Saudi citizens are Muslim, Islamic culture has a great effect on the Saudi people’s life style. This way of living is reflected clearly in the people’s everyday living practices, including their diet, dress, interpersonal relationships, spiritual and religious activities, and their responses to alterations in health problems. The Islamic culture, in this perspective, includes faith in God and the belief that the holy book (Noble Qur’an) is the highest authority for information on Islam, followed by Sunnah. In other words, the Islamic religion is a comprehensive way of life that infuses all features of Saudi culture (Ham, 2004).
However, Saudis may differ in their understanding and interpretation of Islamic rules. For example, reading the Islamic verses from the holy book may contribute to fostering the healing process of a disease. Additionally, it never implies avoiding seeking the appropriate medical help to treat the disease and its symptoms. On the contrary, the Islamic doctrine encourages people to relieve their suffering and to consider the human body as a gift from God that should be protected against harm (Aldossary et al., 2008).

The work of Mutair, Plummer, O’Brien and Clerehan (2014) highlights the issues that non-Saudi nurses should be aware of when caring for Saudi patients and their families. They emphasised that healthcare providers have a duty to deliver holistic and culturally competent health care, and that patients have the right to receive appropriate care from healthcare professionals. This task is made more difficult when non-Saudi nurses do not understand the Islamic principles and Saudi cultural beliefs and values.

The results of the current study indicated that some Saudi patients have different perceptions about pain and its causes. For example, they thought that pain and cancer resulted from the evil eye, or that it happened as a punishment from God (Allah). As a consequence, some patients refused to take medication and would rather suffer from illness and pain if they felt guilty. In such a situation, they perceived themselves as deserving God’s punishment; therefore, they needed to sustain pain and by doing this, wash away their sins. In other cases, some patients avoid telling the truth when asked about the intensity of the pain, because of their fears about addiction to pain killers. To those patients, as reported by nurses in the focus group discussions, opioids are a forbidden drug in Islamic culture, and are considered to be ‘Haram’. Patients’ false
perceptions about pain affects the nurses, and how they manage the patient’s pain. Such an outcome is not surprising as most nurses were from different cultures. The result can be that nurses were unable to play their role in appropriately applying scientific knowledge and practices to the relief of pain. Not unexpectedly, the nurses felt that they had no authority to change their patients’ beliefs or attitudes towards pain management. Further, they found it difficult to persuade patients to follow the prescribed medication, especially when they were opioids.

This barrier becomes more of an obstacle to effective pain management when the patient’s family fosters the false perceptions alleged by the patient. The family’s fears about drug addiction encourages them to interfere with the nurses’ job of delivering pain medication; thus, there is a delay in the therapy and an increase in the patient’s intensity of pain. It seems that Saudi patients, who refuse to take opioids, are misled by this perception and by the lack of knowledge regarding the use of analgesia and the incidence of addiction. However, this is their belief.

Many studies (Abdalrahim et al., 2010; Qadri et al., 2012; Voshall, Dunn & Shelestak, 2013) have revealed the fears of opioid addiction among patients and healthcare providers. Opioids are narcotics used in the treatment of pain; they are associated with tolerance, which is often confused with addiction. While tolerance is the reduced effect of an equivalent dose (or the required dose) to achieve the same effect, addiction is characterised by drug-seeking behaviour, compulsive use, sudden withdrawal reactions, non-compliance with suggested opioid changes and craving. It is a genetic, behavioural, and physiological state that occurs in a minority of people who misuse opioids (The British Society of Pain, 2013).
In contrast, nurses in this study worked with cancer patients where the pain experience varied extensively among different types of cancer. Usually, cancer pain is related to various causes, such as from the tumour or from treatment modalities used to manage cancer. It can involve the bones, viscera or nerves (McMahon & Koltzenburg, 2013). Cancer pain is more prevalent in the disease’s later stages when therapy such as surgery and chemotherapy no longer affect the spread of cancerous cells (Holdcroft & Jaggar, 2005). This variation of pain experience in cancer patients may add to the worries of Saudi patients and their families, aggravating their fears of addition, especially when additional doses of opioids are prescribed to relieve the patient’s pain. The National Comprehensive Cancer Network (NCCN) sets clinical practice guidelines related to opioid prescribing, titration, and maintenance, which healthcare professionals in oncology units can follow (NCCN, 2008).

The second aspect related to the cultural issues around pain management is the healthcare practices that Saudi oncology patients follow to relieve their pain. Some cancer patients in KSA try to manage their pain by reading verses from the holy Quran. They believe that reading the holy Quran will reduce their pain and possibly heal their cancer. Other healing practices include eating food mentioned in the holy book, such as dates, olive oil and honey (Haquea & Keshavarzib, 2014; Zaid, Silbermann, Ben-Arye & Saad, 2012). Although these practices might help patients, they should not replace opioids as medication to kill the pain.

Nurses who came originally from the same cultural background understand the patients’ notions. Those nurses support and respect the patients’ religious beliefs, and showed their respect by asking for, or providing, spiritual support. However, nurses—
either from the patient’s culture or from a different culture—found themselves in an ethical dilemma. On the one hand, they wanted to respect the patient’s cultural values and beliefs, but they also wanted to relieve the patients’ suffering; further, they wanted to apply what they had learnt about the effects of analgesia to combat the myths that might hinder effective pain management. Thus, the establishment of effective analgesia entails sensitivity to cultural practices and to the patients’ beliefs. However, the pain needs to be assessed and managed on an individual basis, rather than on the basis of what is expected in a patients’ culture or background, and with respect to the individual (Macintyre, Schug, Scott, Visser & Walker, 2010). Narayan (2010) reviewed 13 studies that focused on the effect of culture on pain management and why nurses should use culturally sensitive care. The author concluded that nurses must consider the cultural influence on patient’s perceptions and behaviours regarding pain management.

6.5.3 Nurses’ workloads.

The third barrier that influenced the effective pain management practices of nurses, as discussed frequently by the focus group, was the nurses’ workload. Nurses in KSA oncology units have heavy workloads, due to the limited number of nurses working in the hospitals. According to the participating nurses in this study, the high work load influenced their ability to provide high quality pain management, as reflected by their practice. This included delaying the administration of pain medication, the lack of patient teaching, neglecting patients’ complaints of pain, and poor documentation of pain assessment and management. The main reason for these omissions was that these techniques were time consuming. In addition, the nurses did not use non-pharmacological techniques as supportive care for pain management. Non-
pharmacological techniques, often described in the literature as complementary therapies, are used as adjuvant therapy for pharmacological therapy for pain relief. They include massage, music therapy, relaxation techniques, herbal medicines and acupuncture (Ernst, Pittler, Wider & Boddy, 2007). Non-pharmacological techniques can maximise the effect of pharmacologic therapy and reduce its side effects. However, they should be used to supplement cancer patients’ pain medication and not to replace it. There is little evidence that they are effective in controlling cancer pain (Holdcroft & Jaggar, 2005).

The result is that nurses identified a dilemma. They understood the importance of relieving patients’ pain; however, they failed to achieve this outcome by not working efficiently. As a consequence, nurses became dissatisfied and frustrated with the pain management care they were giving to patients. In turn, this resulted in nurses adopting negative attitudes towards cancer patients with pain. Thus, they left the patient with sub-optimal pain management. This is understandable, as there are many factors that may contribute to sub-optimal delivery of effective pain management to patients in oncology units: difficulties communicating with the patient, the need to get someone to interpret the patient’s complaints of pain, and the delay in giving the prescribed medication due to the pharmacy system. As a result, nurses perceived the need for a reduction in the workload of nurses working in the oncology units by increasing their work force.

The nursing shortage problem in KSA was reflected in the MoH’s (2011) report. This report stated that the yearly number of Saudi nursing graduates (which represents 27% of the total nurses in the KSA) was insufficient to meet healthcare demands (MoH, 2011). Further, the demand for nurses is expected to increase annually from the 65,000
present in 1998 to 120,000 in 2020. Consequently, the number of hospital beds will need to increase (from the 45,000 available in 1998) to 87,000 by 2020 (Gazzaz & Sayed, 2014). Accordingly, it has been estimated that the KSA requires at least 25 years meeting only 30 per cent of its national needs from the Saudi nurses (Aldossary et al., 2008).

