DETERMINANTS OF NURSES' PAIN MANAGEMENT PRACTICES IN JORDAN: THE MODERATING ROLE OF PATIENT'S BARRIERS

BASHAR ISAM ALZGHOUL

DOCTOR OF PHILOSOPHY
UNIVERSITI UTARA MALAYSIA
April 2016

DETERMINANTS OF NURSES' PAIN MANAGEMENT PRACTICES IN JORDAN: THE MODERATING ROLE OF PATIENT'S BARRIERS

By
BASHAR ISAM ALZGHOUL

Thesis Submitted to
School of Business Management
Universiti Utara Malaysia,
in Fulfillment of the Requirement for the Degree of Doctor of Philosophy

PERMISSION TO USE

In presenting this thesis in fulfillment of the requirements for a Post Graduate degree from the Universiti Utara Malaysia (UUM), I agree that the Library of this university may make it freely available for inspection. I further agree that permission for copying this thesis in any manner, in whole or in part, for scholarly purposes may be granted by my supervisor(s) or in their absence, by the Dean of School of Business Management where I did my thesis. It is understood that any copying or publication or use of this thesis or parts of it for financial gain shall not be allowed without my written permission. It is also understood that due recognition shall be given to me and to the UUM in any scholarly use which may be made of any material in my thesis.

Request for permission to copy or to make other use of materials in this thesis in whole or in part should be addressed to:

Dean of School of Business Management
Universiti Utara Malaysia
06010 UUM Sintok
Kedah Darul Aman

ABSTRACT

In spite of the significant advancement in methods and tools associated with pain management, there is still a deficiency in the pain management practices. Therefore, the aim of this study is to empirically determine the level of pain management practices, evaluate the significant predictors of pain management practices (i.e. knowledge, attitude, subjective norm and self-efficacy), examine the moderating effect of patient barriers on the relationship between the predictors and the pain management practices, and to investigate the applicability of Field theory in explaining the pain management practices in Jordan. Six latent variables were involved including five exogenous and one endogenous variables and a cross-sectional survey was used in conducting the study. The instrument is consisted of 93 items adapted from the previous studies. The questionnaires were distributed to 600 nurses in 13 hospitals located in the central region of Jordan. The nurses were selected at random using a multistage cluster technique. Of 600, only 307 questionnaires were returned and used for analysis. Data collection was carried out for the period of six months from October 2014 until March 2015. Data were analyzed using partial least squares-structural equation modeling (PLS-SEM). The findings support the majority of the hypothesized relationships, specifically the hypothesized direct effects of attitude, self-efficacy, knowledge, and subjective norms on the pain management practices. In addition, patient-related barriers moderate one of these relationships. That is, the relationship between attitudes towards the pain management and the pain management practices is weaker for nurses who perceived high barriers from their patients as opposed to nurses who perceived low patient-related barriers. Collectively, the determinant variables of pain management practices accounted for 78% of the variance in the pain management practices. Theoretical, methodological, and practical implications are discussed.

Keywords: Pain management practices, Knowledge, Attitude, Self-efficacy, Subjective norm, Patients barriers, Jordanian hospitals

ABSTRAK

Walaupun terdapat kemajuan yang ketara dalam kaedah dan alat-alat yang berkaitan dengan pengurusan sakit, namun masih terdapat kekurangan dalam amalan pengurusan sakit. Oleh itu, tujuan kajian ini adalah untuk menentukan secara empirikal tahap amalan pengurusan sakit, menilai peramal yang ketara dalam amalan pengurusan sakit (iaitu pengetahuan, sikap, norma subjektif dan keberkesanan diri), memeriksa kesan penyederhana halangan pesakit mengenai hubungan antara peramal dan amalan pengurusan sakit, dan menyiasat kesesuaian teori Field dalam menerangkan amalan pengurusan sakit di Jordan. Enam pemboleh ubah pendam terlibat termasuk lima eksogenus dan satu pemboleh ubah endogen. Kajian rentas telah digunakan dalam menjalankan kajian ini. Alatan kajian terdiri daripada 93 item yang telah diadaptasi daripada kajian sebelumnya. Soal selidik telah diedarkan kepada 600 jururawat di 13 hospital yang terletak di tengah Jordan. Jururawat telah dipilih secara rawak menggunakan teknik kelompok berbilang. Dari 600, hanya 307 soal selidik telah berjaya dikembalikan untuk dianalisis. Pengumpulan data telah dijalankan bagi tempoh enam bulan iaitu dari Oktober 2014 hingga Mac 2015. Data telah dianalisis menggunakan model separa persamaan kuasa dua struktur (PLS-SEM). Hasil kajian menyokong majoriti hubungan hipotesis, khususnya kesan langsung hipotesis sikap, keberkesanan diri, pengetahuan, dan norma subjektif mengenai amalan pengurusan sakit. Di samping itu, halangan berkaitan dengan pesakit menyederhana satu daripada hubungan ini, iaitu, hubungan antara sikap terhadap pengurusan sakit dan amalan pengurusan sakit adalah lebih lemah untuk jururawat yang menerima halangan yang tinggi dari pesakit mereka berbanding dengan jururawat yang menerima halangan yang rendah berkaitan dengan pesakit. Secara kolektif, pemboleh ubah penentu amalan pengurusan sakit menyumbang 78% daripada kepelbagaian dalam amalan pengurusan sakit. teori, metodologi, dan implikasi praktikal turut dibincangkan.

Kata kunci: Amalan pengurusan sakit, Pengetahuan, Sikap, Keberkesanan Diri, Norma subjektif, Halangan pesakit, Hospital Jordan

ACKNOWLEDGEMENT

In the name of ALLAH, the most gracious, the most merciful. Praise be to ALLAH, the creator and custodian of the universe. Salawat and Salam to our Prophet Muhammad, peace and blessings of ALLAH be upon him and to his family members, companions and followers.

First and foremost, I thank Allah (S.W.T) for bestowing me with the much-needed patience, perseverance, and persistence to accomplish this study. Second, I would like to acknowledge my supervisor, Dr. Nor Azimah Chew Abdullah, for her assistance, support, guidance, and encouragement during all the stages of my doctoral study. Also, I would like to express my heartfelt gratitude to my wife, Isra'a, and to my son, Hamzah, for their constant love and support. Additionally, I would also like to thank my parents, Isam and Hana, for their encouragement and instilling in me the value of education. Finally, I would like to thank my brothers, Mohammad and Loay, and to my sister, Sana'a, who were so supportive during my years of study.

TABLE OF CONTENTS

LIST OF TABLES

Table **Page**

Table **Page**

LIST OF FIGURES

Figure **page**

LIST OF APPENDICES

Appendix **page**

LIST OF ABBREVIATIONS

AHCPR	Agency for Health Care Policy and Research
AMDA	American Medical Directors Association
BPS	British Pain Society
CME	Continuous Medical Education
CMV	Common Method Variance
EM	Expectation–Maximization
IASP	International Association for the Study of Pain
IM	Intramuscular
JCAHO	Joint Commission on Accreditation of Healthcare Organizations
JMoH	Jordan Ministry of Health
JRMS	Jordanian Royal Medical Services
JUH	Jordan University Hospital
KAH	King Abdullah University Hospital
KAP	Knowledge-Attitude-Practice
MOH	Ministry of Health
NSAIDs	Non-Steroidal Anti-Inflammatory Drugs
PLS	Partial Least Squares
ONS	Oncology Nursing Society
PRN	*pro re nata*, a Latin phrase meaning "as needed"
PSUs	Primary Sampling Units
RMS	Royal Medical Services
RNAO	Registered Nurses Association of Ontario

LIST OF ABBREVIATIONS (CONTINUE)

SASA	South African Society of Anesthesiologists
SEM	Structural Equation Modeling
SPSS	Statistical Package for Social Sciences
TPB	Theory of Planned Behavior
UNRWA	United Nations Relief and Works Agency
VIF	Variance Inflation Factors
WHO	World Health Organization

CHAPTER ONE
INTRODUCTION

1.1 Background of the Study

Pain is one of the most common symptoms experienced by patients (Clinical Standards Advisory Group [CSAG], 1999; Gloth, 2001; Horbury, Henderson & Bromley, 2005; Strong, Unruh, Wright, & Baxter, 2002; Van den Beuken-van Everdingen et al., 2007). Approximately 79 percent of hospitalized patients is suffering from it (Lui, So & Fong, 2008). According to the International Association for the Study of Pain [IASP] (2012, p. 1), pain is defined as “unpleasant sensory or emotional experience associated with actual or potential tissue damage, or described in terms of such damage”.

Nurses are not the only health care providers responsible to relieve a patient’s pain (Government of Western Australia Department of Health, 2013; McMillan, Tittle, Hagan, Laughlin & Tabler, 2000), but they have a key role in managing the patient’s pain (Lewthwaite et al., 2011; Ung, Salamonson, Hu & Gallego, 2015; Zalon, 1995). This owes to the fact that the nurses are in a central position between the responsible physicians and their patients (Jacox et al., 1994; Lellan, 1997; McCaffery & Pasero, 1999; Registered Nurses Association of Ontario [RNAO], 2013; Schafheutle, Cantrill, & Noyce, 2001). Furthermore, the nurses spend most of their time with patients to offer appropriate health care services (Coulling, 2005; Lui et al., 2008). One of the most recurrent health care services provided by the nurses is pain management (Brown, Bowman & Eason, 1999), so the nurses should handle it as the ‘fifth vital sign’ alongside blood pressure, temperature, breathing and pulse rate (Merboth & Barnason, 2000; Tse & Chan, 2004) to provide a proper intervention to relieve the patients' pain. The nurse must resist the pain management barriers from the patients or from the physicians. Examples of these barriers include patients who refuse to take their pain medication or physicians who refuse to prescribe an appropriate pain medication. So, the nurses must provide a proper and effective pain management by assessing the patients' pain (Cohen, 1980; Schafheutle et al., 2001), alleviating the patients' pain by using an appropriate intervention (Cohen, 1980; Field, 1996; Schafheutle et al., 2001), and by evaluating the patients' pain after the intervention (Ersek & Irving, 2007; McCaffery, 1983; Schafheutle et al., 2001) to get the desired medical outcomes. Neglect of patients' pain is an ethically and morally unacceptable behavior (Ferrell, 2005; Gunningberg & Idvall, 2007; Royal College of Surgeons & College of Anesthetists, 1990) and it leads to many consequences and complications for both the patients and the health care organizations (Baratta, Schwenk & Viscusi, 2014; Hutchison, 2007).

Uncontrolled pain has a direct impact on the patient physical condition by affecting most of the human systems (Griffiths & Justin, 2006; Haljamae & Stomberg, 2003; Huang, Cunningham, Laurito, & Chen, 2001). It leads to critical complications in the cardio vascular system, such as increasing the heart rate more than the normal range (tachycardia), hypertension, resistance to flow blood through peripheral circulation, and formation of blood clots in the vessels (Dunwoody, Krenzischek, Pasero, Rathmell, & Polomano, 2008). Also, pain management deficiency has effects on the respiratory system. For an example, it inhibits cough and impairs lung expansion (Desai, 1999; Watson, 2002). Furthermore, it has effects on the gastrointestinal system by reducing gastrointestinal smooth muscles contractions, which lead to a stomach dilation

(Stephens, Laskin, Pashos, Pena & Wong, 2003). In addition, prolonged pain management deficiency has an impact on the patient's endocrine system by enhancing abnormal secretion of glucagon and cortisol hormones, which lead to hyperglycemia (Rosenfeld et al., 1994). Also, an uncontrolled pain affects the immune system by impairing the function of the two types of immunity, which is the specific immune system and the acquired immune system (Rosenfeld et al., 1994; Turina, Miller, Tucker & Polk, 2006). It can also affect the musculoskeletal system, especially in severe cases by increasing the risk of chronic back pain, postherpetic neuralgia, and phantom limb pain (Linton, 1997). Finally, it can also affect the physical condition by impairments of the homeostatic, metabolic and hemodynamic function (Dunwoody et al., 2008).

Uncontrolled pain does not only affect the patients' body but also their psychological condition (Rollman, Abdel-Shaheed, Gillespie, & Jones, 2004) by increasing stress and anxiety levels among the patients and their family (Smart, 2005). Moreover, it influences the patients' quality of life to the level they become desiring to death (Al-Atiyyat, 2008; Sykes, Fallon & Patt, 2003; Tzeitlin & Shvartzman, 2000) and it affecting the emotional and spiritual status of the patients (Lui et al., 2008). Furthermore, the uncontrolled pain affects the mental functions by causing disorientation, decreasing the level of concentration, confusion and cognitive impairment (Middleton, 2003). In addition, the unrelieved pain has an impact on the patients' activities of daily living (Rummans et al., 1998; Skevington, 1998; Tu & Chiou, 2007) by affecting the basic patients' functions, emotional state, ability to sleep, and the relationships with their family and close friends (Gureje, Von Korff, Simon, & Gater, 1998; Moulin, Clark, Speechley, & Morley-Forster, 2002; Schopflocher & Jovey, 2010). Also, it raises the patients' morbidity and hospitalization (Al Samaraee, Rhind, Saleh, & Bhattacharya, 2010; Lewis, Heitkemper, Dirksen, O'Brien & Bucher, 2007), which leads to a financial implication (Agency for Health Care Policy & Research [AHCPR], 1992; Borromeo & Windle, 1996). From the organizational perspective, unrelieved pain affects the health organizations by increasing the patients' dissatisfaction, raising the probability of their readmission, and extends the length of stay at the hospitals (Kehlet, Jensen & Woolf, 2006; The South African Society of Anesthesiologists [SASA], 2009). According to a study conducted by Phillips and Schopflocher (2008), the annual cost of pain in Canada exceeded 400 million dollars in terms of direct health costs and productivity cost. Similarly, European consensus report revealed that the cost of uncontrolled pain among Europe countries exceeded 300 billion of euros (Baker, Collett & Fischer, 2014). In the United States, the annual cost of pain is estimated to be US 635 billion dollars (Bisbee, Clark, Jones, Wang & Watts, 2011). Due to the negative consequences, patients and health care providers consider a deficiency in pain management as a major health care concern (Knowles, 1996; McCaffery & Pasero, 1999; Musgrave, 1990; Rittenmeyer, Dolezal, & Vogel, 1997; Sullivan, 1994), which should be assessed in a scientific way by conducting studies on relieving the patients' pain, improving the health care quality and enhancing the patients' safety.

Because pain management is a worldwide problem, studies in this topic have spanned for over 60 years in various countries, both developed and developing (Daibes, 2011). Previous works have generally accepted that pain management is a multiphase process consisting of assessment, intervention, and reassessment and reported that deficiency occurs in all phases.

1.2 Problem Statement

Pain management deficiency is a life-threatening problem (Macfarlane, Crombie, McBeth, & Silman, 2001) and it leads to many detrimental consequences including physical, psychological and financial effect on the patients and their families. Many international organizations concerned about improving the patients' safety and health care quality have paid attention toward this problem by reporting the inadequate pain management provided by nurses in all countries (The Agency for Health Care Policy & Research [AHCPR], 2002; The Joint Commission on Accreditation of Healthcare Organizations [JCAHO], 1999; The Oncology Nursing Society [ONS], 2012).

In Jordan, the indices of pain management are still below the required standards. According to the International Association for the Study of Pain [IASP] (2010b) the percentage of Jordanian patients who receive analgesic to control their pain is not higher than five percent. Jordanian nurses provide inadequate pain management in all phases of the pain management process: assessment, intervention, and reassessment. A study by Daibes (2011) among nurses in Jordanian hospitals indicated that nurses did not perform pain assessment on their patients. In addition, the nurses did not assess the patients' pain around the clock (between 11 pm and 5 am they neglected to assess the pain). Also, the nurses had a negative attitude towards assessing the patients of a different gender. Daibes's study also found that the nurses provided inadequate intervention to relieve the patients' pain. They did not take any immediate action to relieve the patients' pain and only relied on administering the prescribed analgesics or informing the responsible doctor (Daibes, 2011). Another Jordanian study conducted by Abdalrahim, Majali and

Bergbom (2008) aimed at assessing the nurses' pain management practices found that the pain assessment scale was used only by 4.3 percent of the Jordanian nurses. Recently, Darawad, Al-Hussami, Saleh and Al-Sutari (2014) assessed the pain level among hospitalized patients in Jordan and they found a high level of deficiency in managing patients' pain.

According to Glajchen (2001), Jacobsen et al. (2009) and Von Roenn (2001), the pain management practices are mainly affected by three sets of barriers: the patients' barriers, the health care system barriers, and the health care providers' barriers. Also, the Jordanian study indicated that the chief pain management barriers identified by the nurse participants were those related to patients, nurses and hospital policies (Batiha, 2014). Many existing studies on pain management focused on the health care providers' barriers (attitude, subjective norms, self-efficacy, and knowledge) by assessing the relationship between the health care providers' attitude towards pain management and their pain management practices (Al Qadire & Al Khalaileh, 2012; Basak, 2010; Collier, Philips, Camp, & Kirk, 1995; Edwards et al., 2001; Hossain, 2010; Jurgens, 1996; Layman Young, Horton, & Davidhizar, 2006; Lui et al., 2008; Nash, Edwards, & Nebauer, 1993; Pellino,1997; Rony, Fortier, Chorney, Perret & Kain, 2010; Twycross, 2008; Weber, Dwyer, & Mummery, 2012). A number of studies also assessed the relationship between subjective norms towards pain management and intention to perform pain management (Edwards et al., 2001; Jurgens, 1996; Nash et al., 1993; Pellino, 1997; Weber et al., 2012). In addition, some focused on the relationship between self-efficacy and the intention of health care providers to perform pain management (Edwards et al., 2001; Jurgens, 1996; Nash et al., 1993; Pellino, 1997;

Weber et al., 2012). Also, other studies focused on the linkage between the knowledge of pain management and the pain management practices (Basak, 2010; Collier et al., 1995; Glajchen & Bookbinder, 2001; Hossain, 2010; Ali, Ibrahim, & Mohamed, 2013; Twycross, 2007b; Vincent & Denyes, 2004; Watt-Watson, Stevens, Garfinkel, Streiner, & Gallop, 2001). As noted earlier, previous studies seemed to have neglected the direct relationship between self-efficacy, subjective norm, and pain management practices. Also, they have neglected the effect of the patients' related barriers to pain management.

The current study investigated the usefulness of field theory to forecast the nurses' behavior on pain management. This theory covers the personal and environmental factors that affect human behavior. Previous studies revealed that pain management practices were influenced by health care professional factors (personal factors), organizational factors, and patient-related factors (environmental factors) (Glajchen, 2001; Jacobsen et al., 2009; Von Roenn, 2001). So, field theory will be appropriate to assess the pain management practices among the registered nurses by assessing the relationship between the nurses' attitude, subjective norm, knowledge, self-efficacy, and pain management practices. Furthermore, this study assessed the moderator effect of the patients' related barriers on the relationship between behavioral determinants and pain management practices.

The selection of the study variables was made based on the propositions of the underpinning theory and the results of the previous studies in pain management and other areas. The nurses' attitude towards pain management is one of the personal factors in the field theory. Previous studies in pain management found a significant and positive relationship between the health care providers' attitude and pain management practices (Edwards et al., 2001; Jurgens, 1996; Pellino, 1997; Rony et al., 2010). Also, according to Daibes (2011), limited studies have assessed the health care providers' attitudes. But, the previous discussion indicated that the nurses' attitude towards pain management has a high impact on their practices in pain management.

The second variable in this study is the nurses' self-efficacy of pain management. This study utilized field theory as the underpinning theory. Self-efficacy is a personal factor according to this theory. In addition, previous studies reported a significant and positive relationship between self-efficacy of pain management and the likelihood of practicing pain management (Edwards et al., 2001; Jurgens, 1996; Nash et al., 1993; Weber et al., 2012). Previous studies on pain management seemed to have also neglected in assessing the relationship between self-efficacy of pain management and pain management practices. The previous discussion summarized the importance of assessing self-efficacy of pain management among Jordanian nurses.

Also, this study assessed the nurses' knowledge of pain management as one of the personal factors in the field theory. Previous studies found a positive relationship between health care providers' knowledge of pain management and their pain management practices (Basak, 2010; Collier et al., 1995; Ali et al., 2013; Twycross, 2007b; Vincent & Denyes, 2004; Watt-Watson et al., 2001). Moreover, Glajchen and Bookbinder (2001) reported that the relationship between the nurses' knowledge of pain management and their pain management practices was highly significant and positive. In addition, according to Al Qadire and Al Khalaileh (2012), the Jordanian nurses have the lowest level of knowledge in pain management compared to those in other countries.

The present study also considered the environmental factors (external factors) that affect pain management practice. The environmental factors include subjective norms toward pain management, which demonstrates the nurses' perception towards a negative or positive recommendation from other individuals who are very important to them on the pain management practices. Past studies found a significant positive relationship between the subjective norm towards pain management and the likelihood of the health care providers to perform pain management (Edwards et al., 2001; Pellino, 1997; Weber et al., 2012). Furthermore, literature in pain management seems to have neglected the relationship between subjective norm and the pain management practices. Thus, this study assessed this relationship.

Another environmental factor considered is the patients' related barriers. According to Glajchen (2001), Jacobsen et al. (2009), and Von Roenn (2001), the patients' related barrier is one of the most factors in influencing pain management. Jordanian nurses mentioned that many hospitalized patients are reluctant to report pain and to take pain medications because they are afraid of its side-effects or they did not want to disturb nurses, which indicated the importance to assess the patients' barrier (Batiha, 2014). This variable is related to the service refusal/acceptance of the patients to report their pain (Gunnarsdottir, Donovan, Serlin, Voge, & Ward, 2002). Previous studies found that the moderating effect of service acceptance was highly significant (Lee & Wu, 2011). Also, other studies found that the perceived external barriers had a significant moderating effect (Bogdanovich, 2013; Huy Tuu, Ottar Olsen, & Thi Thuy Linh, 2011). So, this study assessed the moderating effect of the patients' related barriers on pain management.

Based on the previous discussion, this study focuses on assessing the determinants of pain management, namely; knowledge, attitude, subjective norm and self-efficacy. Furthermore, this study examining the moderating effect of patient barriers on the relationship between the determinants of pain management and pain management practices.

1.3 Research Questions

Based on the previous discussion on pain management deficiency problem, the following questions were developed:

1. What is the level of pain management practices among Jordanian nurses?
2. What is the relationship between attitude towards pain management, pain management self-efficacy, knowledge of pain management, subjective norm towards pain management and pain management practices among Jordanian nurses?
3. What is the moderating effect of the patients' related barriers on the relationship between behavioral predictors (attitude, knowledge, subjective norm, and self-efficacy) and pain management practices?

1.4 Research Objectives and Study Aim

The aim of this study was to assess the influence of health professional-related factors and patient-related factors on pain management among Jordanian nurses. This research has the following specific objectives.

1. To evaluate the level of pain management practices among Jordanian nurses.
2. To assess the relationship between attitudes towards pain management, pain management self-efficacy, knowledge of pain management, subjective norm towards pain management and pain management practices among Jordanian nurses.
3. To investigate the moderating effect of the patients' barriers on the relationship between behavioral predictors (attitude, knowledge, subjective norm, and self-efficacy) and pain management practices.

1.5 Scope of the Study

The study investigates the effect of the nurses' knowledge, attitude, subjective norm, self-efficacy, patients' barriers and pain management practices in Jordanian public hospitals. Pain management, generally in the world and specifically in developing countries, is still under the global standard. However, the statistics of the WHO and World Council for Drug Control indicate that the percentage of pain relief drugs usage in the developing countries is less than the developed countries (International Association for the Study of Pain [IASP] , 2010b). Thus, this study focuses on assessing the pain management level and the determinants of pain management in one of the developing countries.

There were many factors that motivated the researcher to study the pain management practices in Jordan, but the main reasons were the limited number of studies in pain management (Daibes, 2011) and the need for further research in pain management, especially in Jordan because Daibes's study indicated that there was a deficiency in all pain management phases which include assessing the patients' pain, providing the appropriate intervention to relieve the patients' pain and reassessing the patients after the intervention. In addition, the feedback received from participants, who were health sector representatives and those who were related to opioids, on a seminar concerning pain management in Jordan which is conducted by the Jordan Pain Society indicated that the pain management practices in Jordan are still below the global standards. They recommended and encouraged scientific researches and studies to be conducted in this field (International Association for the Study of Pain [IASP], 2010b). Even the Jordanian prime minister pledged that the Jordanian government gives its priority to enhance the quality of medical care to reduce pain to its citizens (Alrai Newspaper, 2012).

Hospitals are selected because pain is one of the most common reasons for patients to seeking care in a hospital setting (McLean et al., 2002) hence it is the main source to collect data regarding pain and its management. Finally, the respondents of the study are registered nurses. They were chosen as they are the health care providers who have control to relieve the patients' pain (Bagley, Falinski, Garnizo, & Hooker, 1982; Brorson, Plymoth, Örmon & Bolmsjö, 2014).

The theoretical scope of this study focuses on the application of the field theory to assess the relationships between the health professional-related factors as the independent variables and the pain management practices as dependent variable. In addition, this study assessed the moderating effect of the patients' related barriers on the relationship between the behavioral determinants and the pain management practices among the Jordanian nurses.

1.6 Significance of the Study

The study focuses on pain management practices by investigating predictors, such as knowledge, attitude, subjective norm, self-efficacy and patients' barriers among nurses working in the Jordanian public hospitals. This can contribute to the theoretical and practical levels of the pain management practices.

The findings of the present research contribute to knowledge through examining the relationship between determinants of pain management and pain management practices. The pain management practices are influenced by three barrier groups: the patients' related barriers, the health care providers' barriers, and the health care organization barriers (Glajchen, 2001; Jacobsen et al., 2009; Von Roenn, 2001). Past studies in pain management only focused on the barriers related to the organization and the barriers related to the health care providers (attitude, subjective norms, self-efficacy, and knowledge). As highlighted earlier, the patients' related barriers (such as service refusal) have been neglected. So, this study focused on all of these barriers by assessing the relationship between the nurses' attitude, subjective norm, knowledge, self-efficacy, and pain management practices. Furthermore, this study assessed the moderating effect of the patients' related barriers on the relationship between behavioral determinants and pain management practices.

Past studies that assessed the relationship between subjective norm, self-efficacy, and intention to perform pain management have reported mixed results. Sheeran (2002) conducted a meta-analysis on 422 studies and showed that intention only explained 28 percent of the behavioral variance. Similarly, Armitage and Connor's (2001) meta-analysis result of 185 studies revealed that behavioral intention explained 47 percent of the variance in the actual behavior. However, Pellino (1997) revealed that the relationship between intention to perform pain management and the pain management practice was not significant. So, this study assessed the direct relation between subjective norm, self-efficacy, and pain management practices.