Kingma (2007) conducted a global review that looked at nursing migration flows all over the world; the author found that the heavy workload for nurses was ranked among the most important barriers to nurse-patient communication (Kingma, 2007). Al-Khalaileh and Al Qadire (2012) conducted a survey of nurses in Jordan to explore barriers to cancer pain management. The results of their study revealed that nurses expressed high levels of communication difficulties between patients and healthcare providers; this was perceived as a major barrier to effective pain management.

Other important barriers impacting upon nurses’ retention in KSA hospitals, such as increasing nurses’ salaries, improving their working environment, and increasing the number of Saudi nurses entering the work force, need to be overcome to improve the employment and retention of Saudi nurses (Al-Mahmoud et al., 2012; El-Gilany & Al-Wehady, 2001). However, cultural issues related to the image of nursing may stand in the way of female nurses enrolling in nursing in KSA. These are related to the social restraints of working long hours, working night shifts, and women not being permitted to drive in KSA (Miller-Rosser, Chapman & Francis, 2006).

In addition, the shortage of nurses in KSA could be related to nursing burnout, and nurses leaving their jobs. A number of studies have investigated why nurses leave their jobs in KSA. Significant predictors to leave nursing included: dissatisfaction with
their job (67.1%) (Al Juhaani & Kishk, 2006), and dissatisfaction with supervisors’ leadership style and work conditions (Zaghloul, Al-Hussaini & AL-Bassam, 2008), while organisational commitment was strongly linked with job performance (Al-Ahmadi, 2009).

It is not just in the KSA that the shortage of nurses in hospitals is problematic; it is a global problem. For example, in Canada, long working hours and a lack of social support were listed as the major reasons for the nurses quitting their jobs (Lavoie-Tremblay et al., 2008). Similarly, in the USA, too much stress and the sense of too much responsibility were the main reasons for changing jobs (Deppoliti, 2008). An Iranian study by Anoosheh, Zarkhah, Faghihzadeh and Vaismoradi (2009) indicated that a high increased workload and nursing tasks beyond the nurses’ expectations, and a low ratio of nurses to patients, were conditions that influenced the quality of nursing care.

Thus, healthcare institutions need to adopt strategies to support and improve nurses’ satisfaction so they can be retained in their nursing career. Potentially positive strategies include decreased workloads, competitive salaries, improved nursing autonomy, and greater administrative support (Hayes, Bonner & Pryor, 2010).

The current study is important as it highlights (especially to hospital administration) what is needed to ensure nursing care within hospitals is adequate and appropriate to meet the needs of the patients, at least for the next two decades. Thus, hospital administrators need to become familiar with the results of this study and re-evaluate their policies and regulations in regard to the recruitment of nurses, especially in sensitive settings such as oncology units. They also need to identify the factors that contribute to nursing shortages and the negative perceptions of nurses; for example, in
regard to workloads in oncology units. As Carayon and Gürses (2005) indicated, nursing workloads are a significant determinant of patient safety, as a high workload is associated with increased errors and adverse events.

6.5.4 Lack of knowledge.

The finding obtained from the analysis of survey questions in this study revealed that the participating nurses lacked knowledge in regard to cancer patients’ pain in KSA hospital oncology units. The participating nurses exhibited a low level of knowledge of pain management, mainly the information relating to pharmacologic pain therapy such as opioid use. This was significant among nurses with lower educational levels, and who did not use evidence-based knowledge in their practice. Additionally, the quantitative data revealed that nurses still had misconceptions about the use of placebo techniques to determine if the patient’s pain was real or not.

The knowledge and attitudes of healthcare professionals towards pain assessment was also identified as a significant barrier for the delivery of optimal care among participants of the focus group discussions. This specifically related to inadequate knowledge about the interventions of a pain assessment, the inability to use validated pain assessment tools, and the lack of continuity of care. This was supported by many recent studies in the region (Kaki, Daghistani & Msabeh, 2009, Yava et al., 2013). For example, Kaki, Daghistani and Msabeh (2009) conducted a survey study in the KSA that assessed 300 nurses’ knowledge of acute pain management at one hospital in Jeddah. The main topics tested in the study were patient self-report of pain as a main indicator of pain intensity, the need to increase opioid doses when the first dose had been safe but ineffective, and nurses’ attitudes towards the incidence of addiction,
tolerance, and physical dependence. The results showed that the nurses lacked knowledge in relation to the three examined topics.

Further, nurses in the focus group discussion referred to their lack of knowledge related to the nature of cancer pain, and the pain assessment tools, as a major barrier for effective pain management in KSA oncology units. They expressed their need for continuing education to improve their knowledge in how to assess patients’ pain, using appropriate pain assessment tools, especially with unconscious patients. The nurses were fully aware of the need for continuing education programmes to overcome the lack of knowledge barrier. However, they reported finding it difficult to attend available educational courses because they were exhausted from their heavy workloads and because these courses were held on a continuous basis, such as a monthly schedule. This situation resulted in an ethical dilemma; the nurses knew the correct interventions for their patients, but they did not have the skills to apply them; neither were they able to attend the necessary education courses to learn them. There appears to be a discrepancy between what the nurses say about pain management and their actions concerning pain management practices (Abdalrahim et al., 2010; Dihle et al., 2006; Layman Young, Horton & Davidhizer, 2006). Similar results have been described by Ferrell (2005), who found that nurses could not practice the good care of patients even though they understood that patients suffered from pain.

6.5.5 Absence of health team collaboration.

The healthcare institution’s organisational system frequently imposed constraints that hindered effective pain management. One possible explanation for this might be the absence of clear mandatory protocols for pain management, improper procedures for
prescribing and administering analgesia, or the absence of healthcare professional team collaboration (Carr, 2007). The analysis of the participants’ responses in the current focus group discussions revealed there was no collaboration among the healthcare professionals; this situation strongly affected the nurses’ attitudes towards pain management at oncology units in KSA. While some KSA hospitals have written policies and guidelines regarding pharmacological pain management, many barriers in the system prevent these guidelines from being appropriately applied. For example, the unavailability of physicians to write prescriptions for opioids hinders nurses’ ability to administer pain medication on time. Further, physicians in KSA oncology units prescribe pain relief medication as a ‘need’ order (that is, if necessary), rather than as regular medication. According to the APS’s (2005) guidelines for treating acute and chronic cancer pain, analgesics should be administered on a scheduled basis (around the clock prescription) rather than when the client asks for pain killers. The rationale for this regular drug administration is to maintain therapeutic levels of the drug in the bloodstream, which guarantees a pain free state with minimal side effects (Gordon, et.al, 2005).

Additionally, there tends to be a lengthy protocol to be followed each time there is a new prescription for patients to obtain narcotic medication from the pharmacist, which is located outside the oncology unit. This was evident from the focus group discussions that clarified a lack of access to medication in the pharmacy, with nurses waiting about 40 minutes to get opioid medication. This surely forms another barrier in managing cancer patients’ pain in a timely manner. Thus, healthcare professionals seem unaware of, or ignore, the harmful effects of delaying the treatment of pain. Recent
research by McCaffery and Robinson (2002) has shown that taking opioids rarely causes addiction (less than 2% of cases). In contrast, unalleviated pain can cause multiple physical harm for patients, such as cardiovascular, respiratory, gastrointestinal and immunity dysfunction, in addition to the psychological problems of depression, anxiety and irritability. Evidence showed that pain causes tissue injury and activates physiological stress responses, which have many adverse effects. For example, stress responses will increase the heart rate, vascular resistance, blood pressure, and myocardial oxygen demand. In turn, this may cause unstable angina and possibly myocardial infarction (APS, 2007). Thus, physiological consequences of inadequate pain relief should be considered when treating cancer patients’ pain, rather than continuing with a misconception about drug abuse.

Earlier studies have consistently found results similar to the current study; namely, the negative consequences of inadequate cooperation by physicians and the improper prescription of pain relief medication (Egan & Cornally, 2013; Kaasalainen et al., 2010). Additionally, the present study’s findings in relation to the lack of communication between members of the multi-disciplinary team on delaying adequate pain management was congruent with the findings of Berben et al. (2012).

Similar findings came from an ethnography study undertaken by Aziato and Adejumo (2014), who interviewed 12 Ghanaian nurses caring for surgical patients. The study found that organisational factors influenced the nurses’ responses to pain, including organisational negligence and the challenges of teamwork. This study found that ineffective supervision and accountability contributed to irregular analgesic administration.
As noted previously by the current findings, previously referenced research, and identified within Aziato and Adejumo’s study, institutional barriers to pain management occur in the Middle East. For example, Abdalrahim, Majali and Bergbom (2010) found that experienced nurses in Jordan, who tried to act as a patient advocate in pain management, were ignored by the physicians; the physicians disregarded the nurses’ notes, and refused to listen to their judgements. Nurses were more likely to have an understanding of the patients’ needs and what worked for them, as they provide care at the bedside 24 hours a day. This outcome flies in the face of research which determined that collaborative and supportive teamwork among healthcare team members was the key to effective pain management of oncology patients (San Martin-Rodriguez, D’Amour & Leduc, 2008). In their deliberations, Kaasalainen et al. (2010) emphasised the importance of formulating a trusting, concerted relationship among healthcare professionals, especially between nurses and physicians, to optimise pain management practices.

6.6 Critique of the Theoretical Background

The present study used the TRA as the conceptual framework. The TRA is a cognitive, socio-psychology-based theory that makes connections between individuals’ beliefs, attitudes, social norms and behaviour (Ajzen & Fishbein, 1980). The theory postulates that a person’s behavioural action is the consequence of their intention, which was formed and developed over time. According to this model, two main determinants of a person’s behaviour that can shape it include the attitudes of the person and the subjective norms, as illustrated in Figure 6.1. Attitudes refer to the personal tendency
and belief about the act, whereas subjective norms refer to others and how they are
going to perceive and respond to the intended action.

![Diagram of the Theory of Reasoned Action (TRA)](image)

*Figure 6.1. Highlights of the TRA main determinants of individuals’ intentions and
behaviour (Ajzen & Fishbein, 1980).*

The TRA, as the theoretical background of the current study, was very useful in
highlighting certain variables, especially those related to individual factors responsible
for the nurses’ behaviour. It has guided and enriched the understanding of the
correlations and enhanced justification of the findings. In addition, the model was
valuable when enabling a psychological map to be drawn of the associated variables
related to the current study, while maximising the researcher’s understanding of
complex phenomena. In preparing and developing the focus group discussion, the TRA
allowed a richer discussion with participants as it connected and linked participants’
attitudes and behaviour, which provided a platform generating further questions and led
to in depth justification. For example, in the present study the subjective norm, which is
the work place in this case, was most influential on the nurses’ attitudes. Thus, most of
the participating nurses’ reasoning, when asked, indicated factors related to work place
regulations, policies or limitations. This has led to the conclusion that hospitals, as work
place settings, have a paramount influence on the nurses’ attitudes and consequently
their behaviours. The nurses working in the oncology units arguably consider other
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colleagues’ preferences and work place norms (subjective norms) in clinical practice far beyond their own beliefs or preferences. In general, the TRA was helpful in explaining the nurses’ behaviours and attitudes and how their intentions and actions came about.

A major criticism of the TRA is its individualistic nature; it focuses on individual’s actions as opposed to the groups they are a member of (Dutta-Bergman, 2005). In addition, the TRA in the present study failed to fully capture the dynamic socio-cultural complexities of the nurses, and the hospitals where they worked. Although the TRA could be useful to explain and predict behaviour based on an individual’s beliefs (Fishbein & Ajzen, 2011), the theory does not incorporate the cultural and the organisational factors of groups as direct contributors to attitudes. However, the model proposed here places these powerful factors as background effects. Accordingly, the TRA appeared to be too rational, by not directly considering cultural and organisational factors that value certain order, obligations, consideration and other non-cognitive determinants of human behaviour (Armitage, Conner & Norman, 1999). To be better integrated with the current study, the theoretical model should carefully consider the socio-cultural diversity of the groups and the organisational structure, including the relationships among the groups, as direct contributors towards nurses’ attitudes and behaviours.

6.7 Chapter Summary

This chapter has discussed the significant findings of the study in light of the research questions and objectives. The significant findings related to pain management practice derived from the quantitative and qualitative data analysis were critiqued, elaborated upon and discussed within the oncology nursing practice in KSA. There is a
growing demand to optimise pain management practices among healthcare professionals and healthcare organisations, due to the significance of pain control in health restoration, palliation or end-of-life care. However, the participating nurses in this study showed sub-optimal standards in assessing and managing pain. A number of pain management barriers have been identified. Those barriers could be the vehicle to alert decision makers, nursing directors and unit managers to drive change and enhance pain management practices in KSA.
Chapter 7: Conclusion

7.1 Introduction

This study has provided an insight into nurses’ knowledge and attitudes working in KSA hospital oncology units. Inclusively, the results of this study have revealed considerable knowledge deficiency and multiple barriers that nurses in oncology units face while providing care for patients with cancer. In time, these knowledge deficits and barriers may have negative impacts on the delivery of effective nursing care to patients with cancer, and result in a poor quality of life. This chapter presents the strengths of this study and its implications for nursing practice, administration, education and future research. In addition, the limitations of this study will be presented at the end of this chapter.

7.2 Overview of the Study

Globally, the literature review agrees with the findings of the current study: that pain has often been poorly assessed and inadequately managed. In the KSA, the situation was not clear because there is a lack of published studies identifying the prevalence of pain in healthcare settings, and the level of nurses’ knowledge regarding pain management (mainly in a sensitive population such as patients with cancer). This study has explored nurses’ knowledge, attitudes and beliefs regarding pain management practices in KSA oncology units. It has identified the barriers to effective pain management. Thus, this will positively enhance the quality of life of patients with cancer, and decrease admission rates to hospitals and medical costs.
The nurses participating in the current study encountered many barriers when providing care for patients suffering pain in oncology units; specifically, those from different cultural backgrounds. This study highlights important issues to be considered in hospital settings that recruit healthcare providers of diverse nationalities, such as in the KSA. The explored barriers, as perceived by the nurses in oncology units, who shared their experiences through the focus group discussions, will help nursing educators to focus more on cancer-related pain topics in their curricula or designed programmes.

The main purpose of this study was to explore the knowledge, attitudes and beliefs of nurses working in KSA hospital oncology units. To achieve this purpose, the study employed mixed methods approach, enabling a broader understanding of the phenomena under study, and enhancing discussion of the findings. The critical features of the triangulation approach were that quantitative and qualitative data from different sources were integrated to address the research questions and meet the study objectives; thus, providing a holistic view.

### 7.3 Summary of the Study Findings

The study comprised two phases that addressed the knowledge, attitudes and beliefs of nurses working in KSA hospital oncology units, in addition to the perceived barriers to effective pain management. In the first phase of the study, 320 nurses working at KSA oncology units were surveyed using the KASRP. In Phase 2, a purposive sample of nurses from the selected oncology units was allocated to five focus group discussions, who were interviewed on different occasions.
In Phase 1, the results of the survey revealed that the participating nurses’ knowledge and attitudes towards pain management were far from optimal. The mean correct scores of the KASRP tool was less than 50 per cent (M=45.08), while 77 per cent (n=249) of the participating nurses answered 35 to 55 per cent of the answers correctly, indicating low levels of knowledge and attitudes towards pain management. Consequently, the participating oncology units nurses seemed to have low levels of knowledge regarding pain assessment and management, in comparison with international standards (Ferrell & McCaffery, 2012). Such a low score indicates that the participating nurses in the oncology units lacked sufficient knowledge regarding pain management, and needed further training in relation to pain management.