Another contribution to the knowledge is the underpinning theory that has been used to explain the model of the study, in that field theory have been used to explain the relationship between the study variables. Previous studies in pain management have utilized various underpinning theories and models, such as theory of planned behavior (Edwards et al., 2001; Jurgens, 1996; Nash et al., 1993; Pellino, 1997; Weber et al., 2012), and the knowledge, attitude and practices (KAP) model (Basak, 2010; Hossain, 2010). However, these models are not suitable for improving the pain management practices. Theory of planned behavior is limited to predicting the volitional and non-volitional behaviors; however, the International Association for the Study of Pain [IASP] (2010a) and the South African Society of Anesthesiologists [SASA] (2009) revealed that pain management is a professional duty for nurses and they have no choices either to do it or ignore it. Also, the knowledge, attitude and practices (KAP) model only includes the personal factors (knowledge and attitude), but the pain management barriers include the personal factors (health care providers related barriers) and the environmental factors (organizational and patients' related barriers). Therefore, this study utilized the field theory which covers all pain management barriers. The study also contributes to the literature by highlighting the requirement for more empirical research in the future of the same caliber, specifically in Arab countries where they experiencing the same issue.

On the other hand, the findings of the study can help decision-makers, particularly the Jordanian Ministry of Health who are directly involved in health services, to understand the predictors of pain management practices. It will also help policy-makers to adjust these predictors to improve the pain management practices provided by nurses.

Also, the findings from this study may provide an effective contribution to the universities' and hospitals management, especially in Jordan on the method of enhancing pain management practices among the nurses. This study will provide empirical evidence on the role of knowledge, attitude, self-efficacy, subjective norm and patients barriers on nurses practices regarding pain management. Thus, helping them to identify and focus on the most important and critical factors in achieving a proper pain management.

1.7 Summary and Overview of the Thesis

This chapter introduced the research, starting from the background of the study, defining pain, and determining the occurrence of pain among patients in hospitals. Additionally, it focused on the consequences and complications of an unrelieved pain. Furthermore, this chapter discussed the problem statement and outlined the research questions and the research objectives. Also, it explained the scope of the study and the significance of the study.

The second chapter discusses the health care sector in Jordan and overview of pain and pain management. Also, this chapter explains the ideal situation of pain management, the pain management in developing countries (the actual situation), and the underpinning theory. In addition, it reviews the relevant literature on the study variables, elaborated the literature gap, and highlighting its contributions.

The third chapter discusses the research design, population, and sample. Moreover, it explains the research framework, hypotheses, and operational definition of the study variables. Also, this chapter elucidates the data collection, instrumentation, and the pre-testing of the questionnaire. Additionally, it describes data analysis, and ethical consideration.

The fourth chapter presents the findings of the study. This chapter first shows the response rate, data screening, and non-response bias. After that, common method variance (CMV), descriptive statistics and the level of pain management practices are presented. Finally, the results of the measurement model and the structural model are displayed.

The fifth chapter discusses the study's findings. Furthermore, this chapter notes the current study's limitations, future research directions and conclusion. Finally, it offers some recommendations to improve pain management practices in Jordan.

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

The introduction chapter focused on the pain management deficiency problem among nurses and its consequences on patient safety and quality of care. This chapter includes contextual information about the health care sector in Jordan, overview of pain and pain management, and the ideal situation of pain management. In addition, this chapter discusses pain management in developing countries (actual situation), underpinning theory and review of the relevant literature. Finally, this study explains the literature gap and its contributions.

2.2 Contextual Information regarding Healthcare Sector in Jordan

The health care sector in Jordan is classified into three key sectors. They are the public sector, the private sector, and the international and charitable sector. The public sector consists of the Ministry of Health (MoH), the Royal Medical Services (RMS), medical services in public universities, and health services in the ministries and government institutions (Jordan Ministry of Health [JMoH], 2014). All Jordanians can utilize all levels of care--primary, secondary and tertiary--provided by the Jordanian Ministry of Health (JMoH). According to JMoH (2014), there are 677 medical health centers responsible for providing the primary health services. In addition, the JMoH provides the secondary and tertiary health care services in 31 hospitals in different regions (JMoH, 2014). The Ministry of Health (JMoH) provides the health services for free to all people who have a governmental health insurance and it provides the services at a nominal fee for those not covered by governmental health insurance. All of these services are funded from taxes (Al-Makhamreh, 2005. as cited in Daibes, 2011). Figure 2.1 demonstrates the percentage of beds in the JMoH of the total number of hospital beds in Jordan.

The Jordanian Royal Medical Services (JRMS) provides health care services in 12 hospitals across the Kingdom. The Higher Military Command is responsible to manage each of these hospitals. The services are offered to the worker or their dependents of diplomatic people, retired members of the military, security and armed forces. Figure 2.1 shows that 20 percent of the total number of hospital beds in Jordan is in the JRMS. Also, the public health care sector includes university hospitals, such as the Jordan University Hospital and King Abdullah Hospital, which constitute nine percent of the total hospitals beds (JMoH, 2014).

On the other hand, the private sector provides health services to patients in 61 hospitals (JMoH, 2012) and 5,000 private clinics (JMoH, 2005). The executive administration council is responsible for managing each of these hospitals. These hospitals constitute 33 percent of the total beds in Jordan (see Figure 2.1). Finally, the international and charitable sector, which is non-governmental organizations, provide health care services for some people in the specific region, such as the services provided by the United Nations Relief and Works Agency (UNRWA) to the Palestinian refugees (JMoH, 2014).

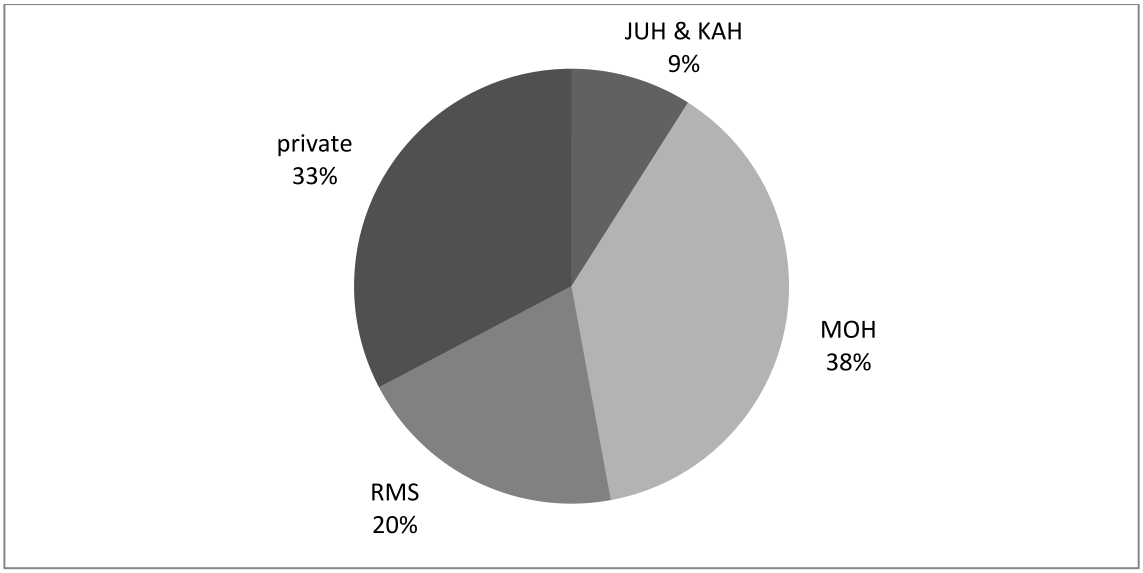


Figure 2. 1
Percentage of beds in each health sector of the total number of hospital beds in Jordan
Source: Jordanian Ministry of Health (2014)

The Jordanian health sector involves 27,569 nurses (including Registered Nurses, Associate Degree Nursing and Assistant Nurses) who work in all health sectors to provide health care services to patients in the primary, secondary and tertiary health care services (JMoH, 2012). Of those, only six percent of nurses are foreigners (Shuriquie, While, & Fitzpatrick, 2008). According to Al-Ma'aitah and Gharaibeh (2000), approximately 75 percent of Jordanian nurses are female. In Jordan, most nursing care interventions are providing by the registered nurses, especially for intellectual tasks, such as managing the patients' pain (Shuriquie et al., 2008).

The nursing education or specialization in Jordan is offered by 14 universities, of which six universities belong to the governmental sector and eight belong to the private sector (Daibes, 2011). All of these universities offer a bachelor's degree in nursing, which is the main requirement to register in the Jordanian Nursing Council (Shuriquie et al., 2008). The nursing education in the Jordanian universities is conducted in the English language because the majority of the nursing lecturers are educated in western universities and most of the nursing books used in Jordanian universities are written in English (Daibes, 2011).

2.3 Overview of Pain

Hawthorn and Redmond (1999) defined pain as a subjective experience; it varies from one person to another because people have different abilities and ways to respond to pain. In a similar vein, Boström (2003) defined it as an unpleasant sensory and emotional experience resulting from tissue damage. According to Williams (2005), the aim of pain is to alert a person regarding the presence of danger to avoid extra injuries. Consistently, Melzack and Hall (1996) explained pain as a phenomenon characterized by complexity and diversity; it occurs due to sensory stimulation. This phenomenon can affect any person at any time regardless of age and gender.

Pain is one of the oldest problems in history because it affects the quality of life of individuals since time immemorial; but, until now the concept of pain is not clear. The oldest thought regarding pain explained it as God's punishment to mankind for committing sins. Also, one of the earliest beliefs by Aristotle explained it as an emotion in the brain (Francis & Munjas, 1975). In the 17th century, this view changed when Descartes proposed that the body and the mind are independent entities, so the pain must be in the body or in the mind (Montes-Sandoval, 1999). Also, Descartes proposed the relationship between the intensity of pain and the severity of injury. In the 19th century, the understanding of pain improved as a result of increasing knowledge of anatomy and the physiology of human body.

According to The British Pain Society [BPS] (2010), the accurate way of assessing the patients' pain is by asking them about their pain. But, in some cases, due to the administration of sedatives, language differences, cognitive disorder, endotracheal intubation, and handicap, the health care providers cannot rely on the verbal expression to assess the patients' pain. So, they depend on the expression of the body to assess the patients' pain.

The human body shows pain in two ways: the behavioral expression and the physiological changes. The behavioral expression includes monitoring the patients' voices which indicate the patients' pain, such as whining, crying, screaming, moaning, and sobbing. Also, the behavioral expression involves observing the patients' facial expression or body postures, such as closed jaws, clenched teeth, closed eyes and frowned face. Furthermore, Hawthorn and Redmond (1999) explain a number of body movements considered an indicator of the presence of pain, such as rubbing the painful part and limping. According to Hawthorn and Redmond (1999), the expression of pain is affected by the patients' culture. For instance, some male patients avoid expressing their pain to female nurses. However, some patients rather wait for the health care providers to ask them about the presence of pain instead of expressing their pain immediately after the onset (Kozier, Erb, Berman & Snyder, 2004). The presence of pain in the human body is indicated by the physiological changes, which include hypertensive, tachycardia, muscle tension, pupils' dilation, pale skin, nausea, and cold perspiration (Hawthorn & Redmond, 1999).

2.3.1 Pain Theories

Many theories have been developed to explain pain and the sensory process of pain, such as specificity theory, pattern theories, and gate control theory. Specificity theory proposes a relationship between the intensity of a body injury and the intensity of pain. Müller (1842) proposed that the sensory process consists of the sender and the receiver. According to Müller, the five sensory systems--touch, hearing, smell, taste and seeing--are responsible for sending information to the brain. In addition, Von Frey (1894) proposed that the skin involves four types of sensory spots; each one is responsible for a specific sensation (Melzack & Hall, 1996).

In pattern theories, Goldscheider (1894) proposed that the critical determinants of pain include stimulation and interpretation by the brain. In other words, all pattern theories propose that the stimuli produce impulses in neurons that are transmitted to the brain to produce pain (Melzack & Hall, 1996). This theory explains the importance of using non-pharmacological intervention to relieve the patients' pain, such as the use of soothing music.

In 1965 gate control theory of pain was developed to explain the role of the brain in pain perception. This theory suggests that the central nervous system involves a "gating system" which prevents pain from being felt when the pain pathways are closed or lets the pain to occur when the pain pathways are opened. The opening and closing of this gate are affected by the nerve impulses as the result of many factors, such as the psychological factors (Melzack & Hall, 1996).

2.4 Overview of Pain Management

Pain management is a process that consists of three phases. The first phase is assessing the patients' pain by using the appropriate pain assessment tool (Kwekkeboom & Herr, 2001). The second phase is relieving the patients' pain by providing pharmacological or non-pharmacological intervention (Summer & Puntillo, 2001), and the last phase is reassessing the patients' pain (Cullen, Greiner, & Titler, 2001). The following is detailed information about each of these phases.

2.4.1 Pain Assessment Phase

One of the main nursing responsibilities is assessing and recording the intensity of the patients' pain by using the suitable method of assessment. Pain assessment should be conducted to each patient who admitted to a health-care setting. Also, it should conduct prior to, during and after a procedure (American Medical Directors Association [AMDA], 2012; Cornally & McCarthy, 2011). There are three ways to assess the patient's pain, one of which is the biological or physiological way by focusing on the pain signs and symptoms (body reaction), such as measuring the blood pressure, cortisone levels, heart rates and respiratory rates (Jacob, 2007). The second way of assessing the patients' pain is by using behavioral measures, such as observing the patients' body movements and their facial expressions (Jacob, 2007). Finally, pain assessment can be done by using self-reports, i.e. by asking the patients to determine their pain level and intensity. According to McCaffery (1968, p. ix), regardless of how knowledgeable and skilled the health care providers are, they cannot determine the degree of the patients' pain. Similarly, Strong et al. (2002) stated that using a self-reporting method is better than using observation to provide effective pain assessment because no one can determine the patients' pain intensity like the patients themselves. Furthermore, the Agency for Health Care Policy and Research [AHCPR] (1992) and McCaffery (1979) indicated that the patients' self-report is a very important indicator to assess the presence and the intensity of the patients' pain. In fact, many researchers have found that nurses failed to assess the patients' pain accurately by using the observational method (Field, 1996; Grossman, Sheidler, Swedeen, Mucenski & Piantadosi, 1991; Von Roenn, Cleeland, Gonin, Hatfield & Pandya, 1993). In other words, they found a gap between the observational assessment and the self-reporting assessment.

2.4.2 Pharmacological and Non-pharmacological Intervention Phase

Pharmacological intervention is administering analgesics to relieve the patients' pain. It is classified into three main groups of analgesics including opioid analgesics, non-opioid analgesics, and adjuvants (Urden, Stacy, & Lough, 2008). The opioid analgesics are essential to relieve the intensity of pain which ranges from moderate to severe (Cadden, 2007). This type of analgesic includes fentanylcodeine, methadone, morphine, pethidine, meperidine, and hydromorphone (Urden et al., 2008). There are many routes of administering the opioid analgesics, such as epidural, oral, and parenteral, but the most commonly used is patient-controlled analgesia (Linton & Maebius, 2003). The use of opioid may lead to many side effects including nausea, vomiting, constipation, sweating, sedation, and dry mouth (Vanegas, Ripamonti, Sbanott & DeConno, 1998). Though rare, this medication also may lead to more dangerous side effects, such as pruritis, seizure, dysphoria, urticaria, myoclonus, confusion, hallucinations, delirium, respiratory depression, and urine retention (Cherasse et al., 2004). However, many nurses have misconceptions about the adverse effect of using opioid analgesics. They believe that the opioid analgesics lead to psychological dependence (addiction), which means that the patient will suffer from compulsive and repetitive need to use this drug (Foley, 2002). Also, they believe that reducing or stopping the use of opioids will result in physical dependence or withdrawal symptoms (Foley, 2002). They also have the misconception that the opioid usage will make the patients become tolerant or less susceptible to the drug effect.

The second group of pharmacological intervention recommends relieving the patients' pain by using non-opioid analgesics. This type of analgesic is classified as short-term pain medications, such as non-steroidal anti-inflammatory drugs (NSAIDs), acetaminophen, and aspirin. Such intervention is effective to relieve moderate to severe pain if used in combination with opioids (Cadden, 2007). This type of medication is not only used to reduce the patients' pain but also reduce inflammation and fever. Furthermore, this medication is characterized by the availability of various administering routes, such as intramuscular (IM), orally, parenteral and rectally (Linton & Maebius, 2003). However, some contraindications may occur as a result of using NSAIDs, especially for the patients suffering from neutropenia, liver diseases, kidney diseases, and thrombocytopenia. In addition, other side effects of NSAIDs include fluid retention, gastrointestinal toxicity, gastrointestinal bleeding, and ulcers (Linton & Maebius, 2003). The last medication group used to relieve pain is the adjuvant, which includes local anesthetics, anticonvulsants, corticosteroids, antidepressants, and adrenergic agonist. Usually, this type of medication is not used alone to relieve any level of pain but used with opioids and non-opioid analgesics (Cadden, 2007; Hamilton, 1996).

The pharmacological intervention is not the only way to relieve the patients' pain; the non-pharmacological intervention also plays an important role in relieving it. The non-pharmacological intervention refers to the use of any method to relieve the pain without the administering of medications. It is classified into cognitive or physical strategies (Lewis et al., 2007). According to Richards and Hubbert (2007), the cognitive strategies contain various methods, such as relaxation, hypnosis, imagery, distraction, muscle relaxation, art therapy, and music therapy. The relaxation method is more effective when the pain intensity ranges between mild and moderate (Lewis et al., 2007; Linton & Maebius, 2003). This method also has many advantages. It can decrease the level of anxiety, control the post-operative pain (Guyton, 1991; Roykulcharoen & Good, 2004) and reduce the need for drugs. Also, it can decrease mental stress, sleep disturbances, and physical tension. Furthermore, it can control blood pressure, respiratory rate, heart rate, and oxygen consumption (Ignatavicius & Workman, 2002; Lewis et al., 2007; Linton & Maebius, 2003; Seers & Carroll, 1998).

In addition to the relaxation method, the cognitive strategy includes using the distraction method aimed at decreasing the severity of pain and enhances the patients' ability to tolerate pain (Linton & Maebius, 2003). In this method the health care providers ask the patients to do some behaviors, such as counting, listening to music, talking, and reading. In addition, they ask the patients to watch a television to decrease their attention (Hamilton, 1996; Linton & Maebius, 2003). This method is the most effective way to relieve the procedural pain caused by injections and dressing changes. Another cognitive method used to decrease the intensity of pain is by using hypnosis. This method focuses on reducing the patients' sense of reality during the procedural period (Patterson & Jensen, 2003).

Apart from the cognitive strategies, physical strategies as a type of non-pharmacological intervention, which have a high impact on the patients' pain, are also used. In using the physical strategies the health care providers utilize many ways to control their patients' pain, such as by applying heat and cold compresses, acupuncture, and massage. Both heat and cold compresses are used to relieve the patients' pain by decreasing the swelling area and muscle spasm. But, in some cases only cold compresses are recommended because in cases such as trauma the use of hot compresses may lead to increased bleeding (Ignatavicius & Workman, 2002). However, in spite of the importance and ease of use of heat and cold compresses, this method is used only by six percent of nurses (Matthews & Malcolm, 2007). On the other hand, acupuncture is a traditional Chinese medicine used usually to treat diseases and control pain during diagnostic procedures (Ignatavicius & Workman, 2002). Also, massage is a physical strategy used to enhance the muscles relaxation which consequently results in relieving the muscle pain. This method is contraindicated for patients with injuries, bleeding problems, skin lesions or phlebitis (Ignatavicius & Workman, 2002; Linton & Maebius, 2003).

2.4.3 Pain Reassessment Phase

The pain reassessment phase is defined by Bucknall, Manias and Botti (2007) as evaluating the patients' pain after the pharmacological and/or non-pharmacological intervention. The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) recommends that the reassessment of the patients' pain should be based on the route of analgesic administration. In other words, the patients should be reassessed by the health care provider during the first hour after the oral medications are administered and within 30 minutes of administering parenteral drug (Bucknall et al., 2007).

The previous discussion has explained the process and phases of pain management aimed at relieving the patients' pain effectively. What follows is information about the improvement in the methods and the standards of pain management. Furthermore, it includes some information about the ideal and actual pain management situation.

i. Advancement in methods and tools of pain measurement

Over the years, there has been marked advancement in methods and tools of pain measurement (Berthier, Potel, Leconte, Touze, & Baron, 1998). The first method developed is the numeric pain rating scale, which is a line divided into 11 points with the same interval space between the numbers. The point starts from 0, which represents that the patient does not have pain, until 10, which is the worst pain imaginable. In this method, the patient must choose the number that represents his/her pain (Berthier et al., 1998). Figure 2.2 demonstrates the numeric pain rating scale.

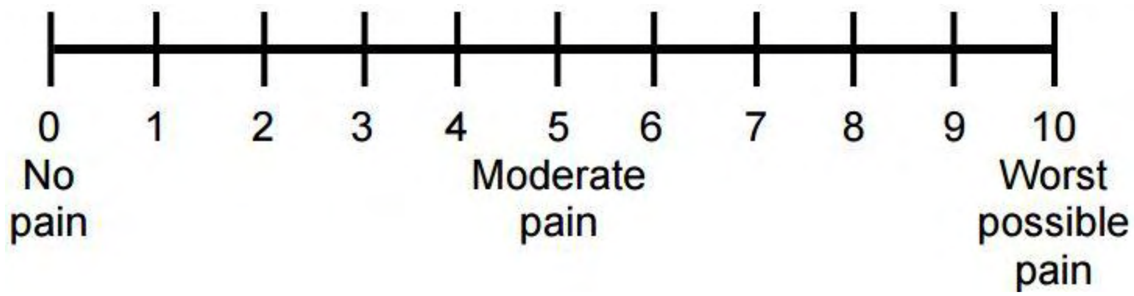


Figure 2. 2
Numeric pain rating scale
Source: McCaffery and Pasero (1999)

The second method is the visual analog pain scale. It is a ten-centimeter line which starts from 0 mm, which indicates that the patient does not have pain, until 100 mm to represent the worst pain. The line has one interval space. In this method, the patient should point on the line to represent his/her pain and then the responsible health care provider measures it by millimeter (Berthier et al., 1998). Figure 2.3 shows the visual analog pain scale.

Figure 2. 3
Visual analog pain scale
Source: Portenoy and Kanner (1996)

The third method of assessment is the verbal numeric rating scale that asks the patient to determine the level of pain from 0 to 10 (similar to the numeric rating scale). The question of ‘what will you rate your current pain?’ is verbally asked (Werner, 2011). Figure 2.4 represents the verbal numeric rating scale.

Patient's Name: ______________________________ Date: __________

Instructions: Ask the patient the following: "On a scale of 0 to 10, with 0 being 'no pain' and 10 being 'the most intense pain imaginable,' what would you rate the severity of your pain right now?"

Record the response here: __________

Scoring: Record the number verbalized by the patient, and either compute a mean score over time or simply track scores over repeated assessments.

Figure 2. 4
Verbal numeric rating scale
Source: Young (1999)

The other method is the verbal descriptor scale. It includes choices to describe the patients' intensity of pain. The choices range from 'no pain' to 'worst possible pain' (Werner, 2011). The patients should respond to this method by choosing one of these choices which represent the severity of their pain. Figure 2.5 demonstrates the verbal descriptor scale.

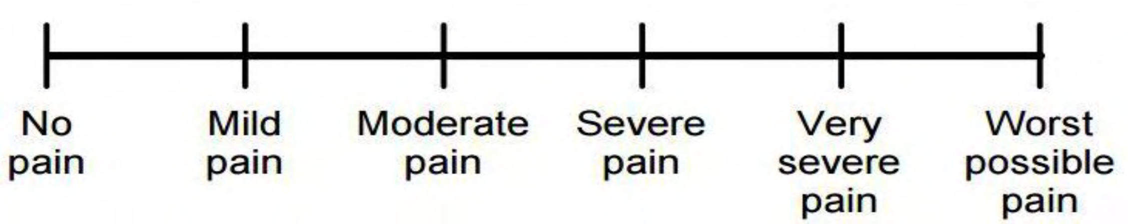


Figure 2. 5
Verbal descriptor scale
Source: Portenoy and Kanner (1996)

The last method is the Wong-Baker faces pain rating scale. It has six faces demonstrating facial expressions of a patient suffering from pain that ranges from 'no hurt' to 'hurts worst'. This method is most suitable to assess the severity of pain among children (Wong, Hockenberry-Eaton, Wilson, Winklestein & Schwatrz, 2001). Figure 2.6 shows the Wong-Baker faces pain rating scale.

Figure 2. 6
Wong-Baker faces pain rating scale
Source: Wong et al. (2001)

ii. Revolution of pain management standards and guideline

These days, patients believe that they receive quality health care when the hospital they visit is concerned about relieving the patients' pain (Berry & Dahl, 2000). So, the World Health Organization (WHO) and many international professional pain societies have drawn attention during the past decades to finding solutions for pain management deficiency (Buscemi, Vandermeer & Curtis, 2008). In the early 1990s, the pain management guideline and instruction was issued by the American Pain Society and the Agency for Healthcare Policy. It included knowledge and practices to enhance pain management (McCaffery & Ferrell, 1997). At the end of the same decade, the Joint Commission on Accreditation of Healthcare Organizations issued new standards to protect the patients from pain consequences (JCAHO, 1999). In January 2001, these new standards were required for all accredited health care organizations or those who wanted to be accredited by the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) (Alcenius, 2004; Berry & Dahl, 2000). These standards were continuously revised, upgraded, and recognized by the World Health Organization (WHO) to address all types of pain to improve health care (WHO, 2007). Recently, the International Association for the Study of Pain [IASP] (2010a) and the South African Society of Anesthesiologists [SASA] (2009) stated that effective pain management is not an optional procedure by health care providers; it is essential and one of the patients' rights.

The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) summarizes their standards on pain management as follows (Berry & Dahl, 2000):

a) A health care provider should perform effective pain management for all patients to determine the nature and severity of pain. Conducting it is a patient's right and not an optional procedure.
b) A health care provider should perform a comprehensive initial assessment including pain assessment to determine the patient's pain from the moment of admission.
c) A health care provider should perform pain assessment at any time the patient feels pain.
d) Documentation of the pain assessment should be done in an accessible and appropriate way to enable the medical staff to cooperate in reassessing and following up with the assessment data.
e) The health care system should conduct educational programs for health care providers in pain management.
f) The health care system should perform regular auditing and surveying to check the staff competence in assessing and managing the patients' pain.

g) The health care system should introduce pain management and assessment in the orientation for the new staff.

h) The health care system should have policies and procedures to explain the prescription of analgesics.

i) Protect the patient from suffering from pain within the rehabilitation period.

j) Health education about the importance of pain management should be extended to the patients and their families in the treatment process.

k) Pain management should be explained in the discharge plan paper for all patients suffering from pain. This is to assure that the pain will be controlled after the patients leave the hospital.

l) A health care provider should perform reassessment after the pharmacological and/or non-pharmacological intervention to check the effectiveness of pain management.

iii. Ideal situation regarding pain management

Many factors contribute to relieving the patients' pain. They include the concern of health care organizations in offering high quality of care by setting policies, procedures and guidelines on pain management. The evolution of pharmaceutical production, especially in analgesic drugs and the development of new equipment and technologies in administering medications also contribute toward pain relief (Coulling, 2005; Ene, Nordberg, Bergh, Johansson & Sjorstrom, 2008). Furthermore, there have been increasing efforts to provide effective continuous medical education (CME) for health care providers to enhance health care quality and set standard guidelines for all clinical practices (McCaffery & Ferrell, 1997). Moreover, the advancement in research and technologies (Bell & Duffy, 2009; Registered Nurses Association of Ontario [RNAO], 2002), the presence of significant progress in knowledge and capabilities to conduct effective pain management (Brockopp et al., 2004; McCaffery & Pasero, 1999; Wood, 2004), and, finally, the advancement in methods and tools of pain management all help to relieve pain (Bandolier, 2007; McQuay & Moore, 1998).

iv. Pain management in developing countries (actual situation)

A number of studies indicated that the developing countries were suffering from pain management deficiency even though relief from pain is a basic human right, as indicated by the International Association for the Study of Pain [IASP] (2010a) and the South African Society of Anesthesiologists [SASA] (2009). According to the study conducted by Aisuodionoe-Shadrach, Olapade-Olaopa and Soyannwo (2006) in Nigeria, only 50 percent of patients who suffered from pain received analgesics. Also in Nigeria, Imarengiaye and Ande (2006) found that 60 percent of women did not receive any kind of analgesia in labor despite the fact that 85 percent of them requested it. In Uganda, a survey conducted among anesthetic officers showed that only 45 percent had morphine or pethidine and 21 percent did not have any kind of analgesics (Hodges et al., 2007).