In Phase 2 of the current study, five focus group discussions, using a purposive sampling technique to identify six to eight nurses in each group, were selected. The interviewed nurses were recruited from Phase 1 to identify the perceived barriers to effective pain management practices and to develop recommendations. A number of barriers were identified, as reported by nurses in oncology units, including communication barriers, cultural differences, nurses’ workloads, lack of knowledge, and absence of health team collaboration.

7.4 Strengths of the Study

This study was conducted with nurses currently working in oncology units in KSA, providing care for cancer patients at the time of data collection. Therefore, the study is highly related to present evidence-based practice, which helps to unveil issues that need special attention and proper solutions. In addition, a relatively high response rate (80 %, n = 320) was achieved in the quantitative phase of this study, indicating the
perceived significance of the studied problem to the participants. In addition, nurses who participated in the focus group discussions (expressing their opinions about the barriers that hindered the delivery of effective pain management to patients in oncology units) were willing to participate in the discussions and provided a rich data about the subject under study.

Using a triangulation (mixed methods) approach to collect data is one of this study’s main strengths. Using this approach integrates the results elucidated from the quantitative and qualitative methods and provides a better and more holistic understanding of the pain management phenomena (Speziale et al., 2011). The employment of mixed methods approach has helped to explore a range of different aspects within a single study; thus, generation of a significant amount of data is more possible than when using a single-method approach (Daymon & Holloway, 2010).

The results of the quantitative part of this study revealed gaps in nurses’ knowledge and practice regarding pain management in oncology units. It also highlighted areas of deficiency where applicable corrective actions could be implemented. In addition, the results identified aspects related to the differences of knowledge and attitudes towards pain management among the surveyed nurses, such as variation in the mean scores with respect to the nurses’ nationality, educational background, and their participation in research activities.

Nurses in the focus group discussions used the opportunity to express their concerns and feelings related to the current situation of pain management in oncology units in KSA hospitals. This was apparent in all the group discussions, where nurses clearly defined the barriers they faced in relation to the delivery of effective pain
management. This may indicate the importance of the topic for nursing practice. In addition, the focus group discussions confirmed the results of the survey related to the variation among nurses, due to differences in culture, religion and language. The study’s strength was to include five focus group discussions, including both Saudi nurses, non-Saudi Arabic nurses, and non-Saudi non-Arabic nurses working in oncology units. This definitely enhanced the representativeness of this study sample to the population under study. Additionally, the examination of current nursing practice, by assessing the perceived barriers of nurses from different nationalities and cultural backgrounds, may explore the problems they face in a multicultural healthcare setting; this is the situation in many KSA hospitals. This directs healthcare administrators, educators and researchers to plan programmes and interventions that will improve the quality of care in pain management.

To conclude, this study has supplemented the body of literature in regard to pain management for patients with cancer in a multicultural healthcare setting. The triangulation method to collect data for this study enhanced the strength of the results and the credibility of the analysed data. The results can serve as baseline data to be used by nurses, nursing administrators, educators and researchers to build upon, as presented in the next sections.

7.5 Implications of the Study

This study will provide baseline data for nurses, administrators and educators. This data can be used to improve current practices of patient care regarding pain assessment and management, through identifying the aspects that are deficient in nurses’ knowledge, attitudes and beliefs towards pain management in oncology units. In
addition, the study will increase nurses’ awareness of the barriers that may hinder the
efficacy of pain management provided to cancer patients. Significant implications will
be beneficial for nursing practice, administration and education, in addition to
identifying potential future research.

7.5.1 Implications for practice.

This study was conducted at oncology units in hospitals. The results can be
considered to support evidence-based practice in the KSA, and the countries around it
with similar geographical and cultural contexts. Therefore, the study implications for
practice can be validly implemented in the region. By understanding the results that
describe the nurses’ level of knowledge, attitudes and beliefs regarding pain
management, nurses can use the results to make future plans for improving their own
knowledge. They can also increase positive attitudes. Nurses will be encouraged to join
educational programmes that focus on providing knowledge and skills in relation to pain
management, especially for cancer patients.

The study employed the mixed methods of qualitative and quantitative
approaches. The combination of these approaches permits the reader to define the depth
of data obtained from the study. This study provided insights into the barriers that may
hinder the delivery of effective pain management. Therefore, nurses may acquire a
greater perspective of these barriers and make decisions on taking suitable corrective
actions to eliminate those barriers in clinical settings. Additionally, nurses can bring the
study results to their meetings with hospital administrators, as evidence to induce
desirable changes that aim at improving the quality of nursing care to oncology patients
suffering from pain.

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7.5.2 Implications for administrators.

This study uncovered many cultural and religious aspects that affected the delivery of effective pain management. Nursing administration should consider these aspects when planning for in-service or continuing educational programmes, to enable nurses to attain and maintain their competence in providing care for cancer patients in pain, and to enhance their knowledge and attitudes regarding pain management. This could include conducting educational programmes that consider how to overcome the language barrier when performing pain assessments on oncology patients. Suggested courses for nurses include training courses on ‘communication skills in hospital settings’, ‘pain assessment and management’, and ‘culture and ethics in healthcare settings’. To assist overcoming the language and cultural barriers, hospitals may change their employment policy for new nurses. It is recommended that hospital administration hire new nursing staff proficient in Arabic and who are familiar with KSA culture. Otherwise, if this is not possible, hospitals should be required to hire professional translators with sufficient knowledge of medical terminology to facilitate communication between patients and their families, and healthcare providers. Moreover, the translators must comply with professional behaviour standards and a code of ethics to preserve patients’ dignity and confidentiality.

Notably, the current study added to the body of knowledge about nurses’ knowledge and attitudes regarding pain management in oncology units within the context of an Islamic community. The results can be built upon when planning for future development of hospital guidelines and policies for international and national nurses to improve pain management. This mandates collaborative multi-disciplinary efforts.
among all healthcare professionals working with cancer patients. This could include building a pain management team that sets protocols for pain assessment and management, taking into consideration the cultural backgrounds of patients and their families.

In addition, hospital administration should be aware of the results of this study and re-evaluate policies and regulations about the recruitment of nurses in sensitive settings like oncology units. It is also important to identify the factors that have contributed to nursing shortage and the perception of nurses in regard to workloads in oncology units.

7.5.3 Implications for educators.

Academic instructors may use the results of this study and incorporate them in teaching strategic plans. Educators may consider teaching pain assessment techniques and management in the nursing curriculum. This could be a main component of undergraduate nursing programmes, to prepare future nurses for providing culturally competent nursing care for cancer patients suffering from pain.

To resolve language barriers while communicating with oncology patients suffering from pain, in-service education programmes must be designed to teach nurses the local Saudi Arabic language. If this is not possible, it may be beneficial to select nurses who are proficient in Arabic language before recruiting them to the hospital’s staff. However, further education is required to help them understand the local slang language that most Saudi patients use in their daily communication.

Another important issue educators should consider when designing the nursing curricula or educational programmes is the importance of culturally sensitive practice.
The educational programmes should include courses or topics with an emphasis on teaching nursing staff how to provide care in healthcare settings with a diversity of cultural backgrounds. This may include cultural issues specific to the geographical location and issues related to religious backgrounds; for example, designing and conducting special courses related to healthcare issues in Islamic countries.

7.6 Implications for Future Research

This study is an addition to the current body of knowledge on the care of patients experiencing pain in oncology units. In addition, this study highlights the barriers that nurses faced in their practice about delivering effective pain management. Therefore, it forms baseline data for future local studies, with specific aspects of nursing care for pain. However, it is recommended that future studies are conducted to explore the patients’, families’ and other healthcare providers’ perspectives on the care provided in oncology units. Moreover, it will also strengthen the research findings if future research included a qualitative approach that explored other healthcare professionals regarding the assessment of pain management practices in oncology departments. Moreover, it would be helpful to future research methodologies developing new research instruments, or verifying the validity of the current ones such as the KASRP questionnaire, to identify the cultural differences that may influence nurses’ answers. Additionally, future research may consider development of culturally competent pain assessment tools.

7.7 Limitations of the Study

The main limitation of this study was that the study did not consider the patients’ perceptiveness in regard to pain management. It would be of great value to ask patients about the effectiveness of pain management in oncology units in KSA, mainly when
talking about the barriers that hinder the delivery of this management. In addition, the families of resident patients in the oncology units may also provide pertinent data about the barriers of effective pain management. However, nurses’ perspectives are important as they are the healthcare professionals who provide around the clock, direct nursing care to patients in oncology units.

The researcher used Ferrel and McCaffery’s (2008) tool (KASRP) to collect data for Phase 1 in the current study. This tool measures the knowledge, attitudes and beliefs combined in the survey items; however, it failed to distinctly identify the nurses’ knowledge, attitudes and beliefs about pain management practices. It may worth modifying the tool to include separate questions related to the assessment of nurses’ knowledge, and other questions that assess nurses’ attitudes and beliefs. In addition, the survey did not identify the cultural differences that may influence the answers of the nurses, as this study was conducted in the Middle East. However, it is evident from the results that emerged from the qualitative data, that many cultural and religious issues influence nurses’ practice in the oncology units, regarding pain management. Thus, using the qualitative approach helped close the gaps in the tool when used in the quantitative study. Nevertheless, the qualitative approach focused on assessing the possible barriers faced nurses in oncology units and hindered the delivery of effective pain management. Accordingly, designing tools that are intended and validated for different cultural contexts is recommended, mainly when involving issues related to participants’ perceptions.

Regarding the study tool, the questionnaire was designed in English. It was based on research studies written in English. This may be a limitation to understanding
by the nurses. However, nurses working in KSA hospitals come from multiple nationalities, and English may be the second language in their original country.

A total of five focus group discussions were conducted to answer the last question of this study. Collecting data from focus group discussions may involve some limitations. In this study, nurses were clustered according to their age, nationality, and the scores response on the questionnaires. Although the sample size was appropriate for focus group techniques (Morse, 2003), clustering of the groups did not consider nurses’ gender and background. This may affect the homogeneity of the groups and thus affect the pattern of discussion (Morse, 2008). For example, having a minority of male nurses (only five participants) participating in the focus group discussions may be critiqued as a population bias. However, the researcher clustered the nurses in the oncology units according to their age, nationality, and the response on the questionnaires, which may eliminate the factor of diversity for each group. Another limitation that may arise from the selection of focus groups is that some group members may dominate the discussions, as is the case for most focus group discussions. However, it was observed in the current study that the participants’ responses were spontaneous, and most members in the groups shared the discussions.

7.8 Conclusion

Based on the results of this study, the nurses’ responses to the survey questions reflected their relatively poor overall understanding of pain management practices. However, the very wide dispersion of the scores reflected considerable variability in knowledge, attitudes and beliefs among the participating nurses. The results revealed from the focus group discussions exposed several barriers faced by the nurses on
oncology units, while providing care for patients with cancer. These barriers may negative influence the delivery of effective nursing care to patients with cancer.

The main limitation of this study was that it did not consider the patients’ and their families’ perceptions in regard to pain management. Other limitations of this study may arise from using focus group discussion methods, such as the possibility of bias clustering of participants in the focus groups, which neither considered the nurses’ gender, nor their background. Nevertheless, this study has strengths and many implications that may counteract these limitations. This study is highly related to present evidence-based practice, as it was conducted on nurses currently working in KSA oncology units. Another important strength is the use of the triangulation approach to collect data, which enables the researcher to integrate results from the quantitative and qualitative data, and the generation of a significant amount of data. In addition, the study added to the body of literature about to pain management for patients with cancer in multicultural healthcare settings.

This study will provide baseline data for nurses, administrators and educators that can be used to improve the current practice of patient care regarding the pain assessment provided to cancer patients. Significant implications will benefit nursing practice, administration and education, in addition to identifying potential future research.
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Appendix A: Project Information Statement—Nurses

Invitation to participate in a research project

Project Information Statement Nurses Focus Group

Project Title:
Examining knowledge, attitudes, and beliefs of oncology units towards pain management in Saudi Arabia.

Investigators:
Mr Mohammed Alqahtani
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Dr Linda Jones
(Project Supervisor: School of Health Sciences, RMIT University, linda.jones@rmit.edu.au, (+613) 99257417)

Dear Participant,

You are invited to participate in the above research project, which is being conducted by Mr. Mohammed Alqahtani (PhD Candidate) of the Discipline of Nursing at RMIT University. Your contact details were obtained from the general director of nursing registers in your hospital. This project will form part of Mr. Mohammed Alqahtani PhD thesis, and is being conducted under the supervision of Dr Linda Jones, and has been approved by the RMIT Human Research Ethics Committee.

Who is involved in this research project? Why is it being conducted?

You are invited to participate in the above research project, which is being conducted by Mr. Mohammed Alqahtani (PhD Candidate) of the Discipline of Nursing at RMIT University. Your contact details were obtained from the general director of nursing registers in your hospital. This project will form part of Mr. Mohammed Alqahtani PhD thesis, and is being conducted under the supervision of Dr Linda Jones, and has been approved by the RMIT Human Research Ethics Committee.

Why have you been approached?

As a professional nurse, you are invited to take part in a research study on examining knowledge, attitudes, and beliefs of nurses regarding pain management in oncology units.

What is the project about? What are the questions being addressed?

This project aim is to examine the nurse’s knowledge attitudes and beliefs in response to the management of pain in designated oncology units. This project will provide information to inform the development of appropriate protocols for pain management and procedures for the Kingdom of Saudi Arabia. Also, this project will help to build effective orientation and ongoing educational packages for newly employed Saudi and expatriates nurses.

If I agree to participate, what will I be required to do?

Should you agree to participate, we would ask you to participate in a focus group sessions of about 50 minutes, so that we can get a more detailed picture of current situation and what improvements could be made. With your permission, the focus group sessions would be tape-recorded so that we can ensure that we make an accurate record of what you say.

What are the risks or disadvantages associated with participation?

Whilst there are no direct risks or disadvantages involved in your participation in the present study, if you feel concerned about your responses to any of the focus group questions or if you find participating in the project distressing in any way, you should contact Mohammed Alqahtani as soon as convenient. Please note that loss of anonymity will occur for focus group participants and all participants are asked to keep...
names of participants and their contributions confidential. Mohammed Alqahtani will discuss your concerns with you confidentially and suggest appropriate follow-up if necessary.

**What are the benefits associated with participation?**

Whilst there are no direct benefits for participating in this study, your participation will inform pain management practices in KSA and support future policy and educational development.

**What will happen to the information I provide?**

I will protect your anonymity and confidentiality as participants and your contributions by: identifying individuals by numeric code rather than name, ensuring that participant names do not appear on any documentation; restricting access to collected data by the researcher only (only the recorder and facilitator will have access to the raw data); ensuring that transcribed data is checked for accuracy and validated by the participant and de-identified for anonymity prior to sharing results with others. The research data will be kept securely at RMIT University for a period of 5 years before being destroyed. The findings from this study may be presented at conferences or published in scientific journals. If this does occur, only group data will be presented and under no circumstances will individual scores be reported. All information you provide and collected from the study will be retained confidentially. When recording data your privacy will be protected as any details of your identity are not released. Hardcopies of your information is kept securely and stored anonymously on the RMIT University database. Any information that you provide can be disclosed only if (1) it is to protect you or others from harm, (2) a court order is produced, or (3) you provide the researchers with written permission.

**What are my rights as a participant?**

Your decision whether or not to participate in this project will not prejudice any future relations your hospital. If you agree to participate in the focus group, please read the attached Focus Group and Consent Form and sign where indicated. Kindly bring the signed consent form with you to the focus group session. If you do not wish to participate in this research study, kindly leave a voice message as soon as possible and your name will be removed from the follow-up list. You will not be contacted again regarding the focus group. If you withdraw from the study midstream, the data you have provided will be included unless you request it be removed. At any time you have the right to have any unprocessed data withdrawn and destroyed, provided it can be reliably identified, and provided that so doing does not increase the risk for the participant.