One of the developing countries that suffer from pain management deficiency is Jordan. According to Daibes (2011), there is a deficiency in all phases of pain management process in Jordan including pain assessment, interventions to relieve the patients' pain, and reassessment after the intervention. In addition, Daibes's study found that the nurses were the responsible for this problem. Also, Abdalrahim et al. (2008) found that only 4.3 percent of the Jordanian nurses used the pain scale to assess the patients' pain.

2.5 Underpinning Theory

The underlying theory of the present study is the field theory, which encompass the variables affecting the pain management practices.

2.5.1 Field Theory

Field theory is a theory which posits that any human behavior is determined by external environmental factors and internal personal factors (Lewin, 1951). These factors affect the personal behavior in an unequal strength. Bandura (1986) defined the environmental factors as social influences which include social persuasion, instruction, and modeling. Lewin (1951) explained the personal factors as the properties or characteristics of the individual (i.e. needs, beliefs, values and abilities). Also, the personal factors are explained as internal factors which include thinking, believing, and feeling of people (Bandura, 1986; Bower, 1975; Neisser, 1976). Moreover, the personal factors include cognitive, affective and biological events (Bandura, 1999).

Field theory is one of the psychological theories. In this theory, the major relations that determine the behavior (i.e. pain management practices) are the relationship between personal factors and behavior, and the relationship between environmental factors and behavior. Figure 2.7 demonstrates the field theory model.

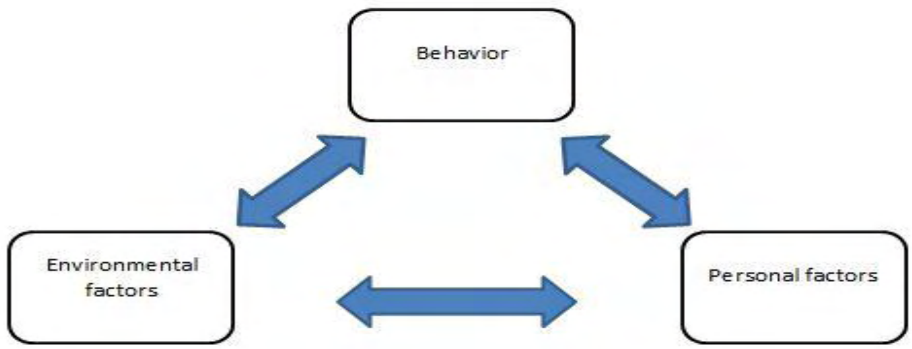


Figure 2. 7
Field theory model

The pain management practices are affected by personal factors (health care professional factors) and environmental factors which include organizational factors and patients related factors (Glajchen, 2001; Jacobsen et al., 2009; Von Roenn, 2001). The field theory covers the personal factors and the environmental factors. Thus, this theory is suitable in assessing nurses' practices in pain management. Figure 2.8 links of the study's framework with field theory model. This figure shows that the study's independent variables (attitude, self-efficacy, knowledge) demonstrate the personal factors of the field theory. On the other hand, the study variables (subjective norms and patients barriers) present the environmental factors in the underpinning theory (i.e. field theory).

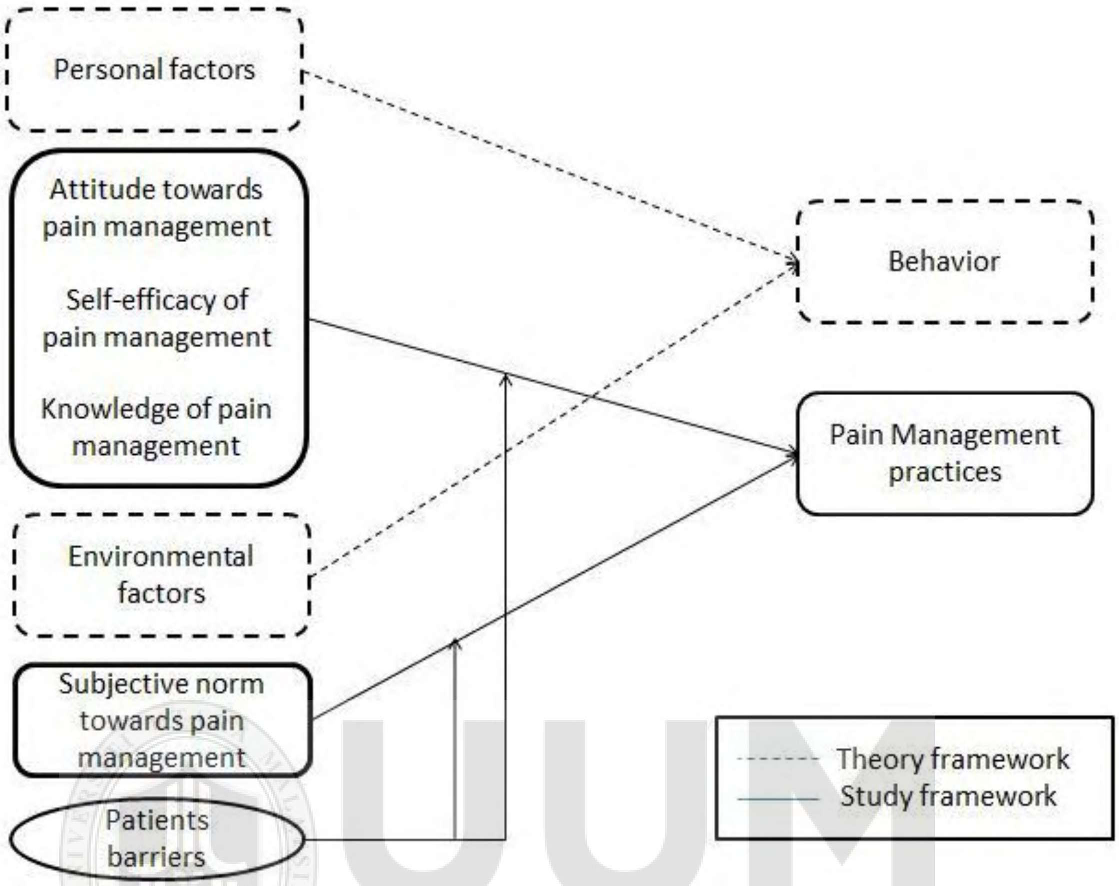


Figure 2. 8
Linking of the study framework with field theory model

2.6 Review of Past Studies

Field theory is utilized in this study as the underpinning theory because this theory is designed to predict any optional behavior (such as providing health education) and not optional behavior (such as pain management practices). Many factors may have an effect on the pain management practices. But in general all of these factors are classified into three major sets of factors: patients related factors, health care providers' related factors, and health care system related factors (Glajchen, 2001; Jacobsen et al., 2009; Von

Roenn, 2001). Many studies have been conducted to assess the relation between some of these factors and pain management practices.

2.6.1 Pain Management Practices

Pain management practices are defined as a set of activities that should be provided by nurses to relieve the patients' pain effectively (Hossain, 2010). It includes assessing the patients' pain by using appropriate pain assessment tools (Kwekkeboom & Herr, 2001), providing appropriate nurse's interventions to relieve the patients' pain (Summer & Puntillo, 2001), and reassessing the patients' pain after intervention (Cullen et al., 2001).

Many studies have been conducted on pain management practices to describe or assess their relationship with other variables. Some of these studies assessed the nurses' practices by evaluating the nurses' pain assessment and documentation procedures (Jacob & Puntillo, 1999; Romsing, 1996; Tesler, Wilkie, Holzemer & Savedra, 1994), non-pharmacological intervention (Pederson & Harbaugh, 1995; Polkki, Vehvilainen-Julkunen, & Pietila, 2001), and pharmacological intervention (Herr & Titler, 2009; Jurgens, 1996; Weber et al., 2012).

Previous studies assessed pain management in various ways. The first method of assessing the pain management practices is by auditing the patients' file to check whether the pain management practices implemented adhere to the pain management standards. Cohen et al. (2003) conducted a retrospective study to review the patients' files in five hospitals in USA. The auditing results showed that the pain management process was not optimal in most phases of assessment, documentation, pharmacological intervention, and reassessment of the patients' pain. Briggs and Dean (1998) assessed the pain management practices in England by auditing the patients' charts and performing comprehensive interviews with the patients. They later compared the data from the audit and interviews. Their study revealed that the nurses' assessments and documentations were very poor in post-operative departments. Another study was conducted retrospectively to audit the patients' file in Jordanian hospitals by Abdalrahim et al. (2008). They found that the nurses' pain assessment was poor and under optimal. Vincent and Denyes (2004) used secondary data from the patients' files to assess the pain management practices by calculating the percentage of the administered analgesic to the prescribed order. They showed that the pharmacological intervention provided by the nurses to relieve the patients' pain was not optimal.

The second method is by observing the nurses in practicing pain management. Twycross (2007a) assessed the nurses' pain management practices in a children's surgical department in England by observing their practices and comparing the result with the best practice standards. In this study the data were collected from 13 nurses over 36 shifts. The study found under optimal pain management practices performed by the nurses. For instance, he observed that the nurses waited the children to be in pain to give their analgesic and the non-pharmacological intervention was not usually performed. Similarly, Brown and McCormack (2006) observed the nurses' pain management practices in the UK and found a deficiency in pain management. Also, Bucknall et al. (2007) found pain management deficiency clearly appeared in reassessing the patients after administering the prescribed analgesic. In this study the observation technique was used to gather the data from 52 nurses in surgical departments. Byrne, Morton, and Salmon (2001) investigated how the nurses in a post-operative department respond to the children's pain. The researchers gathered the data by observing the interaction between the nurses and the patients and by interviewing the nurses, parents and patients. They showed a weak response of the nurses towards the patients' pain behavior. Also, Twycross (2007b) observed the nurses' pain management practices in a pediatric surgical ward by using a prepared specialized checklist. In this study 13 nurses were closely observed for 10 to 20 hours. The result indicated poor documentation of pain by the nurses, especially in recording pain history. The pain assessment tools were not used in a regular manner and there was a deficiency in using the pharmacological intervention. For example, the nurses waited until the patients felt pain rather than administering analgesics at the scheduled time as prescribed.

The third method of assessing the pain management practices is by directly evaluating the patients' pain. Cleeland et al. (1994) investigated the intensity of the patients' pain and the pain management practices among 1308 patients diagnosed with cancer. They demonstrated that more than 50 percent of the patients reported pain, which impaired the function of 36 percent of them, suggesting that the pain management practices were not optimal. Apfelbaum, Chen, Mehta, and Gan (2003) also gathered data on pain and pain management practices from the patients. They showed that approximately 86 percent of 250 patients reported their pain from moderate to severe. Similarly, Gelinas (2007) found that 50 percent of 93 post-operative patients reported their pain between moderate to severe. Lellan (2004) explored the pain level of 800 post-operative patients. He showed that there was an unacceptable level of pain. Wells (2000) did a descriptive study to explain the pain intensity and the medical intervention to relieve it. Interviews were conducted on 176 patients diagnosed with cancer. His result indicated poor pain management practices that led to huge prevalence of pain among the patients. Also, Zhukovsky, Gorowski, Hausdorff, Napolitano, and Lesser (1995) found that 44 percent of 101 patients reported that the analgesic administered to the patients was insufficient to relieve their pain as they ranked their pain intensity more than moderate.

In another related study conducted on oncology, medical and surgical patients, Nash et al. (1996) observed that 60 percent of the patients had pain and 26 of them suffered moderate to severe pain. Watt-Watson et al. (2001) conducted their study on 94 patients from four cardiac units and found that despite the fact that the patients were suffering from moderate to severe pain only 47 of them were administered prescribed analgesic. Yates et al. (2002) surveyed 114 patients suffering from cancer diseases to assess the existence and the severity of the patients' pain. Their result showed that 58 percent of the patients reported the existence of pain and more than 50 percent rated their pain as mild pain or discomfort pain.

Another way to assess the pain management practices is by using questionnaire to gather the required data from health care providers. This technique is widely used because it is able to involve large sample, cost effective, and easy to apply. Hossain (2010) assessed the pain management practices among 93 nurses working in pediatric surgical units at public Bangladesh hospitals by using a comprehensive scale that has 59 questions. The result indicated a moderate level of pain management practices.

Similarly, Basak (2010) used self-administered questionnaire to assess the pain management practices of 87 nurses in two hospitals in Bangladesh. Basak found a moderate level of pain management practices among nurses working in post-operative departments. The researcher recommended urgent improvement to the pain management practices. Mathew, Mathew, and Singhi (2011) assessed the pain management practices to relieve the patients' pain among 56 nurses in three pediatric departments by using questionnaire. The result demonstrated a deficiency in pharmacological and non-pharmacological interventions to relieve the patients' pain. Kizza (2012) found that the majority of nurses performed pain assessment and documentation on the patients but with the minimal use of pain assessment tool. Wulff (2012) assessed the pain management practices by using a questionnaire on 97 nurses working in orthopedic wards of two different hospitals. The result showed that the pain management practices were inconsistent. He recommended that there is a need to establish policies and procedures regarding pain management, periodically implement file auditing, and offer pain management training.

Other authors tried to assess the pain management practices by comparing health care providers' assessment and patients' assessment. McCaffery suggested using a self-reporting technique to assess the patients' pain. He defined pain as "whatever the experiencing person says it is, existing whenever he says it does" (McCaffery, 1968, p. ix). Zalon (1993) compared the pain assessment of 119 nurses and 119 patients by using a visual analogue scale. The result showed that 45 percent of nurses underestimated the pain of patients and the nurses' assessment is modestly. By using the same tool to compare the assessment of 42 patients and 42 nurses, Choiniere, Melzack, Girard, Rondeau, and Paquin (1990) revealed that 33 percent of nurses underestimated the patients’ pain. Graffam (1981) compared the ranking of the pain intensity perceived by 100 patients and 51 health care providers by using a verbal descriptor scale. The result indicated that 52 percent of health care providers underestimated the pain of patients. Walkenstein (1982) investigated the perception of pain of 15 patients and eight nurses. In this study the perception of pain was assessed by using the Stewart Pain-Color Scale. The result indicated that the nurses’ perception of the patients' pain was less than the patients’ own perception. Teske, Daut, and Cleeland (1983) carried out a study to assess the relationship between the nurses’ assessment of the patients’ pain by observation and the patients’ self-assessment of their pain. They reported that the nurses assessed the patients' pain more by observing them than by asking the patients themselves. Van der Does (1989) assessed the relationship between the nurses' rating of pain and the patients' rating of pain when performing wound dressing for the patients in the burn unit. In this study 126 patients participated. The result showed that the relationship between the patients’ and nurses’ assessment of pain was not strong.

The correlation between the patients' rating of their pain and the nurses' rating was also examined by Grossman et al. (1991), who assessed the pain of 103 patients diagnosed with cancer by using a visual analogue scale. Their result showed a significant relationship between the rating of the pain by the patients themselves and the rating by their nurses. Other studies used different data collection techniques to examine such relationship. Watt-Watson et al. (2001) used three different techniques to gather the study data from four cardiac units. Self-administered questionnaire was administered to 94 nurses to assess their rating of the patients’ pain, while interviews were conducted with 225 patients about their pain. They also used the auditing technique to assess the nurses' documentation of the pain level and pain management. They observed that most patients reported uncontrolled pain and deficiency in the pharmacological intervention. The researchers also found poor documentation of pain and the relationship between the pain rating level and the analgesic administration was non-existent. Sloman, Rosen, Rom, and Shir (2005) also compared data from self-reporting of the pain intensity of 95 surgical patients. The nursing team in the surgical units was asked to complete a questionnaire to rate the pain intensity level of the surgical patients. The researchers also collected data on cultural and ethnic characteristics of nurses and patients. The researchers revealed a deficiency in pain management among nurses. The relationship between pain rating and cultural and ethnic characteristics was not significant. Moreover, there was no significant impact of the nurses' workplace and their level of education on their pain assessment. Field (1996) asked 39 patients about their level of pain after spinal surgery by using a verbal pain rating scale. Seventy-eight nurses assessed the patients' pain by using the same scale. Data were compared and it was found that the nurses underestimated the pain.

2.6.2 Attitude towards Pain Management

Many authors have offered different views on the definition of attitude. Fishbein and Ajzen (1975, p. 216) defined attitude towards a behavior as a negative or positive feeling to perform specific behavior. It also has been defined as "the degree to which a person has a favorable or unfavorable evaluation or appraisal of the behavior in question" (Ajzen, 1991, p.188).

Attitude towards a behavior is a very important determinant of a certain behavior and behavioral intention (Jurgens, 1996). Horbury et al. (2005) and Lui et al. (2008) revealed that attitude towards pain management is a significant indicator to perform effective pain management. Also, as stated by Al-Hassan, Alkhalil, and Al Ma'Aitah (1999), the attitude towards pain management is a very important factor to reduce post-operative pain and enhance the quality of health care. Broome, Richtsmeier, Maikler, and Alexander (1996) contended that the negative attitude towards pain management as the key barrier to performing effective pain management. McCaffery and Ferrell (1992), and Vortherms, Ryan and Ward (1992) found that the negative attitude towards effective pain management had a direct impact on the pain management practices.

Several studies found that health care providers had a negative attitude towards pain management. In Belgium, Broekmans, Vanderschueren, Morlion, Kumar and Evers (2004) assessed the nurses' attitudes toward administering opioids to control the patients' pain in a university hospital. They found that the nurses had a negative attitude toward administering the prescribed opioid or painkillers to the patients. Another study by Titler et al. (2003) reported a negative attitude towards administering analgesic drug for post-hip fracture patients in USA. They also found that the nurses developed such negative attitude due to the difficulty in reaching and communicating with the responsible doctor about the appropriate drug and the desired analgesic dose. In UK, Coulling (2005) and Mackintosh (2007) found in their research that nurses in different areas had knowledge deficiency and bad negative attitude towards pain management for post-operative patients. Sandie and Heindel (1999) assessed the attitudes of non-anesthesia nurses regarding post-operative epidural analgesia in USA. The data was collected from a survey distributed via convenience sample. Also, they reported negative attitude towards opioids administration. Al-Khawaldeh, Al-Hussami and Darawad (2013) assessed the attitude of 240 nursing students in three Jordanian universities towards performing effective pain management. They revealed that the students had a negative attitude towards pain management. In China, Zhang et al. (2008) performed a quasi-experimental study to assess the impact of an educational program on the nurses' attitude towards pain management. The result of the pre-education test indicated that the nurses had an inadequate attitude towards pain management.

In addition, the average score of the attitude of health care providers towards performing the desired pain management was various, but it demonstrated a poor attitude towards controlling the patients' pain. In Jordan, Abdalrahim, Majali, Stomberg and Bergbom (2011) assessed the nurses' attitude towards pain management using a questionnaire and they revealed that the average number of correct answers was only 45.7 percent and the nurses had a negative attitude to use the self-reporting method to assess the patients' pain unless if there was a visible cause of pain. Similarly, in Hong Kong Lui et al. (2008) assessed the attitude towards pain management among 143 nurses using a self-administered survey. They reported that the average score of the correct answers on the nurses' attitude towards pain management was equal to 48 percent.

However, other studies results indicated a positive attitude of nurses towards pain management, such as the study conducted in Australia by Edwards et al. (2001) to assess the determinants of the nurses' intention to administer analgesia to relieve the patients' pain. They found that more than 50 percent of the respondents had a positive attitude towards administering the prescribed opioids.

2.6.3 Relationship between Attitude towards Pain Management and Pain Management Practices

Many researchers indicated that patients suffer from uncontrolled pain due to the attitudes of the health care providers. Brunier, Carson and Harrison (1995) assessed the nurses' belief about patients' pain in Canada using survey tool. They found that inadequate treatment of pain is caused by the attitude deficits of healthcare providers. In USA, a cross-sectional mail survey is utilized to investigate the nurses' beliefs regarding pain (Ferrell, McGuire & Donovan, 1993). They found that the nurses' beliefs about pain and the curriculum content related to pain were less than optimal which consequently affect their practices. McCaffrey and Ferrell (1995) examined the nurses' belief about cancer pain in five countries. From their study, it was revealed that approximately 11% to 16% of nurses from United States, Canada, and Australia believed that a placebo could be used to determine if pain is real. They also found that the percentage of nurses who believed treatment of severe pain should be initiated anytime ranged from 51.2% (Japan) to 93.2% (Canada). Unfortunately, these beliefs among nurses may affect their pain management practices.

Previous studies on pain management reported a significant and positive relationship between attitude and pain management practices (Edwards et al., 2001; Jurgens, 1996; Pellino, 1997; Rony et al., 2010). In the US Rony et al. (2010) found a significant positive link between the attitude towards pain management and pain management practices among parents. Also, in the US Pellino (1997) found a significant positive relationship between the orthopedic patients' attitude and their intentions to take postoperative analgesics. Edwards et al. (2001) conducted a study to assess the nurses' likelihood to administer the opioid analgesics to relieve the patients' pain and found a positive relationship between attitude and intention to administer the prescribed opioids among Australian nurses. In Canada, Jurgens (1996) found a significant relationship between attitude towards pain management and intention to manage pain by administering morphine post operatively as the nurses' intervention. On the contrary, Weber et al. (2012) found a significant negative relationship between the paramedics' attitudes toward administering morphine analgesic and their intention to morphine administration in Australia.

Other studies did not find any significant relationship between attitudes toward pain and pain management practices. Hossain (2010) carried out a study among pediatric surgical nurses in three hospitals in Bangladesh. He examined the relationship between the nurses' attitude towards pain management and their pain management practices by using a survey questionnaire. The results indicated an insignificant relationship between attitude and practices in pain management. In Bangladesh, Basak (2010) revealed that the relationship between the nurses' attitude towards pain management and their practices in pain management was insignificant. This finding was supported by the most recent study conducted by Al Qadire and Al Khalaileh (2012), who found a discrepancy between the attitudes and the practices in pain management among Jordanian nurses. Similarly, Nash et al. (1993) carried out a study in Australia. They assessed the effect of nurses' attitude towards pain assessment on the nurses' intention to perform pain assessment in five public and private hospitals. The results indicated that the nurses' attitude towards pain assessment had an insignificant contribution to performing effective pain assessment. Similarly, Lui et al. (2008) found that the association between the nurses' attitudes toward pain management and their clinical practices were insignificant in China. A study conducted by Twycross (2008) among UK nurses showed a discrepancy between the nurses' attitudes and their specific practices in pain management. In other words, this study found that the nurses had positive attitudes toward using pain assessment tools, but these attitudes did not encourage the nurses to use these tools. Layman Young et al. (2006) also found discrepancies between attitudes and practices. They explained that although the nurses were aware of the significance of pain management, they failed to perform effective pain management. Collier et al. (1995) investigated the relationship between the attitude towards performing acupuncture and the outcome of pain management; they found that the relationship between these variables was insignificant.

Based on the literature reviewed, attitude has been assessed in various countries. Previous findings indicated that the relationship between the attitude of the health care providers and their pain management practices are inconsistent. Moreover, very few studies were concerned the attitude of health care providers (Daibes, 2011). So, the current study tries to cover this gap by assessing the relationship between nurses' attitude towards pain management and their pain management practices in Jordan. Table 2.1 provides a summary of the previous studies on the relationship between the attitudes of health care providers and pain management practices.

Table 2. 1
Summary of Previous Studies on the Relationship between Attitude and Pain Management Practices

Author	Area	Country	Respondents	Dependent variable	Finding
Edwards et al. (2001)	Pain management (intervention phase)	Australia	446 nurses	Intention to administer opioid analgesics	Significant positive relationship
Weber et al. (2012)	Pain management (intervention phase)	Australia	94 paramedics	Intention to administer morphine	Significant negative relationship
Jurgens(1996)	Pain management (intervention phase)	Canada	149 nurses	Intention to administer morphine	Significant positive relationship
Rony et al. (2010)	Pain management	U.S.A	132 parents	pain management practices	Significant positive relationship
Nash et al. (1993)	Pain management (assessment phase)	Australia	59 nurses	Intention to assess patients' pain	Insignificant relationship
Basak (2010)	Pain management	Bangladesh	87 nurses	pain management practices	Insignificant relationship
Hossain (2010)	Pain management	Bangladesh	93 nurses	pain management practices	Insignificant relationship
Lui et al. (2008)	Pain management	China	143 nurses	pain management practices	Insignificant relationship
Twycross (2008)	Pain management	UK	13 nurses (practice) 12 nurses (attitude)	pain management practices	Insignificant relationship
Layman Young et al. (2006)	Pain management	USA	52 nurses	pain management practices	Insignificant relationship
Al Qadire and Al Khalaileh (2012)	Pain management	Jordan	211 nurses	pain management practices	Insignificant relationship

Table 2.1 (Continued)

Author	**Area**	**Country**	**Respondents**	**Dependent Variable**	**Finding**
Pellino (1997)	Pain management (intervention phase)	USA	N= 137 orthopedic patients	Intentions to take postoperative analgesics.	Significant positive relationship
Collier et al. (1995)	Pain management (intervention phase)	UK	41 patients	pain management practices	Insignificant relationship

2.6.4 Self-efficacy of Pain Management

Previous investigators have provided different definitions of self-efficacy. Bandura (1977) defined self-efficacy as the confidence of a person in own ability to perform specific behavior. Also, it is defined as “people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances” (Bandura, 1986, p. 391).

Self-efficacy and perceived behavioral control have the same operational definition. According to Ajzen (2016), there are no differences between perceived behavioral control and self-efficacy. In previous studies that assessed the relationship between perceived behavioral control and intention to engage in pain management (Edwards et al., 2001; Jurgens, 1996; Nash et al., 1993; Weber et al., 2012) perceived behavioral was measured by self-efficacy.

2.6.5 Relationship between Self-efficacy of Pain Management and Pain Management Practices

Existing studies that assessed the relationship between self-efficacy and pain management only focused on the nurses' likelihood to perform pain management. A number of investigators carried out studies to assess the relationship between self-efficacy of pain management and intention to manage pain in specific behavior and they found a significant relationship between these variables (Edwards et al., 2001; Jurgens, 1996; Nash et al., 1993; Weber et al., 2012). For instance, Nash et al. (1993) found that the nurses' self-efficacy was positively and significantly related to their intention to assess the patients' pain in Australia. Similarly, Edwards et al. (2001) conducted a study in Australia. They found that the relationship between the nurses' self-efficacy and their intention to administer opioid analgesics was significant and positive. Jurgens (1996) used theory of planned behavior to evaluate the relationship between self-efficacy of the Canadian nurses and their intention to manage pain by administering morphine post operatively. The result showed also a significant positive relationship. A recent study conducted by Weber et al. (2012) found that paramedics' self-efficacy had a significant relationship with their intention to administer morphine to relieve the patients' pain. On the contrary, Pellino (1997) found that the patients' self-efficacy to take the prescribed analgesics postoperatively was not significantly associated with their likelihood to take the analgesics. Table 2.2 provides a summary of the previous findings on the relationship between health care providers' self-efficacy and intention to perform pain management.

Based on the above discussion, previous studies seemed to have neglected the link between self-efficacy of pain management and the pain management practices. Furthermore, the findings on the relationship between the health care providers' self-efficacy and their intention to perform the required pain management across the existing studies were inconsistent. So, this study fills this gap by assessing the relationship between self-efficacy of pain management and the pain management practices among Jordanian nurses.

Table 2. 2
Summary of Previous Studies on the Relationship between Self-Efficacy of Pain Management and Intention to Perform Pain Management

Author	Area	Country	Respondents	Dependent Variable	Finding
Nash et al. (1993)	Pain management (assessment phase)	Australia	59 nurses	Intention to assess patients' pain	Significant positive relationship
Edwards et al. (2001)	Pain management (intervention phase)	Australia	446 nurses	Intention to administer opioid analgesics	Significant positive relationship
Jurgens (1996)	Pain management (intervention phase)	Canada	149 nurses	Intention to administer morphine	Significant positive relationship
Weber et al. (2012)	Pain management (intervention phase)	Australia	94 Paramedics	Intention to administer morphine	Significant positive relationship
Pellino (1997)	Pain management (intervention phase)	U.S.A	137 patients	Intentions to take postoperative analgesics	Insignificant positive relationship

2.6.6 Knowledge of Pain Management

Alley (2001) defined the knowledge of pain management as "knowledge technologies used by nurses to help patients to achieve optimal pain relief". The level of health care providers' knowledge is affected by many factors, one of them is the demographic data and personal information. Previous studies revealed many nurses' characteristics that was significant in determining the level of pain management knowledge, such as cultural background (Brunier et al., 1995; McCaffery & Ferrell, 1995) and attending educational programs in pain (Abdalrahim et al., 2011; Al Qadire & Al Khalaileh, 2012; Al-Khawaldeh et al., 2013; Brunier et al., 1995; Lewthwaite et al., 2011; Page & Halvorson, 1991; Ravaud et al., 2004; Simpson, Kautzman & Dodd, 2002; Vortherms et al., 1992; Voshall, Dunn & Shelestak, 2013). In addition, the working environment was found to be a highly influential factor on nurses' pain management knowledge (Clarke et al., 1996; Fothergill-Bourbonnais &Wilson-Barnett, 1992; Wilson, 2007). Also, the working position of the health care providers (Brunier et al., 1995; Lewthwaite et al., 2011) and their professional experiences played an important role in determining the pain management knowledge (Basak, 2010; Fothergill-Bourbonnais & Wilson-Barnett, 1992; Harrison, 1991; Sloman, Ahern, Wright & Brown, 2001; Vortherms et al., 1992; Wilson, 2007; Yildirim, Cicek & Uyar, 2008; Yu & Petrini, 2007).

Other groups of researchers suggested that the potential reason for the deficiency in pain management knowledge was the weakness in the nursing education programs and curricula. Such finding was reported after a comprehensive review of the nursing curriculum was assessed for the pain management coverage (Chiu, Trinca, Lim &

Tuazon, 2003; Ferrell et al., 1993; Goodrich, 2006; McCaffery & Robinson, 2002; McMillan et al., 2000; O'Brien, Dalton, Konsler & Carlson, 1996; Plaisance & Logan, 2006; Polomano, Dunwoody, Krenzischek & Rathmell, 2008; Sauaia et al., 2005; Voshall et al., 2013; Watt-Watson, Chung, Chan & McGillion, 2004). The pain management coverage was assessed by determining the allocated time given to discuss topics on pain in the curricula. Review of the pharmacology course revealed that only three hours of 51 hours were dedicated to discussing the pharmacological intervention to relieve the patients' pain (Rahimi-Madiseh, Tavakol & Dennick, 2010). In England Twycross (2000) assessed the nursing course content and reported that the time allocated to the pain management topic was less than 10 hours. Also, in USA the result was not that different; it was approximately less than four hours (Wallace, Reed, Pasero & Olsson, 1995). Similarly, in Jordan the curricula for the nursing specialty reviewed at two universities showed that less than one hour during four years was dedicated to pain and pain management topic (Daibes, 2011).

Other researchers assessed the coverage of pain management topic by determining the number of textbooks pages dedicated to pain issues. Ferrell, Virani and Grant (1999) reported that only 284 out of 45,683 pages were set to discuss the pain related issues within 700 nursing textbooks. However, according to Bernardi, Catania, Lambert, Tridello and Luzzani (2007), the inadequate or minimal curricula were not the only cause for deficiency in pain management knowledge; lecturers are also responsible for motivating their nursing students to use any learning method to enhance or to update their knowledge about pain.

Knowledge of pain management is a very important determinant in the pain management practice and it is essential for effective intervention to relieve the patients' pain (Al-Shaer, Hill & Anderson, 2011). It includes knowledge of pain management ethics, pharmacological and non-pharmacological interventions, misconceptions regarding pain and the physiology of pain (Ferrell et al., 1993). According to Ely (2001), Fairbrother, Jastrzab, Kerr and McInerney (2003), Horbury et al. (2005), Kitson (1994), Matthews and Malcolm (2007), McCaffery and Ferrell (1992), Thomas (1997) and Vortherms et al. (1992), the knowledge of pain management is a major barrier to perform effective pain management. Thus, Edwards et al. (2001) recommended that researchers assess the effect of pain management knowledge with TPB factors on the nurses' intention to perform pain management.

Many studies have showed critical deficiency in pain management knowledge (Al Qadire & Al Khalaileh, 2012; Al-Khawaldeh et al., 2013; Aziato & Adejumo, 2013; Bookbinder et al., 1996; Brown et al., 1999; Brunier et al., 1995). The lack of pain management knowledge includes weak understanding of the main principles in pharmacokinetic and analgesics (Cason, Jones, Brock, Maese & Milligan, 1999; Manworren, 2000; McCaffery & Ferrell, 1997; McInerney, Goodenough, Jastrzab & Kerr, 2003; Schmidt, Eland & Weiler, 1994), minimal information about scheduling of the prescribed analgesics (Hamilton & Edgar, 1992; McCaffery, Ferrell, O'Neil-Page, Lester & Ferrell, 1990), and misunderstanding of the meaning of P.R.N medications, wrongly defined by nurses as "after the patient requests medication" instead of "as needed" (Winefield, Katsikitis, Hart & Rounsefell ,1990). Furthermore, the deficiency in pain management knowledge includes poor education regarding the pain assessment methods (Coulling, 2005; Gimbler-Berglund, Ljusegren & Enskär, 2008; Mackintosh, 2007; Manworren, 2000; Salantera & Lauri, 2000), poor understanding of the pain management methods (Al-Shaer et al., 2011; Clarke et al., 1996; Holley, McMillan, Hagan, Palacios & Rosenberg, 2005; McCaffery & Robinson, 2002; Tapp & Kropp, 2005), overestimation of the risk of addiction from analgesics (McCaffery et al., 1990), and misconception about the analgesic side effects (Clarke et al., 1996; Vincent & Denyes, 2004).

In addition, inadequate pain management knowledge involves limited information about the pharmacological intervention (Bernardi et al., 2007; Brunier et al., 1995; Cason et al., 1999; Chen, 2005; Hamilton & Edgar, 1992; Manworren, 2000; Salantera & Lauri, 2000; Salantera, Lauri, Salmi & Helenius, 1999; Vincent, 2005), and about the accurate method of assessing the patients' pain by using the observational method instead of the subjective method (McCaffery & Ferrell, 1997). And finally, other deficiencies include inadequate information about the role of the non-pharmacological intervention to relieve the patients' pain (Francke, Lemmens, Huijer Abu-Saad & Grypdonck, 1997; Manworren, 2000; Salantera et al., 1999; Vincent & Denye, 2004 Vincent, 2005), wrong beliefs about the relationship between the analgesics effectiveness and the patients age (Closs, 1996), and insufficient knowledge of the anatomy and physiology of pain (Clarke et al., 1996).

The majority of the previous studies assessed the deficiency in the knowledge of pain management by calculating the percentage of the correct answers. Clarke et al. (1996) found that the nurses given 62 percent correct answers. Similarly, Hamilton and

Edgar (1992) found that only 64 percent of the answers were correct. Another study conducted in China by Li and Liu (2003) to assess the knowledge of pain management among 374 nurses indicated that the average correct answer was only 38.9 percent. Also, in a study aimed at evaluating the effectiveness of the education program to enhance the nurses' knowledge of pain and pain management, the pre-test result showed that only 45.7 percent of the survey questions were answered correctly (Abdalrahim et al., 2011). Similarly, Chiang, Chen and Huang (2006) found that the average score of the pre education test was only 57 percent. Recently, Han, Park and Jin (2016) mentioned that the average correct response answer for knowledge was 62.7%, indicating insufficient nurse's knowledge of pain management.

The inadequate knowledge of pain management among health care providers is a worldwide problem. McCaffery and Ferrell (1995) conducted their study among 1428 nurses in five countries: Japan, USA, Spain, Canada, and Australia. They revealed that the health care providers in these five countries had poor pain management knowledge similar to those in Hong Kong (Lui et al., 2008) and in Saudi Arabia (Kaki, Daghistani & Msabeh, 2009).

2.6.7 Relationship between Knowledge of Pain Management and Pain Management Practices

A number of empirical studies have assessed the relationship between the nurses' knowledge of pain management and their practices in pain management with inconsistent results. Glajchen and Bookbinder (2001) found a highly significant relationship between the knowledge and the subjective competence of pain management among 1229 home care nurses in the USA. In Saudi Arabia, a study on medical and surgical departments in three hospitals revealed that the relationship between knowledge of pain management and the practices in the non-pharmacological intervention was positive. This study was conducted among 120 male and female nurses (Ali et al., 2013). In contrast, many studies did not find a significant relationship between these variables. In Canada Watt-Watson et al. (2001) found an insignificant relationship between the nurses' knowledge of pain management and the pharmacological intervention. Also, they found no relationship between the nurses' knowledge and the patients' pain rating. Vincent and Denyes (2004) reported no relationship between the nurses' level of knowledge of pain management and their likelihood of administering analgesics. In Bangladesh studies conducted by Basak (2010) and Hossain (2010) indicated an insignificant relationship between the nurses' knowledge of pain management and their pain management practices. Twycross (2007b) also found an insignificant relationship between the nurses' knowledge of pain management and the quality of performing pain management practices in the UK. Collier et al. (1995) demonstrated an insignificant relationship between the patients' knowledge of non-pharmacological intervention technique (acupuncture) and their response to the acupuncture treatment. Similarly, many studies found that the health care providers who had a high level of knowledge of pain management did not consistently perform effective pain management (Akuma & Jordan, 2012; Greenwood, Sullivan, Spence & McDonald, 2000; Kneafsey, 2000; Rieman & Gordon, 2007; Schmieding & Waldman, 1997).

Table 2.3 summarizes previous findings on the relationship between the health care providers' knowledge and their practices in pain management. In sum, there are inconsistent and contradictory findings of the relationship between knowledge and practices in pain management over the years, justifying the need for more studies to assess this relationship. So, this study was carried out to fill the gap by assessing the relationship between the nurses' knowledge and their practices in pain management in Jordan.

Table 2. 3
Summary of Previous Studies on the Relationship between Knowledge of Pain Management and Pain Management Practices

Author	Area	Country	Respondents	Dependent Variable	Finding
Glajchen and Bookbinder (2001)	Pain management (assessment and intervention phase)	U.S.A	1229 Nurses	Perceived Competence in Pain Management	Significant relationship
Watt-Watson et al. (2001)	Pain management (pharmacologi cal intervention phase)	Canada	80 nurses	Pain management outcomes	Insignificant relationship
Vincent and Denyes (2004)	Pain management (pharmacologi cal intervention phase)	U.S.A	67 nurses	Analgesic Administration Practices	Insignificant relationship
Twycross (2007b)	Pain management	UK	12 nurses	Pain management practices	Insignificant relationship
Basak (2010)	Pain management	Bangladesh	87 nurses	pain management practices	Insignificant relationship
Hossain (2010)	Pain management	Bangladesh	93 nurses	pain management practices	Insignificant relationship

Table 2.3 (Continued)

Author	Area	Country	Respondents	Dependent Variable	Finding
Ali et al. (2013)	Pain management (intervention phase)	KSA	120 nurses	Pain management practices	Positive relationship
Collier et al. (1995)	Pain management (intervention phase)	UK	41 patients	Pain management practices	Insignificant relationship

2.6.8 Subjective Norm towards Pain Management

Subjective norm is defined as "a person's perception of the social pressures put on him/her to perform or not to perform the behavior in question" (Ajzen, 1985, p. 12). Also, it is defined as ones' perception about the favorableness of important others towards performing the behavior (Ajzen, 1991). In addition, it is defined as the "perception that most people who are important to him think he should or should not perform the behavior in question" (Ajzen & Fishbein, 1980, p. 57).

The field theory proposes that subjective norm is one of environmental determinants of any behavior. But, in pain management subjective norm is the most important determinant and essential to perform effective pain management. McCaffery (1968, p. 95) defined pain as "whatever the experiencing person says it is, existing whenever he says it does". This definition explains the importance of using the patients as the main referee to assess and control their pain. Also, Twycross (2007a) found that the practice of the role model was associated with the quality of nurses' practices. In other words, the junior nurses will assess the patients' pain effectively in the same manner of the role model. This result indicated the importance of subjective norm as an effective predictor to the pain management. Al-Khawaldeh et al. (2013) conducted a survey to assess the barriers that prevent the nursing students in Jordan from performing effective pain management. They found that 72.1 percent of the nursing students reported that the main barrier was the nursing employees who did not perform pain management.

The tendency of nurses to perceive and follow the referees' advice in pain management behaviors was found to be inconsistent. Twycross (2007b) found that the nurses did not take advice about pain management from the multidisciplinary team. Conversely, Andersson (1993), Fitzpatrick, While, and Roberts (1996), and Taylor (1997) found that the junior nurses imitated the more senior nurses in their behaviors. Edwards et al. (2001) explained the nurses' tendency to comply with the request of others. They found that 94 percent of the nurses complied with the patients' request, 86 percent complied with the medical staff, 68 percent complied with the colleagues, and only 54 percent complied with the requests from the patients' relatives or friends.

2.6.9 Relationship between Subjective Norm towards Pain Management and Pain Management Practices

Existing studies on pain management seemed to have neglected the direct relationship between subjective norm and pain management practices; they only focused on the relationship between subjective norm and intention to perform the behavior. A few empirical studies showed a significant relationship between subjective norms and the likelihood of health care providers to perform pain management (Edwards et al., 2001; Pellino, 1997; Weber et al., 2012). In the USA Pellino (1997) found a significant relationship between subjective norm and the likelihood of orthopedic patients to take analgesics. In Australia, Edwards et al. (2001) found a significant and positive relationship between subjective norms and the nurses' intention to administer the opioid analgesic to control the patients' pain. This result was supported by the recent study of Weber et al. (2012), who found that subjective norm was the strongest significant predictor of behavioral intention in morphine administration among Australian paramedics.

On the contrary, past studies (Jurgens, 1996; Nash et al., 1993) found that subjective norm had an insignificant relationship with the nurses' intention to perform pain management. In Canada, Jurgens (1996) showed an insignificant relationship between subjective norm towards pain management and intention to manage pain by administering morphine post operatively as the nurses' intervention. Similarly, Nash et al. (1993) found an insignificant relationship between subjective norms and the nurses' intention to assess the patients' pain in Australia. Table 2.4 demonstrates a summary of the previous findings on the relationship between subjective norm towards pain management and intention to perform pain management.

Based on the previous discussion, the relationship between subjective norm towards pain management and the pain management practices has been neglected by previous researchers as they focused on intention as the main predictor of the behavior. The findings on the relationship between subjective norm towards pain management and the intention to perform pain management have been inconsistent. So, this study assessed the relationship between these variables among Jordanian nurses.

Table 2. 4
Summary of Previous Studies on the Relationship between Subjective Norm towards Pain Management and Intention to Perform Pain Management

Author	Area	Country	Respondents	Dependent Variable	Finding
Jurgens (1996)	Pain management (intervention phase)	Canada	149 nurses	Intention to administer morphine	Insignificant relationship
Weber et al. (2012)	Pain management (intervention phase)	Australia	94 Paramedics	Intention to administer morphine	Significant positive relationship
Edwards et al. (2001)	Pain management (intervention phase)	Australia	446 nurses	Intention to administer opioid analgesics	Significant positive relationship
Nash et al. (1993)	Pain management (assessment phase)	Australia	59 nurses	Intention to assess patients' pain	Insignificant relationship
Pellino (1997)	Pain management (intervention phase)	USA	N= 137 orthopedic patients	Intentions to take postoperative analgesics	Significant positive relationship

2.6.10 Moderator Effect of Patient-related Barriers

According to Baron and Kenny (1986), moderator variables are typically introduced when there is an inconsistent relation between the study variables. Previous studies indicated inconsistent results on the relationship between the behavioral determinants and the behavior in pain management. Some of these studies found a significant and positive relationship between attitude towards pain management and pain management practices (Edwards et al., 2001; Jurgens, 1996; Rony et al., 2010), but other studies found an insignificant relationship (Al Qadire & Al Khalaileh, 2012; Basak, 2010; Collier et al., 1995; Hossain, 2010; Layman Young et al., 2006; Lui et al., 2008; Nash et al., 1993; Twycross, 2008). Conversely, Weber et al. (2012) revealed that the relationship between the health care providers' attitude towards performing the pharmacological intervention to relieve the patients' pain and their practices was significantly negative. So, based on these inconsistent results it is imperative that a moderator variable is introduced to assess the relationship between attitude and pain management practices.

Also, there are inconsistent results of previous studies on the relationship between self-efficacy and intention to perform pain management. For instance, some of these studies found a significant and positive link between the health care givers' self-efficacy of pain management and their likelihood to the behavior (Edwards et al., 2001; Jurgens, 1996; Nash et al., 1993; Weber et al., 2012). Conversely, Pellino (1997) revealed that the link between self-efficacy to taking the prescribed analgesics and the likelihood to take the analgesics was insignificant. Therefore, investigating the effect of a moderator variable on the relationship between self-efficacy and pain management practices is needed.

Furthermore, the existing studies on pain management revealed inconsistent links between knowledge of pain management and the pain management practices. While Glajchen and Bookbinder (2001) found a significant and positive relationship between knowledge of pain management and the pain management practices, other studies revealed that no significant association (Basak, 2010; Collier et al., 1995; Hossain, 2010; Twycross, 2007b; Vincent & Denyes, 2004; Watt-Watson et al., 2001). Accordingly, assessing the moderating effect on this relation is very important.

Finally, other studies indicated a contradicting relationship between subjective norm and the intention to perform pain management. For instance, Edwards et al. (2001) and Weber et al. (2012) found a high association between the health care providers' subjective norm and their likelihood to do pain management. However, other studies found that the link between subjective norm and the intention to perform pain management was positive but not significant (Jurgens, 1996; Nash et al., 1993). Consequently, evaluating the moderating effect on the relationship between the nurses' subjective norm towards pain management and their pain management practices is needed.

In summary, the moderating effect should be assessed on all relations between the pain management determinants (attitude, self-efficacy, knowledge, and subjective norm) and pain management practices. According to Glajchen (2001), Jacobsen et al. (2009), and Von Roenn (2001), a patient-related barrier is one of the most important factors that affect pain management practices. Fitzcharles, DaCosta, Ware and Shir (2009) found that the relationship between patient related barrier and pain management was highly significant. In Jordan, patients' barriers are classified as the most important reason that prevent the patient from receiving the appropriate pain management (International Association for the Study of Pain [IASP], 2010b). Also, this variable is related to “service acceptance/refusal” and previous studies found that the moderating effect of service acceptance was significant (Lee, & Wu, 2011). A few researchers have assessed the moderating effects of perceived barriers in other areas and they found that the moderating effect of perceived barriers was significant (Bogdanovich, 2013; Huy Tuu et al., 2011). Thus, the moderator effect of the patient-related barriers are assessed on the relationship between attitude towards pain management, self-efficacy of pain management, knowledge of pain management, subjective norm towards pain management and pain management practices.

Gunnarsdottir et al. (2002) defined patient-related barriers as the patient refusing to report his/her pain inasmuch as wrong belief or misconception about pain management. The patients refusing to report their pain or to take the prescribed medication is the most significant patient-related barrier affecting pain management (Du Pen et al., 1999; Jacobsen et al., 2009; O’Brien et al., 1996; Vortherms et al., 1992). Previous studies found many reasons for the refusal of pain management (Klopper, Andersson, Minkkinen, Ohlsson, & Sjöström, 2006; Pasero & McCaffery, 2011; Schafheutle et al., 2001). Twycross and Lack (1983) found that the patients underreported their pain because they wrongly believed that the common route of analgesic administration is intramuscular because they were afraid of injections. Other patients refused to report their pain because they believed that increased pain is a bad sign of the progress of the disease (Arathuzik, 1991; Diekmann, Engber & Wassem, 1989; Twycross & Lack, 1983). In addition, Batiha (2014) and Diekmann et al. (1989) reported that some patients did not report their pain because they avoid distracting the physician from treating their diseases.

In addition, some patients refrained from reporting their pain because they erroneously believed that good patients can tolerate pain (Cleeland, 1987; Diekmann et al., 1989; Levin, Cleeland & Dar, 1985; Riddell & Fitch, 1997; Twycross & Lack, 1983; Ward et al., 1993) and other patients were reluctant to report their pain because they had fear of analgesics side-effect, such as nausea, mental confusion, constipation and drowsiness (Levin et al., 1985; McDonald, McNulty, Erickson & Weiskopf, 2000; Riddell & Fitch, 1997; Sherwood, Adams-McNeill, Starck, Nieto & Thompson, 2000; Tsai, Tsai, Chien & Lin, 2007). Other patients were afraid that taking analgesics would lead to addiction (Cleeland, 1984; Dar, Beach, Barden, & Cleeland, 1992; Ferrell, Cohen, Rhiner & Rozek, 1991; Jones, Rimer, Levy & Kinman, 1984; McDonald et al., 2000; Melzack, 1990; Riddell & Fitch, 1997; Sherwood et al., 2000; Tsai et al., 2007; Tzeng, Chou & Lin, 2006). Furthermore, some patients hesitated to notice their pain to avoid from becoming tolerant to the analgesic effect (Bostrom, 1997; Levin et al., 1985; Riddell & Fitch, 1997; Sherwood et al., 2000).

Also, some people refused to take the prescribed analgesics as a result of their religious belief. Abushaikha (2007) found that many Muslim patients refused to take their analgesic because they believed that the pain is a test from Allah to purify their sins. So, most of them preferred to pray to Allah to relieve their pain instead of using analgesics (Al-Hassan & Omran, 2005). Similarly, many Muslim patients refused the non-pharmacological interventions to relieve their pain when such intervention, such as massage involves touching the patient (Daibes, 2011). Brennan, Carr, and Cousins (2007) also found religion to be an important factor that explained the refusal of pain management. In their study, some Christian patients were reluctant to take analgesics because they believed that the painful event was "a necessarily painful process". Finally, cultural background was also found to explain the patients' expression of their pain after surgeries (Klopper et al., 2006).

A number of studies have assessed the patient-related barriers to pain and pain management. Yates et al. (2002) found that more than 50 percent of the cancer patients did not report their pain as a result of the misconception of the risk of addiction. Similarly, Nash et al. (1996) revealed that 36 percent of the patients did not notice their pain. Greer, Dalton, Carlson, and Youngblood (2001) conducted an experimental study and found that 11 percent of the patients were worried about addiction. Also, Winefield et al. (1990) revealed that the majority of the patients refused to report their pain because they had fear of addiction. In a study carried out by Hsieh, Lin, Lai, and Tsou (1998), 32.7 percent of the patients' family members had reservations on the use of pharmacological intervention to relieve the patients' pain and 28.8 percent of them refused to report the patients' pain because they believed that using the non-pharmacological intervention would progress the patients' disease.

2.7 Literature Gap and Contributions

1. There are three barriers affecting pain management practices in any health care system. They are organizational barriers, health care provider-related barriers, and patient-related barriers (Glajchen, 2001; Jacobsen et al., 2009; Von Roenn, 2001). However, previous studies have assessed the effect of health care provider-related variables on pain management practices (Basak, 2010; Edwards

et al., 2001; Glajchen & Bookbinder, 2001; Hossain, 2010; Jurgens, 1996; Nash et al., 1993; Twycross, 2007b; Watt-Watson et al., 2001; Weber et al., 2012). This study focuses on two types of barriers: health care provider-related barriers (i.e. knowledge, attitude, subjective norm and self-efficacy) and patient-related barriers.

2. Previous studies have only assessed the relationship between subjective norm, self-efficacy, and intention to perform pain management. In other words, it neglected the direct relationship with pain management practices. Pellino (1997) found that the intention to perform pain management and pain management practice was not related. So, this study assesses the direct relationship between subjective norm, self-efficacy, and pain management practices.

3. There are a very few studies on nurses' knowledge of pain management in developing countries (Yu & Petrini, 2007). This study assesses the nurses' knowledge of pain management and the direct relationship between pain management knowledge and pain management practices among Jordanian nurses.

4. Many studies on the relationship between attitudes toward pain management and pain management practices failed to prove this relation (Basak, 2010; Daibes, 2011; Hossain, 2010; Weber et al., 2012). Based on the field theory, personal factors (i.e. attitudes) can predict behavior (i.e. pain management practices)

(Lewin, 1951). So, this study assesses the relationship between these variables to prove significant relation.

5. A very limited number of social research studies have discussed the pain management topic (Daibes, 2011). This study assesses the relationship between health care professional-related variables, patient-related variable and pain management practices using a quantitative approach.