**Whom should I contact if I have any questions?**

If you have any questions, you should contact Mohammed Alqahtani via email at S3263677@student.rmit.edu.au. Alternatively contact the primary supervisor Linda Jones by email at Linda.jones@rmit.edu.au.

Mohammed Alqahtani  
Dr Linda Jones  
PhD Candidate  
Project Supervisor

This information sheet is yours to keep.

Any complaints about your participation in this project may be directed to the Executive Officer, RMIT Human Research Ethics Committee, Research & Innovation, RMIT, GPO Box 2476V, Melbourne, 3001. Details of the complaints procedure are available on the ‘Complaints with respect to participation in research at RMIT’ page.
Appendix B: Knowledge and Attitudes Survey Regarding Pain

April 2008

Dear Colleague:

The “Knowledge and Attitudes Survey Regarding Pain” tool can be used to assess nurses and other professionals in your setting and as a pre and post test evaluation measure for educational programs. The tool was developed in 1987 and has been used extensively from 1987 - present. The tool was revised and is now being tested in pain education courses to conduct psychometric analysis on this updated version. There have been minor edits in April 2008.

Regarding issues of reliability and validity: This tool has been developed over several years. Content validity has been established by review of pain experts. The content of the tool is derived from current standards of pain management such as the American Pain Society, the World Health Organization, and the Agency for Health Care Policy and Research. Construct validity has been established by comparing scores of nurses at various levels of expertise such as students, new graduates, oncology nurses, graduate students, and senior pain experts. The tool was identified as discriminating between levels of expertise. Test-retest reliability was established (r>.80) by repeat testing in a continuing education class of staff nurses (N=60). Internal consistency reliability was established (alpha r>.70) with items reflecting both knowledge and attitude domains.

Regarding analysis of data: We have found that it is most helpful to avoid distinguishing items as measuring either knowledge or attitudes. Many items such as one measuring the incidence of addiction really measures both knowledge and attitude about addiction. Therefore, we have found the most benefit to be gained from analyzing the data in terms of the percentage of complete scores as well as in analyzing individual items. For example, we have found it very helpful to isolate those items with the least number of correct responses and those items with the best scores.

Enclosed for your use is a copy of our instrument and an answer key. You may use and duplicate the tool for any purpose you desire in whole or in part. References to some of our studies which have included this tool or similar versions are included below.

We also acknowledge the assistance of several of our pain colleagues including Pam Kedziera, Judy Paice, Deb Gordon, June Dahl, Hob Osterlund, Chris Pasero, Pat Coyne and Nessa Coyle in the current revisions. If using or publishing the tool results please cite the reference as “Knowledge and Attitudes Survey Regarding Pain” developed by Betty Ferrell, RN, PhD, FAAN and Margo McCaffery, RN, MS, FAAN, (http://pre.coh.org), revised 2008.

We hope that our tool will be a useful aid in your efforts to improve pain management in your setting.

Sincerely,

Betty R. Ferrell, RN, PhD, FAAN
Research Scientist

Margo McCaffery, RN, MS, FAAN
Lecturer and Consultant
References:


# Knowledge and Attitudes Survey Regarding Pain

True/False – Circle the correct answer.

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<td>15. Patients’ spiritual beliefs may lead them to think pain and suffering are necessary.</td>
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Multiple Choice – Place a check by the correct answer.

23. The recommended route of administration of opioid analgesics for patients with persistent cancer-related pain is
   (a) intravenous
   (b) intramuscular
   (c) subcutaneous
   (d) oral
   (e) rectal

24. The recommended route administration of opioid analgesics for patients with brief, severe pain of sudden onset such as trauma or postoperative pain is
   (a) intravenous
   (b) intramuscular
   (c) subcutaneous
   (d) oral
   (e) rectal

25. Which of the following analgesic medications is considered the drug of choice for the treatment of prolonged moderate to severe pain for cancer patients?
   (a) codeine
   (b) morphine
   (c) meperidine
   (d) tramadol

26. Which of the following IV doses of morphine administered over a 4 hour period would be equivalent to 30 mg of oral morphine given q 4 hours?
   (a) Morphine 5 mg IV
   (b) Morphine 10 mg IV
   (c) Morphine 30 mg IV
   (d) Morphine 60 mg IV

27. Analgesics for post-operative pain should initially be given
   (a) around the clock on a fixed schedule
   (b) only when the patient asks for the medication
   (c) only when the nurse determines that the patient has moderate or greater discomfort

28. A patient with persistent cancer pain has been receiving daily opioid analgesics for 2 months. Yesterday the patient was receiving morphine 200 mg/hour intravenously. Today he has been receiving 250 mg/hour intravenously. The likelihood of the patient developing clinically significant respiratory depression in the absence of new comorbidity is
   (a) less than 1%
   (b) 1-10%
   (c) 11-20%
   (d) 21-40%
   (e) > 41%

29. The most likely reason a patient with pain would request increased doses of pain medication is
   (a) the patient is experiencing increased pain.
   (b) the patient is experiencing increased anxiety or depression.
   (c) the patient is requesting more staff attention.
   (d) the patient’s requests are related to addiction.

30. Which of the following is useful for treatment of cancer pain?
   (a) Ibuprofen (Motrin)
   (b) Hydromorphone (Dilauid)
   (c) Gabapentin (Neurontin)
   (d) All of the above
31. The most accurate judge of the intensity of the patient’s pain is
   ___ a. the treating physician
   ___ b. the patient’s primary nurse
   ___ c. the patient
   ___ d. the pharmacist
   ___ e. the patient’s spouse or family

32. Which of the following describes the best approach for cultural considerations in caring for patients in pain:
   ___ a. There are no longer cultural influences in the U.S. due to the diversity of the population.
   ___ b. Cultural influences can be determined by an individual’s ethnicity (e.g., Asians are stoic, Italians are expressive, etc)
   ___ c. Patients should be individually assessed to determine cultural influences.
   ___ d. Cultural influences can be determined by an individual’s socioeconomic status (e.g., blue collar workers report more pain than white collar workers).

33. How likely is it that patients who develop pain already have an alcohol and/or drug abuse problem?
   < 1%       5 – 15%     25 - 50%     75 - 100%

34. The time to peak effect for morphine given IV is
   ___ a. 15 min.
   ___ b. 45 min.
   ___ c. 1 hour
   ___ d. 2 hours

35. The time to peak effect for morphine given orally is
   ___ a. 5 min.
   ___ b. 30 min.
   ___ c. 1 – 2 hours
   ___ d. 3 hours

36. Following abrupt discontinuation of an opioid, physical dependence is manifested by the following:
   ___ a. sweating, yawning, diarrhea and agitation with patients when the opioid is abruptly discontinued
   ___ b. Impaired control over drug use, compulsive use, and craving
   ___ c. The need for higher doses to achieve the same effect.
   ___ d. a and b

Case Studies

Two patient case studies are presented. For each patient you are asked to make decisions about pain and medication.

Directions: Please select one answer for each question.

37. Patient A: Mohammed is 25 years old and this is his first day following abdominal surgery. As you enter his room, he smiles at you and continues talking and joking with his visitor. Your assessment reveals the following information: BP = 120/80; HR = 80; R = 18; on a scale of 0 to 10 (0 = no pain/discomfort, 10 = worst pain/discomfort) he rates his pain as 8.
A. On the patient’s record you must mark his pain on the scale below. Circle the number that represents your assessment of Andrew’s pain.

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B. Your assessment, above, is made two hours after he received morphine 2 mg IV. Half hourly pain ratings following the injection ranged from 6 to 8 and he had no clinically significant respiratory depression, sedation, or other untoward side effects. He has identified 2/10 as an acceptable level of pain relief. His physician’s order for analgesia is “morphine IV 1-3 mg q1h PRN pain relief.” Check the action you will take at this time:

1. Administer no morphine at this time.
2. Administer morphine 1 mg IV now.
3. Administer morphine 2 mg IV now.
4. Administer morphine 3 mg IV now.

38. Patient B: Ahmed is 25 years old and this is his first day following abdominal surgery. As you enter his room, he is lying quietly in bed and grimaces as he turns in bed. Your assessment reveals the following information: BP = 120/80; HR = 80; R = 18; on a scale of 0 to 10 (0 = no pain/discomfort, 10 = worst pain/discomfort) he rates his pain as 8.

A. On the patient’s record you must mark his pain on the scale below. Circle the number that represents your assessment of Robert’s pain:

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Would you like to participate in the focus group session*: □ Yes □ No

*Note: If you wish to participate in the focus group sessions, you should contact Mohammed Alqahtani via email with your name and contact details.
Answer Key

Knowledge and Attitudes Survey Regarding Pain

True/False – Circle the correct answer.

F 1. Vital signs are always reliable indicators of the intensity of a patient’s pain.
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F 3. Patients who can be distracted from pain usually do not have severe pain.
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No pain/discomfort          Worst Pain/discomfort

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X  4. Administer morphine 3 mg IV now.

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___ 3. Administer morphine 2 mg IV now.
X  4. Administer morphine 3 mg IV now.
Appendix C: Focus Group Interview Guide

Date & Time: ___________________________ Location: _____________________

Number of participants: ______

Opening Remarks/Preamble and Instructions:
Thank you for agreeing to participate in today’s focus group that seeks to:

“Examining Knowledge, Attitudes and Beliefs of Oncology Units Nurses towards Pain Management in Saudi Arabia.”

My name is Mohammed Alqahtani and this research project, examining knowledge, attitudes, and beliefs of nurses regarding pain management in oncology units, is part of the requirement for (PhD Candidate) of the School of Nursing at RMIT University. My credentials with RMIT University can be obtained by Dr Linda Jones, School of Health Sciences, RMIT University, (+613) 99257417).

Before we begin, let me suggest some guidelines that will make our discussion more productive.

- Please speak up—but only one person should talk at a time. I am recording the session because I don’t want to miss any of your comments. If you have trouble hearing any of the comments, please let the group know.

- In the discussion, we’ll be on a first-name basis. In later reports no names will be attached to any comments. Your name will be kept confidential. I placed name cards on the table in front of you just to help us remember each other’s names during the course of the evening.

- My role here is to ask questions and to listen. I’ll also be summarising information on the white board at times. I won’t be actively participating in the conversation, only guiding it. I want you to feel free to talk to the group and not just to me. I’ll ask questions about the knowledge, attitudes, and beliefs of nurses regarding pain management in oncology units, I am interested in your experiences, but because this is a research project, it is important that you link your comments back to the questions. I’ll move the
discussion from one question to the next to try to keep us on track so that we can finish in 50 minutes.

- Sometimes, people in focus groups think of things they want to say after the discussion has moved on to other questions. If you would like to add to your comments after the group, I will be around to talk with you privately.

- Any questions before we begin?
Appendix D: Nurses Focus Group Questions (Semi-Structured)

1) In your point of view, what are the barriers that influence nurse knowledge, attitudes and beliefs regarding pain management at oncology units?

2) How do the current guidelines or approach in your hospital “if any” facilitate or impede nurses’ knowledge, attitudes and beliefs regarding pain management at oncology units?

3) How do you think that culture and beliefs of your own country may influence nurse’s knowledge, attitude and beliefs regarding pain management at oncology unit?

4) In what ways do you think that patient’s perception of pain, their compliance to pain management regime, patient’s education and their family members can affect nurses’ knowledge, attitudes and beliefs regarding pain management at oncology units?

5) In which terms do you think that nurses’ work load can affect nurses’ knowledge, attitudes and beliefs regarding pain management at oncology units?

6) How might or might not the health team cooperation and clear narcotics policy will facilitate nurses’ management of patient’s pain at oncology units? Do you have clear policy for narcotics?

7) As experienced nurse, what are the ways in which you consider using pain assessment tools may interfere with nurses’ management of patient’s pain at oncology units?

8) Can you think, for any reason, why you might not be able to provide optimal pain management for your patient in your oncology unit?

9) What are the factors that help your hospital to improve pain management and what are the limitations?

10) **Closing question:** Do you have any other comments or remarks about the focus group questions?
Appendix E: Research Approval from CHEAN

24th November 2011

Mohammed Alqahtani
1113/58 Jeffcott Street
West Melbourne VIC 3003

Dear Mohammed

BSEHAPP 37 – ALQAHTANI Examining Oncology Nurse’s knowledge, attitudes and beliefs in response to the management of pain in Oncology Units in Kingdom of Saudi Arabia

Thank you for submitting your amended application for review.

I am pleased to inform you that the CHEAN has approved your application for a period of 10 Months to September 2012 and your research may now proceed.

The CHEAN would like to remind you that:

All data should be stored on University Network systems. These systems provide high levels of manageable security and data integrity, can provide secure remote access, are backed up on a regular basis and can provide Disaster Recovery processes should a large scale incident occur. The use of portable devices such as CDs and memory sticks is valid for archiving; data transport where necessary and for some works in progress. The authoritative copy of all current data should reside on appropriate network systems; and the Principal Investigator is responsible for the retention and storage of the original data pertaining to the project for a minimum period of five years.

Annual reports are due during December for all research projects that have been approved by the College Human Ethics Advisory Network (CHEAN).

The necessary form can be found at: http://www.rmit.edu.au/governance/committees/humrenew

Yours faithfully,

Linda Jones
Chair, Science Engineering & Health
College Human Ethics Advisory Network

Cc: CHEAN Members: Margaret Lech School of Electrical & Computer Engineering RMIT University
Supervisor/s: Heather Holroyd School of Health Sciences RMIT University
Heather Panani School of Health Sciences RMIT University
Appendix F: Permission from the Health Affairs Directorate, Saudi Arabia
Appendix G: Nurses’ FG Consent Form

NURSES FOCUS GROUP CONSENT FORM

Portfolio: Science, Engineering and Health
School of Health science

Name of participant:

Project title: Examining nurses’ knowledge, attitudes, and beliefs towards pain management in Saudi Arabia Oncology Units

Name(s) of investigators: (1) Mr Mohammed Alqahtani Phone: (+966) 55504964
(2) Dr Linda Jones Phone: (+613) 99257417

1. I have received a statement explaining the interview/questionnaire involved in this project.

2. I consent to participate in the above project, the particulars of which - including details of the interviews or questionnaires - have been explained to me.

3. I authorise the investigator or his or her assistant to interview me or administer a questionnaire.

4. I acknowledge that:
   (a) Having read Plain Language Statement, I agree to the general purpose, methods and demands of the study.
   (b) I have been informed that I am free to withdraw from the project at any time and to withdraw any unprocessed data previously supplied.
   (c) The project is for the purpose of research and/or teaching. It may not be of direct benefit to me.
   (d) The privacy of the personal information I provide will be safeguarded and only disclosed where I have consented to the disclosure or as required by law.
   (e) The security of the research data is assured during and after completion of the study. The data collected during the study may be published, and a report of the project outcomes will be provided to RMIT Library. Any information which will identify me will not be used.

Participant’s Consent

Participant: __________________________________________ Date: ____________
(Signature)

Witness: __________________________________________ Date: ____________
(Signature)

Participants should be given a photocopy of this consent form after it has been signed.

Any complaints about your participation in this project may be directed to the Executive Officer, RMIT Human Research Ethics Committee, Research & Innovation, RMIT, GPO Box 2476V, Melbourne, 3001. The telephone number is (03) 9925 2251. Details of the complaints procedure are available from the above address.
Appendix H: Demographic Form

Please answer the following questions. Complete the blanks or check the boxes next to the category that best describes your situation.