6. Some studies have utilized the theory of planned behavior as the underpinning theory to predict the nurses' intention to manage the patients' pain (Edwards et al., 2001; Jurgens, 1996; Nash et al., 1993; Pellino, 1997; Weber et al., 2012). This theory is appropriate to assess optional behaviors and behaviors which are not completely under optional control. Pain management is, however, considered an essential task of nurses and it is one of the patients' rights. In other words, the nurses' intention to perform pain management is not important predictor to perform pain management practices. Furthermore, it was found that the intention to perform pain management and the pain management practice was not related (Pellino, 1997). Thus, this theory is not used in this study as the underpinning theory.

On other the hand, other studies have utilized the knowledge, attitude and practice (KAP) model to predict the health care providers' practices in pain management (Basak, 2010; Hossain, 2010). This model only focuses on the personal factors (knowledge and attitude). However, pain management practices are not only affected by the personal factors of the health care providers, but also by the environmental factors, such as the health care system factors and patient-related factors (Glajchen, 2001; Jacobsen et al., 2009; Von Roenn, 2001). Therefore, this model is not fit to assess the relationship between pain management practices and their determinants.

In conclusion, this study utilizes a different model to support the relationship between the study variables (attitude, self-efficacy, knowledge, subjective norm, and pain management practices). The field theory focuses on the personal factors (such as knowledge, attitude, and self-efficacy) and the environmental factors (such as subjective norms). So, this model is appropriate to assess the relationship between the study variables.

2.8 Chapter Summary

The chapter highlighted the influence of independent variables, namely; knowledge, attitude, subjective norm and self-efficacy on pain management practices. Moreover, the researcher pointed out the important role of patient’s barriers variable as a moderator between the relationship between independent variables and dependent variable. Furthermore, the chapter discussed the underpinning theory (i.e. field theory). Finally, this chapter study explained the literature gap and its contributions.

CHAPTER THREE
THEORETICAL FRAMEWORK AND RESEARCH METHODOLOGY

3.1 Introduction

This chapter consists of research design, population and sample, research framework, and hypotheses of the study. Furthermore, it includes the operational definition of the study variables, data collection, and instrumentation. In addition, this chapter explains the pre test of the study (content validity and face validity), data analysis, and ethical considerations.

3.2 Research Design

A research design is a plan to collect and analyze the study data (Blumberg, Cooper, & Schindler, 2008; Zikmund, Babin, Carr & Griffin, 2009). According to Sekaran (2003), a research design details out how a study would be conducted by explaining the study purpose, investigation type, and interference of the researcher. Also, the research design should describe the research setting, unit of analysis, and time horizon.

There are many types of research according to the aim of the study including an explanatory study to test the study hypotheses, an exploratory study to explore a phenomenon, and a descriptive study to describe a phenomenon (Sekaran, 2003). This study is classified as an explanatory study because it aims to test the hypotheses to confirm or to refuse the link between the study variables.

The type of investigation is based on the research objectives; if the study objectives focus on the causes of the problem, then the study investigation is called a causal study. On the other hand, if the study objectives concern the association between important variables, then the investigation is called a correlational study. Thus, the investigation type of this study is correlational because it focuses on the association between the determinant variables (attitude, self-efficacy, knowledge, subjective norm and service refusal) and the criterion (pain management practices). This type of investigation (i.e. a correlational study) is characterized by limited researcher interference in the flow of work. In other words, the researcher only distributes and collects the questionnaire without any attempt to change the work system. Therefore, this study involved a limited interference to the normal working system through the distribution of the questionnaire to the nurses.

According to Sekaran (2003), a research setting includes a contrived setting or a noncontrived setting. A causal study is typically carried out in a contrived setting, such as a laboratory. On the other hand, a correlational study tends to proceed in a noncontrived setting or the natural environment. Because this study was conducted in Jordanian hospitals, therefore, the setting was natural or noncontrived.

A unit of analysis is explained as the "level of aggregation of the data collected during the subsequent data analysis stage" (Sekaran, 2003, p. 132). Based on the problem statement, it is classified as individuals, dyads, groups, organizations, or cultures. For instance, if the problem statement focuses on the individual data source, then the unit of analysis is an individual. If the problem statement concerns about assessing the response or practices of two people, then the unit of analysis is called a dyad. Finally, when the research problem involves assessing the group effectiveness, then the descriptive term for the unit of analysis is a group. In this study, the unit of analysis was individual because data were collected from the individual nurses. Finally, the required data for this study were collected only once; as such, this type of study is called a cross-sectional study.

3.3 Population, Sample Size and Sampling Technique

3.3.1 Population

According to the Jordanian Ministry of Health (JMoH) (2012), the health sector in Jordan includes the Ministry of Health services, Royal Medical Services, government university hospitals, private hospitals, United Nations Relief and Work Agency (UNRWA), and national centers. This study focuses on evaluating pain management practices among nurses in public hospitals (Ministry of Health services, Royal Medical Services, and government university hospitals), which provide secondary and tertiary healthcare services. A statistic provided by JMoH (2012) shows that the secondary and tertiary health system in Jordan includes 106 hospitals categorized into the public and private health sector. The public health sector includes 31 hospitals that belong to the Ministry of Health (MOH), Jordan University Hospital (JUH), King Abdullah University Hospital (KAH), and 12 hospitals that belong to the Royal Medical Services (RMS). On the other hand, the private health sector has 61 private hospitals. Table 3.1 explains the health care sectors in Jordan and the total number of beds for each sector in 2012.

Table 3. 1
Types of Hospitals, Number of Hospitals and Beds in Jordanian Health Sectors (2012)

Health sectors	**No. of hospitals**	**No. of beds**
Public health sector:	**45**	**8065**
Ministry of Health	31	4612
Royal Medical Services	12	2383
Jordan University Hospital & King Abdullah University Hospital	2	1070
Private health sector:	**61**	**4041**
Total	106	12106

Source: Jordanian Ministry of Health (JMoH) (2012)

A study population is defined as the group of people, things, or events that the investigator wants to assess (Sekaran, 2003). In Jordan, the majority of patients are referred to the public health sector because this sector provides free health care services to the Jordanian people who have the governmental or military insurance. Also, this sector offers the health services with low fees for non-covered people (Al-Hassan & Hweidi, 2004; Daibes, 2011). Because the health care services in the public sector represent the health care services provided to all Jordanian people, the population of this study includes all registered nurses who are working in the public hospitals in Jordan. These nurses have the following criteria: they should have at least a bachelor's degree, have their practicing license issued by the Nursing Council of Jordan, and must be a full-time employee at one of the public hospitals. According to the statistics provided by JMoH (2012), the total number of registered nurses working in Jordanian hospitals in the public sector is 8074 in 2012. Table 3.2 demonstrates the number of registered nurses in each category of the public sector.

Table 3. 2
Number of Registered Nurses in Each Category of the Public Sector

Public sector categories	Registered nurses No.
Ministry of Health	**4224**
Royal Medical Services	**2816**
University Hospitals	**1034**

Source: Jordanian Ministry of Health (JMoH) (2012)

3.3.2 Sample Size

Nurses are the health care providers who have the most control to relieve the patients' pain because they are directly in contact with the latter (Bagley et al., 1982; Lewthwaite et al., 2011; Zalon, 1995). So, the study sample was a nurses' team to assess their knowledge, attitude, self-efficacy, subjective norm, and practices in pain management. In addition, this study also assesses the patient-related barriers to pain management.

There are many statistical procedures to determine the appropriate sample size in a research study. This study utilized three statistical procedures to determine the sample size including the G*Power 3.1 software (Faul, Erdfelder, Lang, & Buchner, 2007), the rules of thumb (Roscoe, 1975), and Krejcie and Morgan's table (Krejcie & Morgan, 1970). Initially, a priori power analysis was conducted using G*Power 3.1 software with the following parameters: Power (1-β err prob; 0.95), an alpha significance level (α err prob; 0.05), medium effect size f^2 (0.15), and nine predictors. Based on this statistical procedure, the minimum sample size identified was 166 registered nurses.

After that, the current study used the rules of thumb proposed by Roscoe (1975). According to Roscoe (1975), in multiple regression analyses, the sample size should be 10 times or more as large as the number of the study variables. Following this technique, the sample size was determined to be at least 60 nurses. Finally, the present study utilized Krejcie and Morgan's (1970) table. As mentioned before, JMoH (2012) stated that the total number of registered nurses who are working in public hospitals is 8074. Based on the specialized table to determine the sample size which provided by Krejcie and Morgan (1970), the appropriate sample size is 368 registered nurses.

Many researchers agree that the bigger the sample size, the higher the power of a statistical test (Borenstein, Rothstein, & Cohen, 2001; Snijders, 2005). Thus, this study relied on the statistical procedure with a bigger sample size, which was the Krejcie and Morgan's (1970) table.

Theoretically, the response rate for any survey via questionnaires should be 100 percent (Bartlett, Kotrlik & Higgins, 2001). But unfortunately, this ratio cannot be achieved because some persons may simply refuse to participate or they do not return the questionnaire. This will lead to a decrease in the required sample size. To avoid this problem, the researcher followed Baruch and Holton’s (2008) and Salkind’s (1997) recommendation by increasing the sample size to at least 40 percent. Based on the previous discussion, the researcher distributed 600 questionnaires to the nurses.

3.3.3 Sampling Technique

The purpose of using sampling techniques is to reduce the cost and time (Zikmund et al., 2009). In general, the main alternative sampling designs are classified into two groups, which are probability techniques and nonprobability techniques (Zikmund et al., 2009). Nonprobability techniques are defined by Zikmund et al. (2009) as “A sampling technique in which units of the sample are selected on the basis of personal judgment or convenience; the probability of any particular member of the population being chosen is unknown” (p. 395). In other words, the selection of a sample in nonprobability sampling is not based on a random process, but on chance. Nonprobability sampling includes various techniques, such as convenience sampling, judgment sampling, quota sampling, and snowball sampling (Zikmund et al., 2009). According to Zikmund et al. (2009), using these techniques is not preferred because it leads to error and other weaknesses in sampling.

On other hand, probability techniques defined by Zikmund et al. (2009) as “A sampling technique in which every member of the population has a known, nonzero probability of selection” (p. 395). In this technique, all elements in the population have an equal opportunity of being selected as a subject in the sample. These techniques reduce the likelihood that the selection is made based on chance. This group of techniques includes simple random sampling, systematic sampling, stratified sampling, and cluster sampling (Zikmund et al., 2009). Simple random sampling is a sampling procedure that ensures every individual has an equal opportunity of being included in the sample. Systematic sampling involves selecting a starting point by a random process and then selecting every n^{th} number of the population list. Stratified sampling refers to a procedure in which a number of sampling units are drawn from each subgroup (stratum) of the population. Based on the previous discussion, to utilize simple, systematic or stratified sampling, the researcher required a list of all registered nurses working at the public hospitals in Jordan. So, these methods were not applicable in this study.

The last probability sampling technique is the cluster sampling technique. This technique involves classifying the total population into groups called clusters. After that, the researcher selects the required number of clusters randomly (Zikmund et al., 2009). In this study, the researcher utilized a multistage cluster sampling technique which refers to using several stages of cluster sampling. This technique is suitable when it is either impossible or impractical to get a list of all population elements. Also, this technique is convenient for a large population that spreads over a large geographical area (Shimizu, 1998).

In the context of the present study, the clusters considered were provinces of Jordan in the first stage and public hospitals in the second stage. Jordanian nurses across the provinces or across the hospitals are similar to each other in terms of backgrounds, duties, etc. Thus, the multistage cluster sampling was an appropriate sampling technique to achieve the research objectives. Also, this technique was used because it was difficult to obtain a list of all registered nurses working at public hospitals in Jordan and because the registered nurses were already grouped based on the province and hospitals they work.

A multistage cluster sampling is an extension of cluster sampling (Shimizu, 1998). According to Gay and Diehl (1992), the homogeneity of the subjects across the clusters is the main prerequisite to utilizing cluster sampling, which allows the selected clusters to represent all population. Also, they mentioned that the subjects in the clusters may share similar characteristics with each other (i.e. background, attitudes, and behavior). The first stage in the multistage cluster sampling is dividing the study population into primary sampling units (PSUs) and randomly selects the required PSUs as in a one-stage cluster sampling technique. After that, the sampling within each selected PSU may be carried to any number of stages by using any probability sampling method (i.e. cluster sampling) (Shimizu, 1998; Zikmund et al., 2009). Then, the study sample involves all population of the final cluster (Sekaran, 2003).

For simplicity sake, in this study, the first stage cluster sampling was carried out to select the study region and the second stage cluster sampling was executed to select the hospitals from the selected region. Then, all registered nurses who in the selected hospitals would be sampled. In the first stage, the population of this study was classified into three clusters (North, South, and Central) that represent the provinces of Jordan (see Figure 3.1).

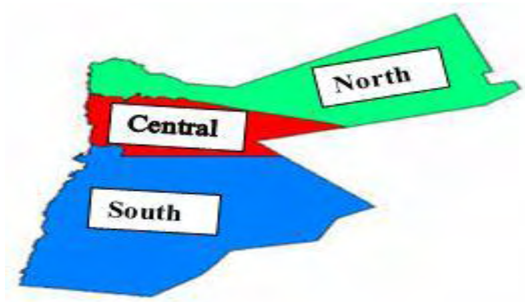


Figure 3. 1
Provinces of Jordan

The study cluster was selected using a process involving six steps as recommended by Gay and Diehl (1992). The first step was to identify the population. As previously discussed, the population included all registered nurses in public hospitals. According to JMoH (2012), the total number of registered nurses working in the Jordanian public hospitals was 8074. The second step was to identify the sample size. The sample size of the current study was 368 registered nurses. The third step was to define the logical clusters. The logical clusters were the three provinces in the north, south, and central. The fourth step was to estimate the average number of population elements in each cluster. The average population in each cluster was determined by dividing the total number of the study population, i.e. 8074 by the number of the study clusters, i.e. 3. Thus, the average number of population members per cluster was 2692 registered nurses. The next step was to determine the number of clusters needed to represent the population. This number was determined by dividing the sample size (368 registered nurses) by the average population in each cluster (2692 registered nurses). Therefore, 1 cluster was required to represent the study population. The last step in this process was selecting the needed numbers of clusters randomly. In this study, of three clusters, one cluster was selected randomly which was the central province. Table 3.3 summarizes the selection process of the study cluster.

Table 3. 3
Cluster Sampling Technique Steps

Step no.	Steps of cluster sampling	Procedures
1	Identify the population	The population of this study is all registered nurses in Jordanian public hospitals. The population size is 8074 registered nurses.
2	Identify the sample size	The sample size of this study is 368 registered nurses.
3	Define a logical cluster	The logical cluster was the three provinces, i.e. north, south, and central.
4	Estimate the average number of population elements for each cluster	Divide the total number of the study population (i.e. 8074 registered nurses) by the number of the study clusters which are three clusters (north, south, and central provinces). The result is 2692 registered nurses.
5	Determine the number of clusters which needed to represent the population	Divide the sample size (368 registered nurses) by the average population in each cluster (i.e. 2692 registered nurses). Thus, one cluster was enough to represent the study population.
6	Randomly select the needed numbers of clusters	Of three clusters, one cluster (central province) was selected by using a simple random technique.

Source: Gay and Diehl (1992)

In the second-stage cluster sampling, the researcher followed Gay and Diehl's (1992) steps. The first step was to define the study population. The population of the current study was all registered nurses who are working in public hospitals at central province of Jordan. According to JMoH (2012), the total number of registered nurses working in the public hospitals at the central region of Jordan was 3171 in 2012. The second step was to identify the sample size. As previously discussed, the sample size for this study was 368 registered nurses.

The third step was to define the logical cluster. The central province in Jordan includes 15 public hospitals (clusters). Next, the average number of population elements in each cluster was estimated. This was determined by dividing the total number of the study population of the central province (i.e. 3171 registered nurses) by the number of the study clusters (i.e. 15 public hospitals at the central province of Jordan). The result was 212 registered nurses. Next, the number of clusters needed to represent the population was determined by dividing the sample size (368 registered nurses) by the average population in each cluster (i.e. 212 registered nurses). Thus, two clusters were enough to represent the study population. Finally, two hospitals were randomly select of 15 by using a simple random technique. Table 3.4 demonstrates the total number of public hospitals located in the central province and the number of nurses in each hospital.

As a result of this procedure, two hospitals were selected (i.e. Al-Basheer Hospital and Prince Hamzah Hospital). Ideally, all nurses in these two hospitals should participate in the study (there were 990 nurses in combination as shown in Table 3.4). In case the available nurses are not enough to fill the quota of sample size, other hospitals should be selected randomly to accommodate this issue.

In this study, a third hospital was selected because the number of the registered nurses did not meet the sample size for the following reasons. Firstly, there were not enough registered nurses in these hospitals during the data collection period. The number of registered nurses declared by the JMoH (2012) does not reflect the real number of the registered nurses in the hospitals because many registered nurses were on leave (i.e. casual leave, sick leave, annual leave, maternity leave, holiday leave, and leave without pay). So, they were naturally excluded from the study sample. The second reason was the accessibility issue. The access was granted only to a few units/departments at some hospitals. Furthermore, some supervisors across the hospitals departments/units did not allow their nurses to participate in this study. They justified the rejection to workload, nurses' shortage, and the nurses being busy with their tasks. So, the nurses in these departments/units were excluded from the study sample. The last reason was that not all registered nurses deal with tasks of relieving the patients' pain (e.g., nurses' managers at all levels, instructors, quality improvement nurses, and triage nurses). Since the available number of the registered nurses across these hospitals was not sufficient to meet the sample size, the researcher had to select other hospitals to fill the quota.

Again, the same procedure of selecting additional hospitals was followed with the exclusion of Al-Basheer Hospital and Prince Hamzah Hospital. The selected hospitals this time around were Dr. Jamil Tutanji Hospital, Prince Al-Hussein Bin Abdullah II Hospital and Al-Hussein (Salt) Hospital. Even though the number of the registered nurses in these hospitals were more than the desired sample size of 368 (i.e. 382 in Table 3.4), the available number of the registered nurses was still below the desired sample size. Hence, other hospitals had to be selected. Al-Zarqa Hospital, Al-Shuneh (South) Hospital, Princess Eiman (Ma'di) Hospital, and Prince Hashem Bin Al-Hussein Hospital were approached later after being selected randomly. Similar situation was faced in all of these hospitals, specially the nursing management in Prince Hashem Bin Al-Hussein Hospital which accepted only 40 questionnaires. After excluding many registered for the reasons previously stated, the available number of the registered nurses across these hospitals was still under the required sample size. Then, other hospitals were selected randomly, resulting in King Hussein Medical Center, Prince Faisal Hospital, Princess Salma Hospital, and Al-Nadeem Hospital. However, the selection of additional hospitals was not necessary because the number of the registered nurses who were potentially able to complete the survey was more than the desired sample size (i.e. 600 registered nurses). In all, 13 hospitals participated in the present study. Because the multistage cluster technique was not able to be strictly applied (i.e. all registered nurses in a hospital should become the sampled participants), the results of the present study should be cautiously interpreted by taking this limitation into account. In spite of that, the researcher believes that this limitation did not pose a great threat to the validity of the findings as the participants involved in the present study were homogeneous (i.e. they were assumed to have similar job and duties as a registered nurses) even though they came from various hospitals in the central province.

Table 3. 4

Number of Registered Nurses and Population for Each Hospital in the Public Sector at Central Province of Jordan

Hospital number	**Hospital name**	**Categories**	**Population**	**Governorate**	**Hospital approval**
1	AL_Basheer Hospital	MOH	601	Amman	Approved
2	Prince Hamzah Hospital	MOH	389	Amman	Approved
3	Dr. Jamil tutanji Hospital	MOH	157	Amman	Approved
4	Jordan University Hospital	University Hospital	553	Amman	
5	Queen Alia Military Hospital	Military Hospital	235	Amman	
6	King Hussein Medical Center	Military Hospital	235	Amman	Approved
7	AL_Hussein (Salt) Hospital	MOH	127	Balqa	Approved
8	AL_Shuneh (South) Hospital	MOH	36	Balqa	Approved
9	Prince AL-Hussein Bin Abdullah II	MOH	98	Balqa	Approved
10	Princess Eiman (Ma'di) Hospital	MOH	51	Balqa	Approved
11	AL_Zarqa Hospital	MOH	229	Zarqa	Approved
12	Prince Faisal Hospital	MOH	124	Zarqa	Approved
13	Prince Hashem Bin Al_Hussein Hospital	Military Hospital	235	Zarqa	Approved
14	Princess Salma Hospital	MOH	34	Madaba	Approved
15	AL_Nadeem Hospital	MOH	67	Madaba	Approved
	Total		3171	-	

Note: The number of nurses in the military hospitals are estimated numbers (n= 2816/12)

3.4 Research Framework

A theoretical framework is defined by Borgatti (1999) as a collection of interrelated concepts to determine the relations and the variables that should be assessed. Figure 3.2 demonstrates the study model developed based on field theory as the underpinning theory to assess the relationship between the independent variables, moderator, and dependent variable. Figure 3.2 shows that the independent variables include attitude, self-efficacy, knowledge, and subjective norm towards pain management. The moderator variable is the patient-related barriers, while the dependent variable is the pain management practices.

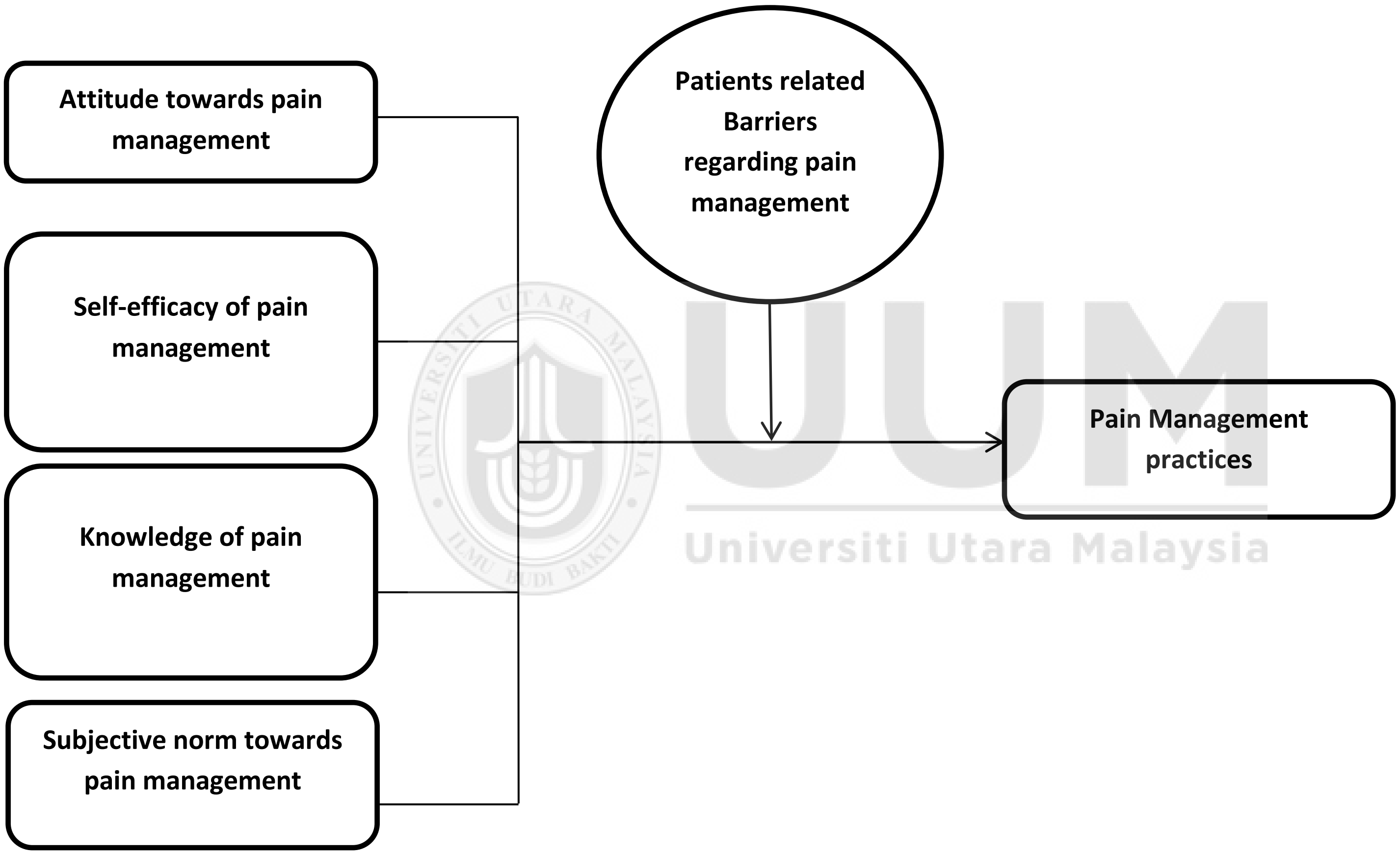


Figure 3. 2
Theoretical framework of the present study

3.5 Hypotheses of the Study

Based on the research framework, this section discusses the relationship between the pain management practices and their direct and indirect predictors, i.e. attitude, subjective norm, self-efficacy, knowledge, and patient-related barriers.

3.5.1 Attitude towards Pain Management and Pain Management Practices

The first hypothesis is the relationship between the nurses' attitude towards pain management and their pain management practices. In the medical field, previous studies revealed a significant and positive association between attitude towards behavior and actual behavior (Dhimal et al., 2014; Farokhzadian & Shahrbabaki, 2014; Singh et al., 2011). Similarly, Rony et al. (2010) found a significant and positive relation between attitude towards pain management and pain management practices.

Also, the existing studies in pain management revealed a positive and significant relationship between the attitudes of health care providers toward pain management and their likelihood to perform pain management (Edwards et al., 2001; Jurgens, 1996; Pellino, 1997). In addition, Armitage and Conner (2001) conducted a meta-analysis of 115 studies and showed that the attitude towards behavior explained 24 percent of the behavioral intention variance.

On the contrary, some of the previous studies found an insignificant association between attitude and pain management practices. In the medical field, Suri, Rao, and Aggarwal (2014) revealed that the relation between attitude and practices was not significant. Similarly, other studies revealed an insignificant association between attitude towards pain management and pain management practices (Al Qadire & Al Khalaileh, 2012; Basak, 2010; Collier et al., 1995; Hossain, 2010; Layman Young et al., 2006; Lui et al., 2008; Twycross, 2008). Also, Nash et al. (1993) found an insignificant relation between the nurses' attitude towards pain assessment and their likelihood to perform it. In addition, Weber et al. (2012) found that the relationship between the paramedics' attitudes toward administering an analgesic and their intention to administer the analgesic was significantly negative.

Field theory proposes that personal factors, which include attitude, are one of the determinants of behavior (Lewin, 1951). Based on the literature findings and the field theory proposition, the relationship between the nurses' attitude towards pain management and their pain management practices in this study would be significant and positive.

Hypothesis 1: There is a significant and positive relationship between attitude towards pain management and pain management practices among nurses in Jordanian hospitals.

3.5.2 Self-efficacy of Pain Management and Pain Management Practices

The second hypothesis in this study is the relationship between the nurses' self-efficacy of pain management and their pain management practices. In the medical field, previous studies found a significant relation between self-efficacy and practices (Sanders & Woolley, 2005; Zhu, Norman, & While, 2013). Likewise, in pain management studies, some reported a significant and positive relationship between the nurses' self-efficacy and their intention to perform pain management (Edwards et al., 2001; Jurgens, 1996; Nash et al., 1993; Weber et al., 2012). In these studies, the investigators defined perceived behavioral control as a person' belief in his/her ability to perform a certain behavior. Perceived behavioral control represented self-efficacy. Furthermore, a meta-analysis of 185 studies found that perceived behavioral control explained six percent of the behavioral intention variance after controlling for attitude and subjective norm and the relationship between perceived behavioral control and behavioral intention was strong (Armitage & Conner, 2001). Similarly, Godin, Bélanger-Gravel, Eccles, and Grimshaw (2008) conducted a meta-analysis and found that the relationship between self-efficacy and behavioral intention was significant.

On the other hand, other studies conducted in the medical field revealed an insignificant association between self-efficacy and practices (Abrahamson, Arling, & Gillette, 2012). Likewise, various studies reported that the relationship between the self-efficacy of the health care givers and their likelihood to perform pain management was not significant. Pellino (1997) found that the association between the patients' self-efficacy to take the prescribed analgesics and their likelihood to take the analgesics was not significant.

Field theory explains that self-efficacy is one of the personal factors that directly affect behavior (Lewin, 1951). Thus, in this study, the association between the nurses' self-efficacy of pain management and their pain management practices would be significant and positive. Based on the previous discussion and findings, the researcher hypothesizes the following:

Hypothesis 2: There is a significant and positive relationship between self-efficacy of pain management and pain management practices among nurses in Jordanian hospitals.

3.5.3 Knowledge of Pain Management and Pain Management Practices

The third hypothesis is the relationship between the nurses' knowledge of pain management and their pain management practices. The field theory states that the cognitive factors, which include the knowledge of the behavior, have a direct relationship with behavior (Lewin, 1951). So, the knowledge of pain management is directly affecting the pain management practices. In the medical field, past studies showed a significant and positive relationship between the knowledge of behavior and the behavior (Dhimal et al., 2014; Farokhzadian & Shahrbabaki, 2014; Mirsanjari et al., 2012; Suri et al., 2014). Similarly, Glajchen and Bookbinder (2001) found a highly significant and positive relationship between the nurses' knowledge and their competence in pain management.

On the other hand, the results of some of the existing studies in the medical field revealed that the association between the knowledge of behavior and the practices was insignificant (Singh et al., 2011; Suen, 1999). Consistently, many studies found an insignificant relation between the health care providers' knowledge of pain management and their pain management practices (Basak, 2010; Collier et al., 1995; Hossain, 2010;

Twycross, 2007b; Vincent & Denyes, 2004; Watt-Watson et al., 2001). Based on the findings of the previous studies and proposition of field theory, the association between the nurses' knowledge of pain management and their pain management practices would be significant and positive. Accordingly, the researcher hypothesizes the following relation:

Hypothesis 3: There is a significant and positive relationship between knowledge of pain management and pain management practices among nurses in Jordanian hospitals.

3.5.4 Subjective Norm towards Pain Management and Pain Management Practices

The fourth hypothesis is the relationship between subjective norm and pain management practices. Previous studies found a significant and positive relationship between subjective norm towards pain management and the likelihood to perform pain management (Edwards et al., 2001; Pellino, 1997; Weber et al., 2012). Furthermore, the meta-analysis conducted by Godin et al. (2008) of the studies using social cognitive theories found a significant relationship between subjective norm and behavioral intention in 62.3 percent of the studies.

Contrariwise, some studies found an insignificant relation between subjective norms with the nurses' likelihood to perform pain management (Jurgens, 1996; Nash et al., 1993). Jurgens (1996) found an insignificant relationship between subjective norm towards pain management and the likelihood to administer morphine of postoperative patients. Similarly, Nash et al. (1993) found an insignificant link between the subjective norms and the nurses' intention to evaluate the patients' pain.

The field theory proposes that the environmental factors, which include subjective norm, are one of the determinants of behavior (Lewin, 1951). Based on the previous studies findings and the proposition of field theory, the researcher hypothesizes the following relation:

Hypothesis 4: There is a significant and positive relationship between subjective norm towards pain management and pain management practices among nurses in Jordanian hospitals.

3.5.5 Moderator Effect of Patient-related Barriers

The moderator variables should be introduced when there is an inconsistent link between a predictor and a criterion variable (Baron & Kenny, 1986). The existing studies in pain management reported an inconsistent relationship between the behavioral determinants (attitude, self-efficacy, knowledge, and subjective norm) and the behavior (pain management practices). For instance, some of the existing studies reported that the link between attitude towards pain management and the pain management practices was significant and positive (Edwards et al., 2001; Jurgens, 1996; Pellino, 1997; Rony et al., 2010). On the contrary, other studies revealed an insignificant association between the attitude towards pain management and the practices in pain management (Al Qadire & Al Khalaileh, 2012; Basak, 2010; Collier et al., 1995; Hossain, 2010; Layman Young et al., 2006; Lui et al., 2008; Nash et al., 1993; Twycross, 2008). In addition, Weber et al. (2012) revealed a significant and negative link between the health care professionals' attitude towards introducing the pharmacological intervention to relieve the patients' pain and their practices. Thus, this study assesses the effect of a moderator variable on the relationship between the nurses' attitude towards pain management and their pain management practices.

In addition, the available studies that concerned the relationship between self-efficacy of pain management and the health care givers' pain management practices reported that the relationship between these variables was inconsistent. For instance, some studies reported a significant and positive relation between the providers' self-efficacy of pain management and their likelihood to perform pain management (Edwards et al., 2001; Jurgens, 1996; Nash et al., 1993; Weber et al., 2012). On the contrary, other studies revealed an insignificant relationship between self-efficacy to take the analgesics and the likelihood to take the analgesics (e.g., Pellino, 1997). Thus, assessing the effect of a moderator variable on the relationship between self-efficacy of pain management and pain management practices is important.

Moreover, studies in pain management reported inconsistent association between knowledge of pain management and pain management practices. For instance, Glajchen and Bookbinder (2001) reported a significant and positive association between the two. Conversely, several studies in pain management reported an insignificant relation between knowledge of pain management and the practices in pain control (Basak, 2010; Collier et al., 1995; Hossain, 2010; Twycross, 2007b; Vincent & Denyes, 2004; Watt-

Watson et al., 2001). Due to the inconsistent results, it is important to assess the moderating effect on the link between knowledge of pain management and the pain management practices.

Finally, other studies in pain management reported that the relationship between subjective norm and pain management was inconsistent. While some studies found a significant relationship between subjective norm towards pain management and the likelihood of performing pain management (Edwards et al., 2001; Pellino, 1997; Weber et al., 2012), other studies reported that the association between the two was insignificant (Jurgens, 1996; Nash et al., 1993). For this reason, the researcher assesses the moderator effect on the link between the nurses' subjective norm towards pain management and their pain management practices.

In conclusion, the moderating effect should be introduced on all relationships between the independent variables (attitude, self-efficacy, knowledge, and subjective norm) and the dependent variable (pain management practices). The patient-related barriers are one of the main affecting barriers to pain management (Glajchen, 2001; Jacobsen et al., 2009; Von Roenn, 2001). The patient-related barriers are defined as the patient refusing to report his/her pain, inasmuch as wrong belief or misconception about pain management. The patients-related barrier is a concept closely related to "service acceptance/refusal". According to Lee and Wu (2011), the moderating effect of service acceptance is highly significant. In addition, in various fields, several studies found that perceived barriers were a good moderator (Bogdanovich, 2013; Huy Tuu et al., 2011). So, the researcher investigates the effect of the patient-related barriers as a moderator variable on all relations between the pain management determinants (attitude, self-efficacy, knowledge, and subjective norm) and the pain management practices. Based on the above discussion the researcher hypothesizes the following:

Hypothesis 5: Patient-related barriers moderate the relationship between attitude towards pain management and pain management practices among nurses in Jordanian hospitals.

Hypothesis 6: Patient-related barriers moderate the relationship between self-efficacy of pain management and pain management practices among nurses in Jordanian hospitals.

Hypothesis 7: Patient-related barriers moderate the relationship between knowledge of pain management and pain management practices among nurses in Jordanian hospitals.

Hypothesis 8: Patient-related barriers moderate the relationship between subjective norm towards pain management and pain management practices among nurses in Jordanian hospitals.

3.5.6 Summary of Hypotheses

Table 3.5 summarizes all the study hypotheses developed based on the research framework, the findings of the previous studies, and the propositions of field theory. All of the study hypotheses are expected to be true.

Table 3. 5

Summary of the Study Hypotheses

No	Hypotheses
H1	There is a significant and positive relationship between attitude towards pain management and pain management practices among nurses in Jordanian hospitals.
H2	There is a significant and positive relationship between self-efficacy of pain management and pain management practices among nurses in Jordanian hospitals.
H3	There is a significant and positive relationship between knowledge of pain management and pain management practices among nurses in Jordanian hospitals.
H4	There is a significant and positive relationship between subjective norm towards pain management and pain management practices among nurses in Jordanian hospitals.
H5	Patient-related barriers moderate the relationship between attitude towards pain management and pain management practices among nurses in Jordanian hospitals.
H6	Patient-related barriers moderate the relationship between self-efficacy of pain management and pain management practices among nurses in Jordanian hospitals.
H7	Patient-related barriers moderate the relationship between knowledge of pain management and pain management practices among nurses in Jordanian hospitals.
H8	Patient-related barriers moderate the relationship between subjective norm towards pain management and pain management practices among nurses in Jordanian hospitals.

3.6 Operational Definition of the Study Variables

Operational definitions are defined by Cavana, Delahaye, and Sekeran (2001) as the concepts that help measure and test the study variables. Table 3.6 presents the current study variables: independent variables, dependent variable, and moderator variable. In addition, this table includes the operational definition of each variable and the sources of the definitions.

Table 3. 6

Operational Definitions for the Study Variables

No	Variable name	Operational definition	Source
1	Nurses' attitude towards pain management	The general feeling of favorableness or unfavorableness toward performing the behavior.	Ajzen and Fishbein (1980)
2	Nurses' subjective norm towards pain management	The perceived favorableness of important others towards performing the behavior.	Ajzen and Fishbein (1980)
3	Nurses' self-efficacy of pain management	The confidence of a person in his or her own ability to perform specific behavior.	Bandura (1977)
4	Nurses' knowledge of pain management	Knowledge of technologies used by the nurses to help patients to achieve optimal pain relief.	Alley (2001)
5	Patient-related barriers to pain management	The patient refusing to report his/her pain, inasmuch as wrong belief or misconception about pain management.	Gunnarsdottir et al. (2002)
6	Nurses' pain management practices	A set of activities the nurses perform to manage the patient's pain.	Hossain (2010)

3.7 Data Collection

There are many data collection methods, each one with different characteristics (Sekaran, 2003). In this study, the researcher used a self-reported questionnaire to collect the data from the nurses for the following reasons.

1. It is an effective and efficient method to collect the study data when the researcher knows how to measure the study variable (Sekaran, 2003).

2. According to Sekaran (2003), this method is suitable to collect the required data from a large number of respondents.
3. The cost of gathering the study data through questionnaire is less than using qualitative methods (Sekaran, 2003).

In this study, data were collected from Jordanian nurses in public hospitals. To increase the response rate, the researcher obtained a letter from the Jordanian Ministry of Health (JMoH) before the data collection. Data collection started on October 2014 and completed by March 2015. To facilitate the process of data collection, the questionnaires were distributed and received through the charge nurses in each shift.

The data collection process went through the following steps. After receiving the letter of approval from Universiti Utara Malaysia and target hospitals (see appendix A-D), the researcher visited the human resources department in each target hospital to get a list of the employees' names and position. Then, the sample was all registered nurses across these lists. Thereafter, the researcher met the charge nurses (A nurse in charge of a hospital unit, ward, or emergency room) to give the relevant instructions and explanations about the study objectives, benefits, and the way of filling the questionnaire. Furthermore, the researcher explained the expected time to fill the questionnaire, the nurses' right to withdraw from the study at any time, and the process of returning the questionnaire to the researcher. After that, the charge nurses distributed the survey and the invitation letter to each respondent nurse. At the end of the working shift, the researcher received the completed questionnaires from the charge nurses.

Within the period of data collection, of 600 questionnaires distributed to the registered nurses, only 329 questionnaires were returned. Of these 329 questionnaires, 22 were excluded because a significant part was incomplete, making the remaining 307 questionnaires useable for further analysis. This accounted for a response rate of 51 percent.

Practically speaking, it is impossible to collect data without facing some barriers. In this study, the major barrier faced during the data collection was related to the geographical location of the hospitals as many of them are sparsely distributed in the remote areas of the central region. For example, Al-Shuneh (South) Hospital is located as far as 30 kilometers away from the country’s capital (Amman) and Princess Eiman (Ma'di) Hospital is located 50 kilometers away from Amman. Another barrier faced during the data collection was related to the time taken before collecting back the completed questionnaires. In this study, the data collection period lasted for six months.

3.8 Instrumentation

Self-reported questionnaires were prepared in line with the study hypotheses, problem statement, and research objectives to assess the relationship between the independent variables and the dependent variable. In addition, it assessed the effect of the moderator variable on the relationship between the independent variables and the dependent variable. Also, it evaluated the level of the dependent variable (i.e. pain management practices) among Jordanian registered nurses. This questionnaire was written in English because all nursing textbooks used in the Jordanian universities are in English, so as the medium of instruction. Nurses were asked to respond to all items in the questionnaire on a seven-point Likert scale (interval method) as recommended by Ajzen (1991). Table 3.7 summarizes the number of items and sources of all study variables.

The content of the questionnaire was modified from the available scales. As example of these modifications, question number 1 in pain management practices section changed from “You used observation to determine patients’ pain” to “I used observation to determine patients’ pain” in order that the respondents have clearer understanding. The questionnaire has eight sections, each one is dedicated to measuring a single variable. Appendix E demonstrates the questionnaire and the cover letter. There were 93 questions altogether in the questionnaire as shown in Table 3.7.

Table 3. 7
Summary of Original and Direct Sources of Each Variable Scale

Variable name	Number of items	Original scale source	Direct source	Scale
Nurses' attitude towards pain management	22 items	McMillan, Tittle, Hagan, and Laughlin (2000)	Jackson (2011)	Strongly disagree--strongly agree 1-7
Nurses' knowledge of pain management	9 items	Ferrell (2000)	Ferrell (2000)	Strongly disagree--strongly agree 1-7
Nurses' subjective norm towards pain management	4 items	1- Francis et al. (2004) 2- Jalalian, Latiff, Hassan, Hanachi, and Othman (2010)	Beduz (2012) Yean and Sukery (2012)	Strongly disagree--strongly agree 1-7
Nurses' self-efficacy of pain management	6 items	Chiang et al. (2006)	Chiang et al. (2006)	Not at all confident--extremely confident 1-7
Nurses' practices in pain management	36 items	Erniyati (2002)	Basak (2010)	Never--constantly 1-7
Patient-related barriers to pain management	16 items	Ward et al. (1993) / Wells, Johnson, and Wujcik (1998)	Kam (2007)	Strongly disagree--strongly agree 1-7

Section one: participant information

This section contains questions about working and personal characteristics. It includes six questions regarding the participants' age, gender, and level of nursing education. Furthermore, it includes questions about their professional experiences, pain experience, and attendance in a training program in pain management. The participants were asked to tick the box that matches their characteristics. This section was developed by the researcher.

Section two: nurses' attitude towards pain management

This section contains questions to assess the nurses' attitude towards pain management by using the Nurse's Attitude Survey, originally developed by McMillan et al. (2000) and modified to be suitable for this study. This section has 22 questions regarding the feeling to perform pain management. The participants were asked to respond to these questions on a seven-point Likert scale, ranging from '1' "strongly disagree" to '7' "strongly agree." The internal consistency (Cronbach's alpha) of this scale was found to be 0.7, which was appropriate (Jackson, 2011). A sample item asked was "The nurse can make a more accurate assessment of the patients' pain than the patient can."

Section three: nurses' subjective norm towards pain management

This section has questions to assess the nurses' subjective norm towards pain management by using questions originally developed by Francis et al. (2004), Jalalian et al. (2010), and adapted by Beduz (2012), Yean and Sukery (2012). Then the items were modified to be suitable for this study. This section has four questions. The nurses were to respond to them on a seven-point Likert scale, ranging from ‘1’ “strongly disagree” to ‘7’ “strongly agree.” They were asked to indicate their perception towards other individuals who are very important to them in respect to performing pain management. The internal consistency (Cronbach’s alpha) of this scale was found to be 0.71, which was appropriate (Yean & Sukery, 2012). A sample item asked was “People who are important to me want me to manage patients’ pain.”

Section four: nurses’ self-efficacy of pain management

This section includes questions to assess the nurses’ self-efficacy of pain management by using the instrument developed originally by Chiang et al. (2006) and modified to be suitable for this study. This section includes six questions about the confidence in performing pain management. The nurses responded to these questions on a seven-point Likert scale, ranging from ‘1’ “not at all confident” to ‘7’ “extremely confident.” The internal consistency (Cronbach’s alpha) of this scale was found to be 0.72, which was appropriate (Chiang et al., 2006). A sample item asked was “How confident are you of your ability to give the correct pain controller to patients?”

Section five: nurses’ knowledge of pain management

This section includes questions to assess the nurses’ knowledge of pain management by using the instrument originally developed by Ferrell (2000) and modified to be suitable for this study. This section has nine questions on the principle of pain and pain management. The nurses responded to these questions on a seven-point Likert scale, ranging from '1' "strongly disagree" to '7' "strongly agree." The internal consistency (Cronbach's alpha) of this scale was found to be 0.80, which was appropriate (Ferrell, 2000). A sample item asked was "Pain medicines should be given only when pain is severe."

Section seven: nurses' practices in pain management

This section has questions to assess the nurses' behavior in pain management. The Caring Behavior Regarding Pain Management Questionnaire developed originally by Erniyati (2002) (as cited in Basak, 2010) and modified to be suitable for this study was used. This section includes 36 questions about the three stages of pain management: assessment of the patients' pain (Kwekkeboom & Herr, 2001), appropriate intervention to relieve the patients' pain (Summer & Puntillo, 2001), and reassessment after the intervention (Cullen et al., 2001). The nurses responded to these questions on a seven-point Likert scale, ranging from '1' "never" to '7' "constantly." The internal consistency (Cronbach's alpha) for this scale was found to be 0.87, which was appropriate (Basak, 2010). A sample item asked was "I used observation to determine patients' pain."

Section eight: patient-related barriers to pain management

This section includes questions to assess the patient-related barriers to pain management by using the Barriers Questionnaire (BQ) originally developed by Ward et al. (1993) and Wells et al. (1998). It was modified to be suitable for this study. This section includes 16 questions on the patients' reluctance factors in pain management. The nurses responded to these questions on a seven-point Likert scale, ranging from '1' "strongly disagree" to

‘7’ “strongly agree.” The internal consistency (Cronbach’s alpha) for this scale was found to be 0.84 (Wells et al., 1998) and 0.82 (Kam, 2007), which were appropriate. A sample item asked was “The patients believe that the pain medicine cannot really control pain”.

3.9 Pre-testing of the Questionnaire

Pre-testing (i.e. validity) was done to determine the feasibility of using the instrument. It enables the researcher to interact with the persons, similar to but excluding the actual respondents participating in the actual study, and to predict what would happen in the main study with regard to participation (Brink & Wood, 1997).

According to Hair, Black, Babin, and Anderson (2010), validity is defined as the extent to which the instrument measures represent the concept of study. Similarly, Gay (1987) defined it as the ability of the questionnaire to measure what it is intended to measure. In this study, the researcher assessed the validity of the study questionnaire by conducting two types of validity tests, i.e. content validity and face validity.

i. Content Validity

Hair et al. (2010) defined content validity as a subjective evaluation of a scale’s ability to assess what it is supposed to measure. Also, it is defined as to what extent the measurement scale covers sufficiently all variables being measured (Cooper &

Schindler, 2008). In other words, content validity evaluates the questionnaire's structure, content, and the clarity.

For the current study, the researcher tested content validity to get feedback on the measurement scales by sending the questionnaire to five experts in pain management: three lecturers, who had a doctoral degree, in the College of Nursing in Jordanian universities and two people specialized in pain management. They evaluated the appropriateness and suitability of the questionnaire items. Their comments mainly included some spelling errors and grammatical mistakes. After that, the questionnaire items were edited according to their recommendations.

ii. Face Validity

According to Sekaran (2003, p. 206) "face validity is considered by some as a basic and a very minimum index of content validity". In this study, the researcher assessed the face validity of the measurement scales by submitting the questionnaire to 10 registered nurses from Jordanian hospitals to evaluate the structure, clarity, and content of the questionnaire. Also, this test aimed at getting some experience on conducting the study, checking the research feasibility, and determining the required time to fill the questionnaire. They commented that the questionnaire items were clear.

3.10 Data Analysis

After completing data collection, the researcher started data analysis by using descriptive and inferential statistics. In this study, the data were analyzed by using the

Statistical Package for Social Sciences (SPSS version 20) and Partial Least Squares-Structural Equation Modeling (PLS-SEM version 3.0).

i. Descriptive Analysis

Descriptive analysis is statistics aimed to describe the interested phenomena (Sekaran & Bougie, 2010). This type of analysis provides information about the frequency of the phenomenon central tendency or the average (mean), and the variation from the average (standard deviation). In this study, the descriptive analysis was run using SPSS version 20.

ii. Partial Least Squares (PLS) Technique

According to Wold (1982), Partial Least Squares technique is called a second generation structural equation modeling. This technique is compatible with structural equation models that have latent variables and a series of cause-and-effect relationships (Gustafsson & Johnson, 2004). Furthermore, Ringle, Wende, and Will (2005) stated that PLS is perfect for statistical model building and prediction.

This technique was used in this study for the following reasons. Firstly, the PLS path modeling is more convenient to use when models are complex and it is more advantageous for real world applications (Fornell & Bookstein, 1982; Hulland, 1999). This study examines the relationship between the independent variables and dependent variable. In addition, this study assesses the moderating effect on these relations.

The second reason was that the PLS path modeling can be used with normal and non-normal data (Chin, 1998). In the majority of social science studies, data tend to be less normal and, hence, PLS is able to address this issue.

Thirdly, the PLS path modeling has the advantage of estimating the relationships between constructs (structural model) and relationships between indicators and their corresponding latent constructs (measurement model) simultaneously (Chin, Marcolin, & Newsted, 2003; Duarte & Raposo, 2010), which make it one of the most powerful statistical techniques (Tabachnick & Fidel, 2007). Based on the above discussion, the researcher used the PLS path modeling to assess the hypothesized relationships, the constructs' validity and reliability.

3.11 Ethical Considerations

The participation in this study was voluntary. The participants were also explained about the study purpose and the estimated time to fill the questionnaire. Furthermore, all information gathered from the participants was treated confidentially in all stages; the participants were not required to give any identifying information about themselves. Moreover, the researcher was the only person who had access to this information. The participants also had the right to withdraw from the study at any time.

Prior to data collection, approval from Universiti Utara Malaysia and the directors of the target hospitals were obtained. The participants were not required to fill a consent form; the acceptance to fill the questionnaire was treated as consent. Finally, the study data were destroyed after the end of the study.

3.12 Chapter Summary

This chapter described the methodology used in this study. The correlation design was used in this study and data were collected by using a self-reported questionnaire to assess the relationship between the study variables.

CHAPTER FOUR
DATA ANALYSIS

4.1 Introduction

This chapter shows the results of the study. The statistical results of the descriptive data (participants' information and questionnaire constructs) were obtained using the Statistical Package for Social Sciences (SPSS version 20) and the assessment of the measurement model and structural model were obtained through Partial Least Squares-Structural Equation Modeling (PLS-SEM version 3.0). This chapter begins by presenting the result of the response rate, data screening, and preliminary analysis, non-response bias, common method variance (CMV). After that, the results of the descriptive statistics for the participants' information and the questionnaire constructs are presented. Next, the results of assessing the levels of pain management practices among Jordanian nurses are offered.

Furthermore, this chapter presents the measurement model results which include composite reliability, discriminant validity, and convergent validity. Then, the results of the structural model (R-square values, effect size, significance of the path coefficients, and predictive relevance of the model) are highlighted. Finally, the results of the moderating effects of the patient-related barriers on the structural model are offered.

4.2 Response Rate

Response rate can be calculated by two methods. Either by dividing the total number of the returned questionnaires by the number of the study population or by dividing the number of completed (valid) questionnaires by the number of the study population (Zikmund et al., 2009). In this study, 600 questionnaires were distributed to 13 public hospitals located in the central region of Jordan. Of this, 271 questionnaires were not returned and 22 were incomplete. This yielded a response rate of 55 percent (Brink, Van der Walt & Van Rensburg, 2006) and a valid response rate of 51 percent, which is considered a proper percentage for the analysis (Sekaran, 2003). Table 4.1 shows the response rate and the valid response rate.

Table 4. 1
Response Rate of the Questionnaire

Response	**Frequency/Rate**
Distributed questionnaires	600
Returned questionnaires	329
Questionnaires not returned	271
Incomplete questionnaires	22
Returned and usable questionnaires	307
Response rate	55%
Valid response rate	51%

In this study, the response rate was generally good in comparison with other studies in the same field. For example, Wolfert, Gilson, Dahl, and Cleary (2010) obtained 36 percent response rate, Weber et al. (2012) 35 percent, Kam (2007) 49 percent, Mrozek and Werner (2001) 34 percent, Gregory (2011) 27 percent, Chen (2005)

37.5 percent, Jurgens (1996) 23 percent, and Tse and Chan (2004) 43 percent response rate.

4.3 Data Screening and Preliminary Analysis

Data screening must be performed on the raw data before proceeding with the statistical analysis to ensure the accuracy of the data. According to Hair, Money, Samouel, and Page (2007), data screening is a necessary step before the application of a multivariate analysis. In this study, the data screening and preliminary analysis were performed by assessing the missing data, outlier assessment, normality assessment, and multicollinearity, as recommended by Hair et al. (2010).

4.3.1 Missing Value Analysis

In this study, of the 30,486 data points, 62 were randomly missed (0.2%). Table 4.2 presents the percentage of the missing values of the total variables. Specifically, the missing values are distributed as follows: attitude, subjective norms, and knowledge had 12 missing values each. In addition, pain management practices and patient-related barriers had nine missing values each. On the other hand, self-efficacy had eight missing values. According to Tabachnick and Fidell (2007), the missing values of five percent or less are not significant.

Previous studies found that a pair-wise or a list-wise deletion, as well as a mean substitution, is outperformed by more sophisticated techniques, such as expectation–maximization (EM) substitution (Brown, 1994; Olinsky, Chen, & Harlow, 2003). Thus, this study used the EM substitution available in the SPSS software to replace the missing values. It is an iterative procedure involves two steps (i.e. expectation and maximization) (Tabachnick & Fidell, 2001).