1. What is your age? ________

2. What is your gender? □ 1 Male □ 2 Female

3. What is your religion? □ 1 Islam □ 2 Buddhist □ 3 Hindu □ 4 Christian □ 5 others (specify) ________

4. Where are you from? □ 1 Saudi Arabia □ 2 Philippines □ 3 India □ 4 South Africa □ 5 others (specify) ________

5. What is your racial or ethnic background? (Please check all that apply)
   □ 1 Caucasian
   □ 2 Arabic
   □ 3 American Indian/Alaska Native
   □ 4 Asian
   □ 5 African

6. What is your current relationship status?
   □ 1 Never married
   □ 2 Married
   □ 3 Living with partner in committed relationship
   □ 4 Separated
   □ 5 Divorced
   □ 6 Widowed

7. Level of education
   1. Diploma three years
   2. Baccalaureate degree
   3. Master's degree
   4. Doctoral degree

8. Years of experience in nursing: .....................year/s

9. Current area of practice:
   ..............................................................................................................

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10. Have you ever participated in a research study about pain management?

(1) Yes (2) No

11. Have you ever attended any scientific nursing conferences about pain management?

(1) Yes (2) No

12. Is there a pain assessment scale in your area of practice?

(1) Yes (2) No

13. Is there a pain management grading tool used in your area of practice?

(1) Yes (2) No

14. Have you worked in the Saudi Arabia before? (please √ one) □ 1 Yes □ 2 No

15. How long have you worked in this hospital?

□ (1-4 month) □ (4-8 month) □ (8-12 month)
□ (12-24 month) □ > 24 month. Please specify the number of month________

16. What are specialist courses that you have undertaken in post grad related to pain management? *(Please check all that apply)*

□ 1 Pain management □ 2 Chemotherapy □ 3 Saudi Arabia culture program
□ 4 Patient safety policies □ 5 others (specify) _______________________

Please feel free to add any additional comments:
_______________________________________________________________________
_______________________________________________________________________
_______________________________________________________________________
_______________________________________________________________________
_______________________________________________________________________

Return to (name) ____________________________ by (date/time) ________________
at (place) _______________________

Thank you for your participation in this research project.

08 April 2013

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Mr. Mohammad Al Qahtani  
RMIT University  
Melbourne, Australia

Dear Mr. Qahtani,

The Saudi Society of Blood & Marrow Transplantation (SSBMT) will hold its 3" Annual Meeting on Thursday, 16 May 2013 at Jeddah, Saudi Arabia and the 1st Annual Saudi Hematology/Oncology Nurses Meeting on Friday, 17 May 2013.

Further to our previous communication, we would like to thank you for accepting our invitation to be one of our distinguished speakers to the 1st Annual Saudi Hematology/Oncology Nurses Meeting on Friday, 17 May 2013.

The following will be the title of his talks for presentation:

<table>
<thead>
<tr>
<th>Title</th>
<th>Time</th>
<th>Time Allotted for each topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Examining nurses’ knowledge, attitudes, and beliefs towards pain management in oncology units in KSA</td>
<td>17 May 2013 10:20-10:40am</td>
<td>20 mins</td>
</tr>
</tbody>
</table>

Kindly provide us with the following on or before April 17, 2013:

- High resolution scanned photo
- Soft copy of your Abstract (1 – 2 pages in a Word format)
- Abbreviated CV or biography (to be added in the Abstract Book)

Should you require further information or any inquiries please drop us an email at ssbmt@ngha.med.sa. Thank you and best regards.

Ahmed Alaskar, MD, FRCPC, FACP  
President, Saudi Scientific Society of Blood & Marrow Transplantation

Appendix I: Project Information Statement—Nurses

Invitation to participate in a research project
Project Information Statement Nurses Survey

Project Title:
Examining nurses’ knowledge, attitudes, and beliefs towards pain management in Saudi Arabia Oncology Units

Investigators:
Mr Mohammed Alqahtani Dr Linda Jones  
(Nursing PhD Candidate: School of Health Sciences, RMIT University, S3263677@student.rmit.edu.au  
(Project Supervisor: School of Health Sciences, RMIT University, linda.jones@rmit.edu.au, (+613) 99257417)

Dear Participant,

You are invited to participate in a research project being conducted by Discipline of Nursing and Medical RMIT University, Melbourne Australia. This information sheet describes the project in straightforward language, or “plain English”. Please read this sheet carefully and be confident that you understand its contents before deciding whether to participate. If you have any questions about the project, please ask one of the investigators.

Who is involved in this research project? Why is it being conducted?

You are invited to participate in the above research project, which is being conducted by Mr. Mohammed Alqahtani (PhD Candidate) of the Discipline of Nursing at RMIT University. Your contact details were obtained from the general director of nursing registers in your hospital. This project will form part of Mr. Mohammed Alqahtani PhD thesis, and is being conducted under the supervision of Dr Linda Jones, and has been approved by the RMIT Human Research Ethics Committee.

Why have you been approached?

As a professional nurse, you are invited to take part in a research study on examining knowledge, attitudes, and beliefs regarding pain management in nurses in oncology units.

What is the project about? What are the questions being addressed?

This project aim is to examine the nurse’s knowledge attitudes and beliefs regarding pain management in designated oncology units in KSA hospitals. This project will provide information to inform the development of appropriate protocols for pain management and procedures for the Kingdom of Saudi Arabia. Also, this project will help to build effective orientation and ongoing educational packages for newly employed Saudi and expatriates nurses.

If I agree to participate, what will I be required to do?

Should you agree to participate, you would be asked to complete a questionnaire that will probably take around 15-20 minutes to complete. Once completed, we would ask you to kindly use the prepaid envelope provided with the letter and drop it in the return box located at nursing office. Informed consent is implied by submission of the survey. You are encouraged to examine or browse through the questionnaire as it may aide in your decision to participate in the study.
What are the risks or disadvantages associated with participation?

Whilst there are no direct risks or disadvantages involved in your participation in the present study, if you feel concerned about your responses to any of the questions or if you find participating in the project distressing in any way, you should contact Mohammed Alqahtani as soon as convenient. Mohammed Alqahtani will discuss your concerns with you confidentially and suggest appropriate follow-up if necessary.

What are the benefits associated with participation?

Whilst there are no direct benefits for participating in this study, your participation will inform pain management practices in KSA and support future policy and educational development.

What will happen to the information I provide?

I will protect your anonymity and confidentiality as participants and your contributions by: identifying individuals by numeric code rather than name, ensuring that participant names do not appear on any documentation; restricting access to collected data by the researcher only (only the recorder and facilitator will have access to the raw data); ensuring that transcribed data is checked for accuracy and validated by the participant and de-identified for anonymity prior to sharing results with others. The research data will be kept securely at RMIT University for a period of 5 years before being destroyed. The findings from this study may be presented at conferences or published in scientific journals. If this does occur, only group data will be presented and under no circumstances will individual scores be reported. All information you provide and collected from the study will be retained confidentially. When recording data your privacy will be protected as any details of your identity are not released. Hardcopies of your information is kept securely and stored anonymously on the RMIT University database. Any information that you provide can be disclosed only if (1) it is to protect you or others from harm, (2) a court order is produced, or (3) you provide the researchers with written permission.

What are my rights as a participant?

Your decision whether or not to participate in this project will not prejudice any future relations your hospital. If you do not wish to participate in this research study, kindly leave a voice message as soon as possible and your name will be removed from the follow-up list. You will not be contacted again regarding the focus group. If you withdraw from the study midstream, the data you have provided will be included unless you request it be removed. At any time you have the right to have any unprocessed data withdrawn and destroyed, provided it can be reliably identified, and provided that so doing does not increase the risk for the participant.

Whom should I contact if I have any questions?

If you have any questions, you should contact Mohammed Alqahtani via email at S3263677@student.rmit.edu.au. Alternatively contact the primary supervisor Linda Jones by email at Linda.jones@rmit.edu.au.

Mohammed Alqahtani Dr Linda Jones
PhD Candidate Project Supervisor
This information sheet is yours to keep.