Table 4. 2
Number and Percentage of Missing Values

Variables	**Number of missing values**
Attitude	12
Subjective norms	12
Knowledge	12
Pain management practices	9
Patient-related barriers	9
Self-efficacy	8
Total	62
Percentage of missing values	0.2% of 30,486 data points

Note: Percentage of missing values = (the total number of missing values / total number of data points) ×100

4.3.2 Assessment of Outliers

Outliers are defined as any observations that are numerically inconsistent when compared with the remainder of the data set (Barnett & Lewis, 1994). According to Verardi and Croux (2008), the presence of outliers in a data set can lead to unreliable results. In other words, they can distort the estimates of the regression coefficients. There are three steps to detect outliers. The first step is an analysis of frequency statistics by providing a frequency table for all study variables to check if there is any value outside the minimum and maximum range. Following this statistical analysis, all the study data were between the minimum and maximum values.

The second step is assessing the univariate outliers. Tabachnick and Fidell (2007) suggested assessing the data for univariate outliers by using a benchmark (criterion) value with a cut-off of ±3.29 ($p < .001$). Based on this criterion, no cases were identified as univariate outliers. Table 4.3 shows the upper and lower z-score values for each variable.

Table 4. 3
Univariate Outlier Test (z-score)

Variables	**Highest Z-score**	**Lowest Z-score**
Attitude	2.23096	-3.11399
Self-efficacy	1.92891	-2.66219
Knowledge	2.47135	-3.23283
Subjective norm	1.79276	-2.75070
Patients barriers	2.66018	-2.39332
Pain management practices	1.55084	-2.60513

The last step is assessing the multivariate outliers using Mahalanobis distance (D2), defined by Tabachnick and Fidell (2007, p. 74) as “the distance of a case from the centroid of the remaining cases where the centroid is the point created at the intersection of the means of all the variables”. Based on 93 measurement items of the study, the threshold value of chi-square was 139.66 ($p = 0.001$). The Mahalanobis values were assessed using SPSS. Then, a comparison between the Mahalanobis values and chi-square value was made to determine and omit any case with Mahalanobis values that exceeded the chi-square value. Following this criterion, 41 multivariate outliers were determined and omitted from the data set. Therefore, the final data set after omitting these cases had 266 cases. Table 4.4 demonstrates the omitted cases based on the multivariate outliers.

Table 4. 4
Multivariate Outlier Detected and Removed

Case No.	Mahalanobis Distance	Case no.	Mahalanobis distance
7	183.04261	153	150.08519
8	152.83541	176	147.25513
10	163.76303	188	156.48147
15	165.81549	206	140.92813
41	152.27793	207	171.67085
42	172.51849	208	149.94777
43	165.43933	209	154.69402
53	169.00888	210	157.27888
62	141.59225	224	147.45489
64	152.46181	226	154.2991
72	152.61564	229	154.33789
73	163.5188	241	153.2657
77	144.8215	243	141.93776
103	153.85008	262	167.07846
120	158.35998	276	140.04916
140	144.89768	281	142.35871
141	142.08922	283	142.1782
144	227.49031	293	141.82287
145	147.45348	299	189.95528
146	168.14148	306	161.28643
151	162.51715		

4.3.3 Normality Test

A normality test should perform on a data set (Hair, Sarstedt, Ringle & Mena, 2012). In this study, the normality of the data was checked using the skewness and kurtosis values as recommended by Kline (1998) and Pallant (2005). Also, it was assessed using the graphical method (by looking to the graphical distribution) as recommended by Tabachnick and Fidell (2007).

Based on Hair, Black, Babin, Anderson, and Tatham's (2006) suggestion, the skewness values should range between +1 and -1. Also, the kurtosis values are recommended to be between +3 and -3 (Coakes & Steed, 2003). Following this method, no skewness or kurtosis value found to be outside the recommended range. Appendix F demonstrates the normality test using skewness and kurtosis values.

The use of a graphical method is more important than assessing the skewness and kurtosis values when a large number of cases (200 or more) are involved (Field, 2009). This is because a large number of observations minimizes the standard errors, which lead to higher skewness and kurtosis values (Field, 2009). Following this method, a histogram and normal probability plots were assessed (Field, 2009). Figure 4.1 shows that the normality assumptions for the data collected were not violated. In other words, the study data followed a normal pattern because all bars on the histogram were close to a normal curve.

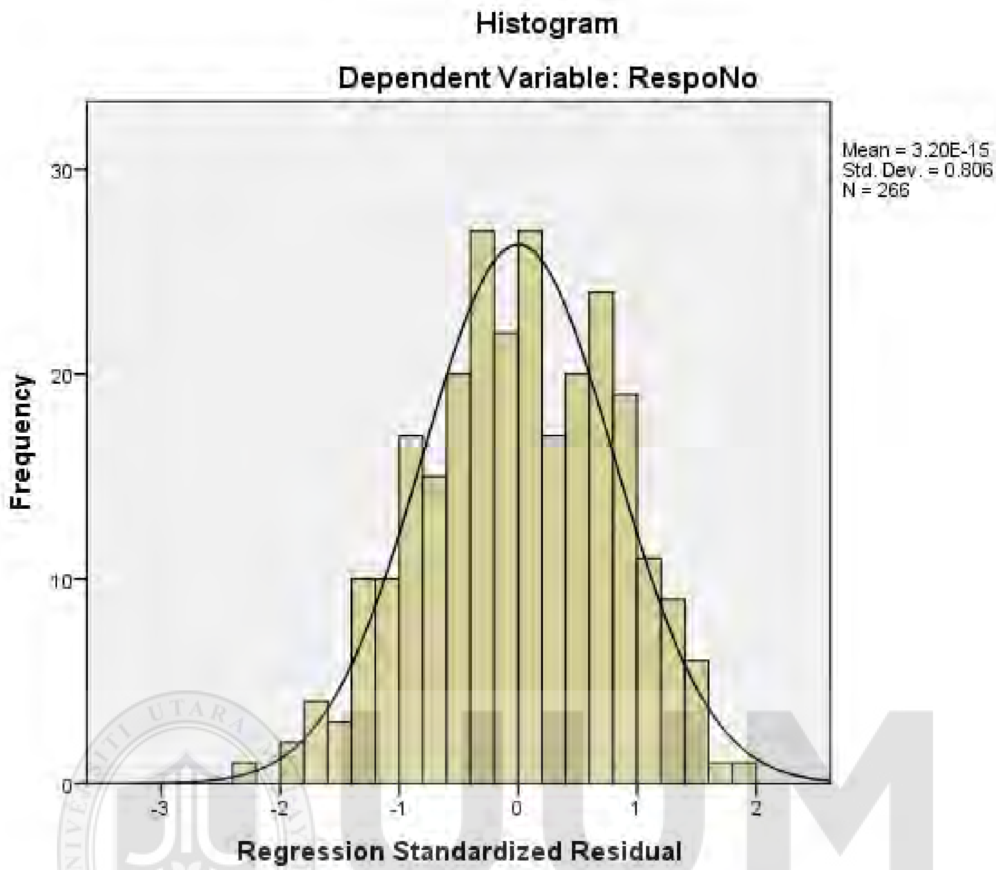


Figure 4. 1
Histogram and normal probability plots

- **Linearity and Homoscedasticity Status**

Linearity means that "the residuals should have a straight-line relationship with predicted DV (dependent variable) scores" (Pallant, 2001, p. 137). Assessment of linearity was conducted through the residual analysis that resulted from the regression analysis. As shown in Figure 4.2, the scattered points were concentrated at the center along the zero point. This indicates that the linearity assumption was met (Hair et al., 2010).

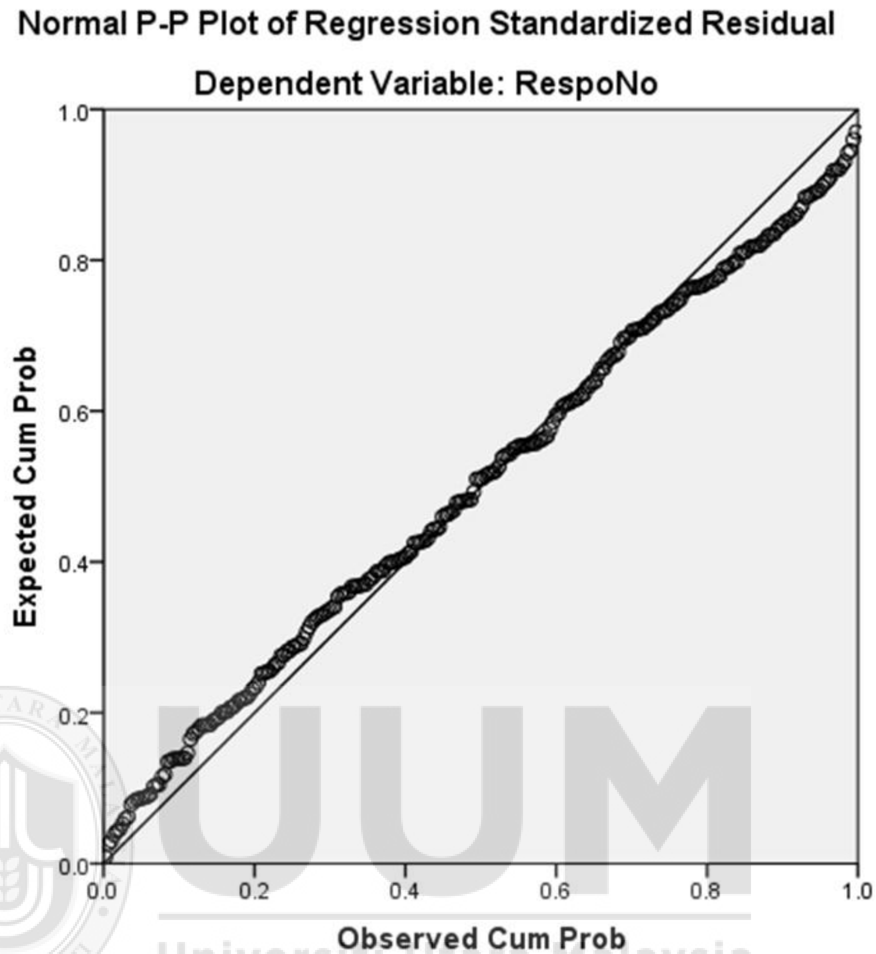


Figure 4. 2
Linearity graph

Homoscedasticity refers to the assumption that the dependent variable has an equal level of variance across a range of predictor variables. It is a desirable result because the variance of the dependent variable is not concentrated in a limited range of the independent values. Homoscedasticity can be checked through the visual examination of a plot of the standardized residuals by the regression standardized predicted value (Osborne & Waters, 2002). In this study, the result of the homoscedasticity test through the scatter plot diagrams of the standardized residuals indicated that homoscedasticity existed in the dependent variable. Figure 4.3 represents the result of the homoscedasticity test.

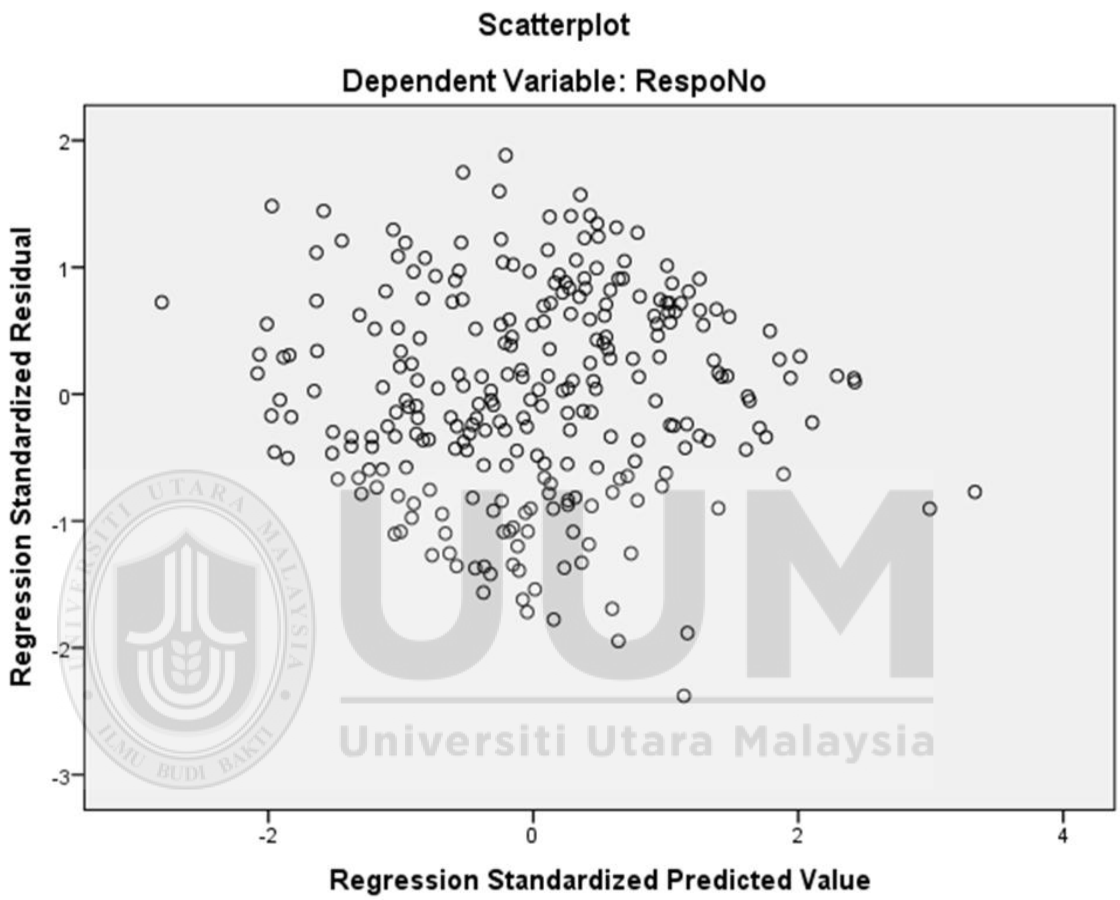


Figure 4. 3
Homoscedasticity test

4.3.4 Multicollinearity Test

Multicollinearity means that two or more exogenous latent constructs are highly correlated. Hair et al. (2010) suggested performing multicollinearity test before assessing a proposed model. The presence of multicollinearity among the exogenous latent constructs can increase the standard errors of the coefficients (Tabachnick & Fidell, 2007). For instance, it can affect the estimates of regression coefficients and their statistical significance tests (Chatterjee & Yilmaz, 1992; Hair et al., 2006). Hence, this justifies the assessment of a multicollinearity test before assessing the proposed model.

Based on the recommendation of many researchers, this study used two methods to assess multicollinearity including correlation matrix, Tolerance and Variance Inflation Factors (VIF) (Chatterjee & Yilmaz, 1992; Peng & Lai, 2012). In correlation matrix method, the correlations between all exogenous latent constructs should be assessed. Then, any value of correlation coefficient more than or equal the threshold values of 0.90 indicates multicollinearity (Hair et al., 2010). Following this method, the correlations between the exogenous latent constructs of the present study were below the threshold values, which mean that the exogenous latent constructs in this study were not highly correlated. Table 4.5 demonstrates the correlation matrix of the exogenous latent constructs.

Table 4. 5
Correlation Matrix of the Exogenous Latent Constructs

Latent constructs	Attitude	Self-efficacy	Knowledge	Subjective norms	Pain barriers	Pain management practices
Attitude	1					
Self-efficacy	.711**	1				
Knowledge	.713**	.619**	1			
Subjective norms	.678**	.664**	.593**	1		
Pain barriers	-.683**	-.646**	-.642**	-.661**	1	
Pain management practices	.748**	.787**	.625**	.705**	-.693**	1

**. Correlation is significant at the 0.01 level (1-tailed).

The second method used in this study to assess multicollinearity is by determining variance inflated factor (VIF) and tolerance value. Based on Hair, Ringle, and Sarstedt's (2011) suggestion, the presence of multicollinearity among the exogenous latent constructs is based on two criteria. The first criterion is when a variance inflated factor (VIF) value is more than 5. The second criterion is when the tolerance value is less than 0.20. Following this method, multicollinearity is not an issue in the present study. Table 4.6 shows the variance inflated factor (VIF) values and tolerance values.

Table 4. 6
Tolerance and Variance Inflation Factors (VIF)

Latent Constructs	**Tolerance**	**VIF**
Attitude	.329	3.037
Self-efficacy	.408	2.452
Knowledge	.435	2.301
Subjective norms	.430	2.324
Pain barriers	.419	2.385

4.4 Non-Response Bias

Non-response bias is defined as "the differences in the answers between non-participants and participants" (Lambert & Harrington, 1990: p. 5). Many researchers categorize late responders as non-responders (Armstrong & Overton, 1977; Draugalis & Plaza, 2009; Miller & Smith, 1983; Oppenheim, 1966). Thus, conducting a comparative analysis between the early participants and the late participants is a suggested method to estimate the possibility of a non-response bias (Armstrong & Overton, 1977). Following this method, early participants were defined as any person responding within the first 30 days and late participants as any person responding after the first 30 days as recommended by Vink and Boomsma (2008). Table 4.7 represents the independent samples t-test to determine the non-response bias on the main study variables including attitude, self-efficacy, knowledge, subjective norms, patients' barriers, and pain management practices.

Table 4. 7
Results of Independent-Samples T-test for Non-Response Bias

Variables	Group	N	Mean	t-test for equality of means					
				t-value	p-value	Mean difference	Std. error difference	95% Confidence interval of the difference	
								Lower	Upper
Attitude	Early Response	65	4.4343	-.690	.491	-.09219	.13361	-.35527	.17089
	Late Response	201	4.5265	-.757	.450	-.09219	.12174	-.33307	.14868
Self-efficacy	Early Response	65	4.8128	.957	.340	.16357	.17096	-.17306	.50019
	Late Response	201	4.6493	1.042	.299	.16357	.15697	-.14705	.47419
Knowledge	Early Response	65	4.3624	.223	.824	.03293	.14757	-.25764	.32350
	Late Response	201	4.3295	.243	.808	.03293	.13524	-.23469	.30055
Subjective norms	Early Response	65	4.5769	-.390	.697	-.07357	.18873	-.44519	.29804
	Late Response	201	4.6505	-.395	.694	-.07357	.18637	-.44290	.29575
Patients' barriers	Early Response	65	3.5135	-.280	.780	-.04251	.15203	-.34185	.25684
	Late Response	201	3.5560	-.304	.761	-.04251	.13972	-.31901	.23399
Pain management practices	Early Response	65	5.0902	.862	.389	.16120	.18702	-.20703	.52944
	Late Response	201	4.9290	.957	.340	.16120	.16842	-.17195	.49436

As demonstrated in Table 4.7, the majority of the participants (201 participants) were classified as late participants (76%) and the remaining participants (65 participants) were classified as early participants (24%). Also, this table shows that the equal variance significance values for each of the six main study variables were greater than the 0.05 significance level of Levene's test for equality of variances as suggested by Field (2009) and Pallant (2010). Hence, this indicates that the assumption of equal variances between early and late participants was not been violated. In other words, non-response bias was not a major concern in this study.

4.5 Common Method Variance

The common method variance (CMV) is defined by Podsakoff, MacKenzie, Lee, and Podsakoff (2003, p. 879) as a "variance that is attributable to the measurement method rather than to the constructs the measures represent". According to Podsakoff et al. (2003) most researchers found that common method variance is a potential problem in behavioral studies. Also, they mention that it is one of the main sources of measurement error.

There are many reasons lead to common method biases which include the fact that the predictor (i.e. attitude, knowledge, subjective norm, self-efficacy and patients barriers) and criterion (i.e. pain management practices) variables are obtained from the same source or rater (registered nurses). Another reason is the respondents' tendency to maintain consistency in their responses to questions. Also, social desirability may lead to common method biases which referred to the individuals' tendency to present themselves in a favorable light, regardless of their true feelings about an issue or topic. In addition, the respondents tendency to rate the persons they know well higher than the unknown person. Moreover, the raters tendency to agree with all attitude statements independent of their content. Also, the tendency of respondents to view themselves and the world around them in, generally, negative or positive terms may lead to enhance the common method biases.

Another influence factor is the raters' tendency to behave in a culturally acceptable and appropriate manner. Item complexity and/or ambiguity also may lead to this problem. In the same vein, measuring different variables with similar scale formats can cause this problem. Positioning of the predictor (or criterion) variable on the questionnaire can make that variable more salient to the respondent and imply a causal relationship with other variables. If scales have fewer items, responses to previous items are more likely to be accessible in short-term memory and to be recalled when responding to other items. Furthermore, measures of different constructs measured at the same point in time may produce artifactual covariance independent of the content of the constructs themselves. Measures of different constructs measured in the same location may produce artifactual covariance independent of the content of the constructs themselves.

Based on Podsakoff et al. (2003) recommendations, this study followed many methods to decrease common method variance. One of them was by reducing the fear of punishment. Participants were informed (verbally and written) that the information is confidential and there is no need to write their name or any identifying information. The second method was by reducing the fear of appraisal; following this method, the participants were informed that there are no right or wrong answers for the study items. The last method was by reducing the vague concepts from the scale items. To achieve this, content validity and face validity were ascertained.

4.6 Descriptive Statistics

Descriptive statistics is an initial phase of statistical analysis. In this study, descriptive statistics was conducted on the participants' information (the participants' profile) and the questionnaire constructs.

4.6.1 Descriptive Statistics for Participants' Profile

The participants of this study consisted of 99 male nurses (37.2%) and 160 female nurses (60.2%). More than half of them belonged to the age group of 26-30 years old and the average nurses' age was approximately 30 years. Also, the majority of the participants (85 nurses) had professional experiences between 6 and 10 years (32%). Furthermore, 231 (86.8%) of the participants had a bachelor's degree, while 19 of the participants (7.1%) had a master's degree. Unfortunately, the majority of the nurses (195 nurses) had never attended a pain management training program (73. %). Finally, most of the nurses (210 nurses) mentioned that they had a pain experience in their life (78.9%). Table 4.8 summarizes the results.

Table 4. 8
Demographic Characteristics of Participants

	Frequency	Percentage
Gender		
Male	99	37.2
Female	160	60.2
Education		
Bachelor degree	231	86.8
Master degree	19	7.1
Experience		
From 1-5 years	83	31.2
From 6-10 years	85	32.0
From 11-15 years	39	14.7
From 16-20 years	28	10.5
Pain experience		
Yes	210	78.9
No	52	19.5
Training		
Yes	66	24.8
No	195	73.3
Age	**Mean**	**Std. deviation**
	30.30	5.809

4.6.2 Descriptive Statistics for Questionnaire Constructs

This section includes the descriptive statistics of means and standard deviations of the dependent variable, the independent variables, and the moderator variable. All of these variables were measured on a seven-point Likert scale, ranging from 1 to 7. Among the study variables, patients' barriers had the lowest mean value (i.e. 3.546), whereas pain management practices had the highest mean value (i.e. 4.968). The standard deviation of all the variables ranged between 0.935 and 1.321, which reflects the existence of considerable acceptable variability within the dataset. Table 4.9 demonstrates the descriptive statistics of all study variables.

Table 4. 9
Descriptive Statistics of Latent Variables

Latent Constructs	**Number of items**	**Mean**	**Std. deviation**
Attitude	22	4.504	0.935
Self-efficacy	6	4.689	1.198
Knowledge	9	4.338	1.032
Subjective norms	4	4.633	1.321
Patients barriers	16	3.546	1.064
Pain management practices	36	4.968	1.310

4.7 Assessment of Pain Management Practices Level

The scores for pain management practices of participants were categorized in accord with McDonald's (2002) learning outcomes. McDonald categorized the learning outcomes of multiple choice examinations into five grades (A, B C, D, and F) or five levels (very high, high, moderate, low, and very low) (see Table 4.10).

Table 4. 10
Learning Outcomes of Multiple Choice Examinations

Grade	Composite Percent Score	Levels
A	90.00 - 100%	Very High
B	80.00 - 89.99%	High
C	70.00 - 79.99%	Moderate
D	60.00 - 69.99%	Low
F	< 60%	Very Low

Source: McDonald's (2002)

In this study, the instrument of pain management practices contained 36 items and the participants marked their performance on a seven-point Likert scale, ranging from 1-7 (‘never’ to ‘constantly’), respectively. For each item, a score of 7 was accorded for ‘constantly’ and a score of 1 for ‘never’. The score ranged from 36-252.

These items focuses on: performance in pain assessment and management; the use of different age-appropriate pain measurement tools for pain assessment; the use of pharmacological and non-pharmacological pain management measures; showing sufficient awareness and preparedness for the adverse effect of pain medication; and reassessment of pain in order to evaluate the effectiveness of pain medication and the frequency of use of PRN (Pro Re Nata) pain medication for pain management.

This study followed McDonald grades and levels to assess the level of pain management practices. Overall, it was found that nurses’ pain management practices were M = 71% and SD = .19 (minimum 22% and maximum 100%) respectively, which were at the moderate level. In addition, the levels of nurses’ pain management practices were analyzed (see appendix G). It was found that the majority of registered nurses (71 nurses) provided the pain management practice at the Low level (27%). Unfortunately, 20% of them provided pain management at very Low and the rest was classified as following; Moderate level (17%), High level (20%) and very high level only (17%) (see Table 4.11).

Table 4. 11

Frequency, Percentage, Minimum and Maximum Score, Mean, and Standard Deviation of the Level of Nurses' Pain Management Practices (N = 266)

Variable and level		N (%)	Min	Max	Mean	(SD)	Level
Nurses' pain management practices		266	.22	1.00	.71	.19	Moderate
90.00 - 100%	Very High	44(17%)					
80.00 - 89.99%	High	52(20%)					
70.00 - 79.99%	Moderate	46(17%)					
60.00 - 69.99%	Low	71(27%)					
< 60%	Very Low	53(20%)					

In addition, the ranking orders were analyzed to determine the area that nurses constantly perform at high level to manage pain management in their clinical practices. It was found that the five highest ranking orders of constant high performance were: "I asked my patients to locate the area of pain", "I asked my patients about the intensity of pain before giving pain killers" and "I asked my patients to describe the pain by own words" (each one is 74%); "I helped patients when they need help" and "I asked my patients about the intensity of pain after giving pain drug" (each one is 73%). Meanwhile, these are the five lowest ranking orders of constant high performance. "I taught my patients alternative methods to reduce pain" (65%); "I explained to my patients the drug addiction to reduce their fear", "I spent time with my patients to reduce their pain" and "I gave prescribed pain medication to my patients on a fixed schedule" (each one 68%); and "I used observation to determine patients' pain" (69%) (see Table 4.12). The complete ranking orders of pain management practices are summarized in appendix H.

Table 4. 12

Frequency and Percentage of the Five Highest Orders of "Constantly" and the Five Highest Orders of "Never" of Nurses' Pain Management Practices (N = 266)

Rank Order	Ranking order of nurses' pain management practice	n	%
	Highest items of "Constantly" practice		
1	I asked my patients to locate the area of pain	198	74
2	I asked my patients about the intensity of pain before giving pain killers	196	74
3	I asked my patients to describe the pain by own words	196	74
4	I helped patients when they need help	195	73
5	I asked my patients about the intensity of pain after giving pain drug	195	73
	Highest items of "Never" practice		
1	I taught my patients alternative methods to reduce pain	173	65
2	I explained to my patients the drug addiction to reduce their fear	180	68
3	I spent time with my patients to reduce their pain	180	68
4	I gave prescribed pain medication to my patients on a fixed schedule	181	68
5	I used observation to determine patients' pain	183	69

4.8 Assessment of PLS-SEM Path Model Results

This study utilized SmartPLS software to analyze the direct and indirect interaction (moderating effect). Henseler, Ringle, and Sinkovics (2009) suggested a process to evaluate and report the results of PLS-SEM path. This process includes two main steps.

The first step is the evaluation of an outer model, or what is alternatively called a measurement model. The second step is the evaluation of an inner model, which is also called a structural model. Figure 4.4 demonstrates the steps to analyze the PLS-SEM path model.

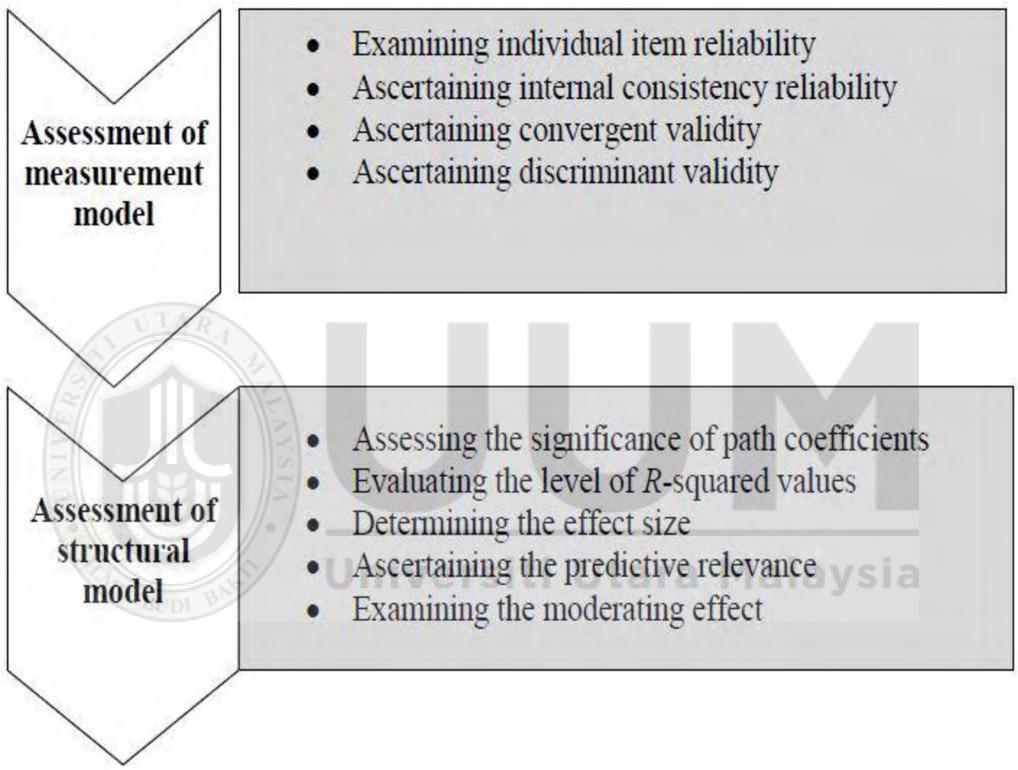


Figure 4. 4
A two-step process of PLS path model assessment
Source: (Henseler et al., 2009)

4.8.1 Outer Model Evaluation

In PLS analysis, validity and reliability are the main criteria to determine the measurement model (Ramayah, Lee, & In, 2011). Following the suggestion of Hair, Hult, Ringle, and Sarstedt (2014) and Henseler et al. (2009), this study utilized individual item reliability, internal consistency reliability, content validity, convergent validity, and discriminant validity to assess the measurement model. Figure 4.5 presents the measurement model of the current study.

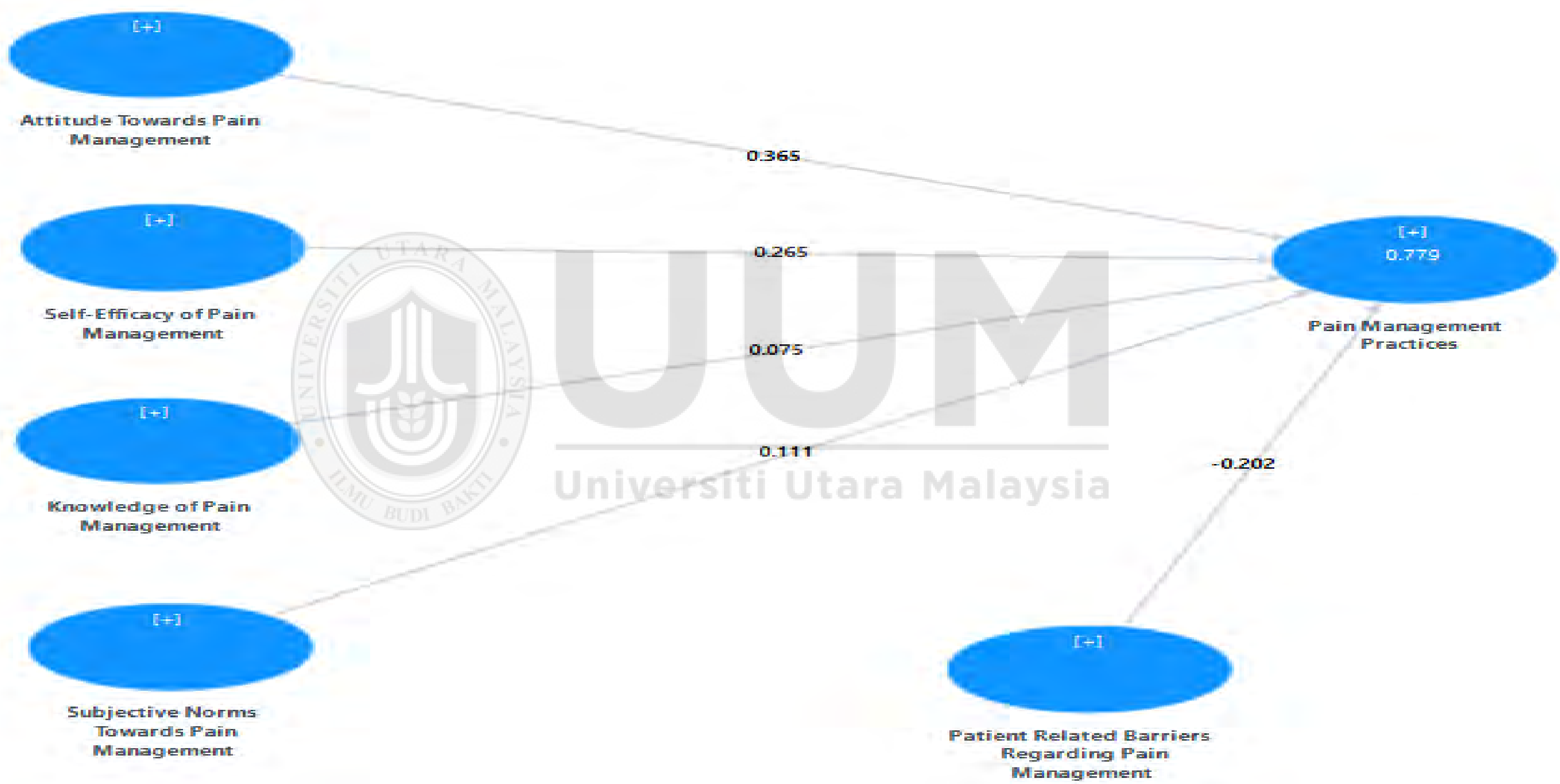


Figure 4. 5
Measurement model

i. Individual Item Reliability

Following the suggestion of many researchers, the individual item reliability was assessed by determining the loadings for each item (Duarte & Raposo, 2010; Hair et al., 2012; Hair et al., 2014; Hulland, 1999). After that, the loadings below the threshold of 0.40 were omitted as recommended by Hair et al. (2014). As a result, 4 items were omitted from the data set and only 89 items were retained as they had loadings between 0.409 and 0.880 (see appendix I).

ii. Internal Consistency Reliability

In the PLS path model, composite reliability is the appropriate way to assess the internal consistency reliability (Werts, Linn, & Joreskog, 1974). It can be interpreted like a Cronbach's α. In other words, the composite reliability value should be more than 0.7 (Nunnally & Bernstein, 1994). Table 4.13 presents the information regarding the composite reliability of each variable. This table shows that the composite reliability value of each variable ranged from 0.844 to 0.985, which was more than the benchmark of 0.70. This result indicates adequate internal consistency reliability of the measures utilized in this study.

Table 4. 13
Composite Reliability

Latent constructs and indicators	**Composite reliability**
Attitude towards pain management	0.879
Self-efficacy of pain management	0.844

Table 4.13 (Continued)

Latent constructs and indicators	**Composite reliability**
Knowledge of pain management	0.925
Subjective norms towards pain management	0.886
Patient-related barriers to pain management	0.933
Pain Management Practices	0.985

iii. Convergent Validity

Convergent validity is explained by Ramayah et al. (2011) as to what extent various items measure the same variable. Based on Fornell and Larcker's (1981) recommendation, convergent validity was checked in this study by assessing the average variance extracted (AVE). The AVE value should be at least 0.5 for each variable to be sufficient. Following this procedure, the items with lowest loadings were omitted from the data set to improve the AVE value. As a result, 16 items were omitted from the data set and only 73 items were retained as they had loadings between 0.582 and 0.880 (see Appendix J).

Table 4.14 shows that the AVEs values of all variables ranged from 0.500 to 0.708, which were all within the recommended range. Thus, the entire latent variables satisfied the threshold value (AVE $\geq$ 0.5) and were considered to have met the standard recommendation for convergent validity.

Table 4. 14
Average Variance Extracted

Latent constructs	**Average variance extracted (AVE)**
Attitude towards pain management	0.708
Self-efficacy of pain management	0.520
Knowledge of pain management	0.673
Subjective norms towards pain management	0.661
Patient-related barriers to pain management	0.500
Pain management practices	0.652

iv. Discriminant Validity

Discriminant validity is described as the degree to which items differentiate among constructs or measure distinct concepts. Also, Duarte and Raposo (2010) defined it as the level to which each study variable is different from other study variables. The discriminant validity was checked by two measures as recommended by Hair et al. (2011), i.e. the Fornell-Larcker's criterion and cross-loadings. In the Fornell-Larcker's measure, the square roots of average variance extracted (AVE) of each variable should be more than the correlations among all other variables (Fornell & Larcker, 1981). Consistent with this criterion, the square root of the average variances extracted (AVE) of each study variable was higher than the correlations among other variables except the attitude variable. Thus, five attitude items with the lowest loadings were omitted from the data set and only 68 items were retained as they had loadings between 0.581 and 0.881 (see Appendix K).

After omitting these items, the square root of the average variances extracted (AVE) of each study variable was higher than the correlations among other variables, indicating appropriate discriminant validity. Table 4.15 presents the square roots of the average variance extracted (AVE) which appears in boldface and latent variable correlations which appear in lightface.

Table 4. 15
Latent Variable Correlations and Square Roots of Average Variance Extracted

	Latent variables	**1**	**2**	**3**	**4**	**5**	**6**
1	Attitude towards pain management	**0.841**					
2	Knowledge of pain management	0.663	**0.721**				
3	Pain management practices	0.795	0.711	**0.808**			
4	Patient related barriers regarding pain management	-0.603	-0.660	-0.732	**0.707**		
5	Self-efficacy of pain management	0.704	0.714	0.790	0.695	**0.820**	
6	Subjective norms towards pain management	0.654	0.650	0.716	0.693	0.674	**0.813**

Note: Entries shown in boldface represent the square root of the average variance extracted.

In the cross-loadings measure, the loading of each indicator should be more than its cross-loadings (Chin, 1998). Following Chin's (1998) suggestion, this study found that the loadings of each indicator were higher than its cross-loadings, indicating adequate discriminant validity (see Appendix L). Table 4.16 demonstrates a summary of the indicators' loadings, composite reliability and average variance extracted for each latent construct after assessing the measurement model.

Table 4. 16
Loadings, Composite Reliability, and Average Variance Extracted

Latent constructs and indicators	**Standardized loadings**	**Composite reliability**	**Average variance extracted (AVE)**
Attitude Towards Pain Management		0.879	0.708
ATT03	0.807		
ATT14	0.890		
ATT15	0.824		
Self-Efficacy of Pain Management		0.844	0.520
SE01	0.820		
SE02	0.868		
SE03	0.865		
SE04	0.819		
SE05	0.691		
SE06	0.845		
Knowledge of Pain Management		0.925	0.673
KNL01	0.754		
KNL03	0.638		
KNL04	0.721		
KNL06	0.759		
KNL07	0.726		
Subjective Norms Towards Pain Management			
SN01	0.821	0.886	0.661
SN02	0.824		
SN03	0.783		
SN04	0.821		
Patient-related Barriers to Pain Management		0.933	0.500
PRB01	0.754		
PRB02	0.764		
PRB04	0.657		
PRB05	0.819		
PRB06	0.790		
PRB07	0.743		
PRB08	0.688		
PRB09	0.601		
PRB10	0.607		

Table 4.16 (Continued)

Latent constructs and indicators	**Standardized Loadings**	**Composite Reliability**	**Average Variance Extracted (AVE)**
PRB11	0.747		
PRB12	0.773		
PRB13	0.584		
PRB14	0.705		
PRB16	0.609		
Pain Management Practices		0.985	0.652
PMP01	0.759		
PMP02	0.859		
PMP03	0.849		
PMP04	0.815		
PMP05	0.863		
PMP06	0.851		
PMP07	0.800		
PMP08	0.860		
PMP09	0.847		
PMP10	0.849		
PMP11	0.847		
PMP12	0.878		
PMP13	0.853		
PMP14	0.837		
PMP15	0.819		
PMP16	0.825		
PMP17	0.760		
PMP18	0.581		
PMP19	0.639		
PMP20	0.698		
PMP21	0.730		
PMP22	0.717		
PMP23	0.741		
PMP24	0.748		
PMP25	0.829		
PMP26	0.862		
PMP27	0.845		
PMP28	0.829		
PMP29	0.854		

Table 4.16 (Continued)

Latent constructs and indicators	**Standardized Loadings**	**Composite Reliability**	**Average Variance Extracted (AVE)**
PMP30	0.759		
PMP31	0.758		
PMP32	0.825		
PMP33	0.881		
PMP34	0.847		
PMP35	0.854		
PMP36	0.802		

4.8.2 Inner Model Evaluation

After assessing the measurement model, the second step in the PLS Analysis is to evaluate the inner (structural) model. Following Henseler et al.'s (2009) suggestion, this study assessed the significance of path coefficients, the level of R-squared values, the effect size, the predictive relevance, and the moderating effect.

i. Significance of path coefficients

The significance of the path coefficients was assessed using the standard bootstrapping procedure, which included 5000 bootstrap samples and 266 cases as recommended by Hair et al. (2011), Hair et al. (2012), Hair et al. (2014), and Henseler et al. (2009). Figure 4.6 shows the full model, which includes the structural model with the moderator, and Table 4.17 that demonstrates the path coefficients and the bootstrapping results.

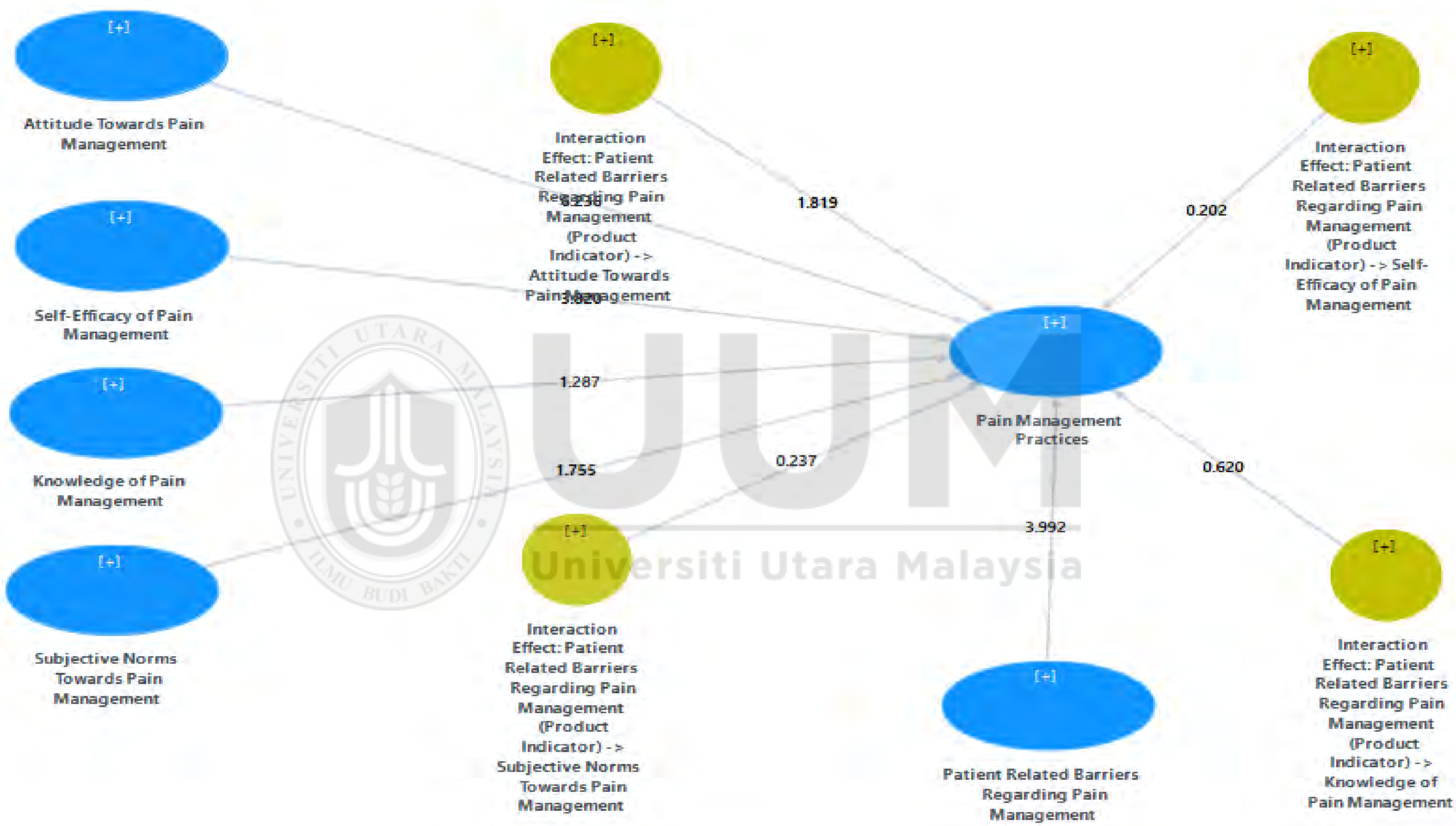


Figure 4. 6
The structural model with moderator (full model)

Table 4. 17
Structural Model Assessment with Moderator (Full Model)

Hypotheses	Relationships	Beta	Std. error	t- value	p-value	Findings
H1	Attitude towards pain management	0.355	0.057	6.236	0.000***	Supported
H2	Self-efficacy of pain management	0.226	0.059	3.820	0.000***	Supported
H3	Knowledge of pain management	0.067	0.052	1.287	0.099*	Supported
H4	Subjective norms towards pain management	0.097	0.055	1.755	0.040**	Supported
H5	Patient related barriers regarding pain management X attitude towards pain management	0.064	0.035	1.819	0.035**	Supported
H6	Patient related barriers regarding pain management X self-efficacy of pain management	0.009	0.047	0.202	0.420	Not-Supported
H7	Patient related barriers regarding pain management X knowledge of pain management	-0.024	0.038	0.620	0.268	Not-Supported
H8	Patient-related barriers to pain management X subjective norms towards pain management	0.011	0.045	0.237	0.406	Not-Supported

Note: Endogenous Latent Construct = Pain Management Practices

***Significant at 0.01 (1-tailed), **significant at 0.05 (1-tailed), *significant at 0.10 (1-tailed).

Hypothesis 1 predicted a significant and positive relationship between attitude towards pain management and pain management practices among nurses in Jordanian hospitals. The result (Table 4.17, Figure 4.6) revealed that the proposed relationship was highly significant ($\beta = 0.355$, $t = 6.236$, $p < 0.001$), and, hence, the hypothesis was supported.

Hypothesis 2 predicted a significant and positive relationship between self-efficacy of pain management and pain management practices among nurses in Jordanian hospitals. The finding (Table 4.17, Figure 4.6) revealed a strong association ($\beta = 0.226$, $t = 3.82$, $p < 0.001$), and, hence, the hypothesis was supported.

Hypothesis 3 predicted a significant and positive relationship between knowledge of pain management and pain management practices among nurses in Jordanian hospitals. The result (Table 4.17, Figure 4.6) showed that relationship was significant ($\beta = 0.067$, $t = 1.287$, $p < 0.10$), and, therefore, the hypothesis was supported.

Hypothesis 4 predicted a significant and positive relationship between subjective norm towards pain management and pain management practices among nurses in Jordanian hospitals. The result (Table 4.17, Figure 4.6) indicated a significant and positive relationship ($\beta = 0.097$, $t = 1.755$, $p < 0.05$), supporting the hypothesis.

ii. Assessment of Variance Explained in the Endogenous Latent Variables

In PLS-SEM, one of the most important criteria to assess the structural model is the variance in the endogenous variable (R^2) (Hair et al., 2011). The R-square value demonstrates the proportion of variation in the dependent variable that can be explained by one or more predictor variable (Hair et al., 2006; Hair et al., 2010). R^2 values of 0.75, 0.50, or 0.25 for the dependent variable in the structural model can be explained as substantial, moderate, or weak, respectively (Hair et al., 2011).

Based on the results showed in Table 4.18 and Figure 4.5, R^2 values was found to be 0.78, suggesting that attitude, self-efficacy, knowledge, subjective norms, and patient barriers accounted for 78% of the variance in pain management practices, which was in the substantial range.

Table 4. 18
Variance Explained in the Endogenous Latent Variable

Latent variable	**Variance explained (R^2)**
Pain management practices	78%

iii. Assessment of Effect Size (f^2)

Effect size represents the impact of a specific exogenous latent variable on an endogenous latent variable(s) by means of changes in the R-square (Chin, 1998). The following formula was used in this study to assess the effect size (f^2) as recommended by Cohen (1988) and Wilson, Callaghan, Ringle, and Henseler (2007).

$$f^2 = \frac{R^2_{\text{included}} - R^2_{\text{excluded}}}{1 - R^2_{\text{included}}}$$

In this formula, R^2 included and R^2 excluded are the R^2 values of the endogenous latent variable when a selected exogenous latent variable is included or excluded from the model. In other words, the change in the R^2 values is calculated by estimating the PLS path model two times. The first time with the exogenous latent variable included (R^2 included) and the second time with the exogenous latent variable excluded (R^2excluded).

Effect size (f^2) values of 0.02, 0.15 and 0.35 indicate small, medium and large effects, respectively (Cohen, 1988). Table 4.19 shows the effect sizes of the exogenous latent variables on the endogenous latent variable of the structural model.

Table 4. 19
Effect Sizes of the Exogenous Latent Variables on Endogenous Latent Variable Based on Cohen's (1988) Guideline

Exogenous latent variables	**Effect sizes**
Attitude towards pain management	0.254
Knowledge of pain management	0.010
Self-efficacy of pain management	0.108
Subjective norms towards pain management	0.022
Patient-related barriers to pain management	0.074

Table 4.19 shows that the effect sizes of attitude, knowledge, self-efficacy, subjective norms, and patient barriers to pain management practices were 0.254, 0.010, 0.108, 0.022, and 0.074, respectively. Thus, following Cohen's (1988) guideline, the effect sizes of these five exogenous latent variables on pain management practices can be interpreted as medium, none, small, small, and small respectively.

iv. Assessment of Predictive Relevance

Based on Hair et al.'s (2010) suggestion, researchers who use PLS-SEM should apply measures to indicate the model's predictive relevance to evaluate the model's quality. This study relies on Stone-Geisser's test of predictive relevance using blindfolding procedures (Geisser, 1974; Stone, 1974). This test is usually used to assess the goodness-of-fit in PLS-SEM modeling (Duarte & Raposo, 2010).

The blindfolding procedure is only assessed to endogenous latent variables that have a reflective measurement model (Sattler, Völckner, Riediger & Ringle, 2010). McMillan and Conner (2003) defined a reflective measurement model as a latent variable that causes variations in a set of indicators. Thus, because the endogenous latent variable (pain management practices) in this study was reflective in nature, a blindfolding procedure was applied to this variable. In particular, a cross-validated redundancy measure (Q^2) was applied to assess the predictive relevance of the research model (Chin, 2010; Hair, Ringle & Sarstedt, 2013; Ringle, Sarstedt, & Straub, 2012). Based on Hair et al.'s (2011) and Henseler et al.'s (2009), when the cross-validated redundancy measure (Q^2) value is more than zero, its indicate that the model has predictive relevance. Following this criterion, the cross-validation redundancy measure (Q^2) for the endogenous latent variable (pain management practices) was 0.505, indicating the predictive relevance of the model. Table 4.20 presents the cross-validated redundancy result.

Table 4. 20
Construct Cross-validated Redundancy for Endogenous Latent Variable

Latent variable	**Construct cross-validated redundancy**
Pain management practices	0.505

v. Testing of Moderating Effect

This study did not only assess the direct relations but also the moderating effect of patient-related barriers on the relationship between the independent variables of attitude, self-efficacy, knowledge, and subjective norm, and the dependent variable of pain management practices. The SmartPLS 3.0 software was applied to assess the moderating effect of patient-related barriers.

In Table 4.17, the result of hypothesis testing indicates that the strength of the moderating effect of patient-related barriers on the relationship between attitude towards pain management and pain management practices, supporting the hypothesis. On the other hand, no support was found on the relationship between self-efficacy of pain management and pain management practices. Similarly, no support was found on the relationship between knowledge of pain management and pain management practices.

Also, no support was found on the relationship between subjective norm towards pain management and pain management practices. The following details the moderation effects and the hypothesis testing results.

Hypothesis 5 posited that patient-related barriers moderate the relationship between attitude towards pain management and pain management practices among nurses in Jordanian hospitals. The results of this study (Table 4.17, Figure 4.6) provided support for H5 (β =0.064, t = 1.819, $p < 0.05$), indicating that the relationship between attitude towards pain management and pain management practices was weaker when the patient-related barriers were higher. Figure 4.7 shows that the nurses' attitude towards pain management had a significant and positive relationship with their pain management practices but the increase of patient's barriers will lead to weaken this relation.

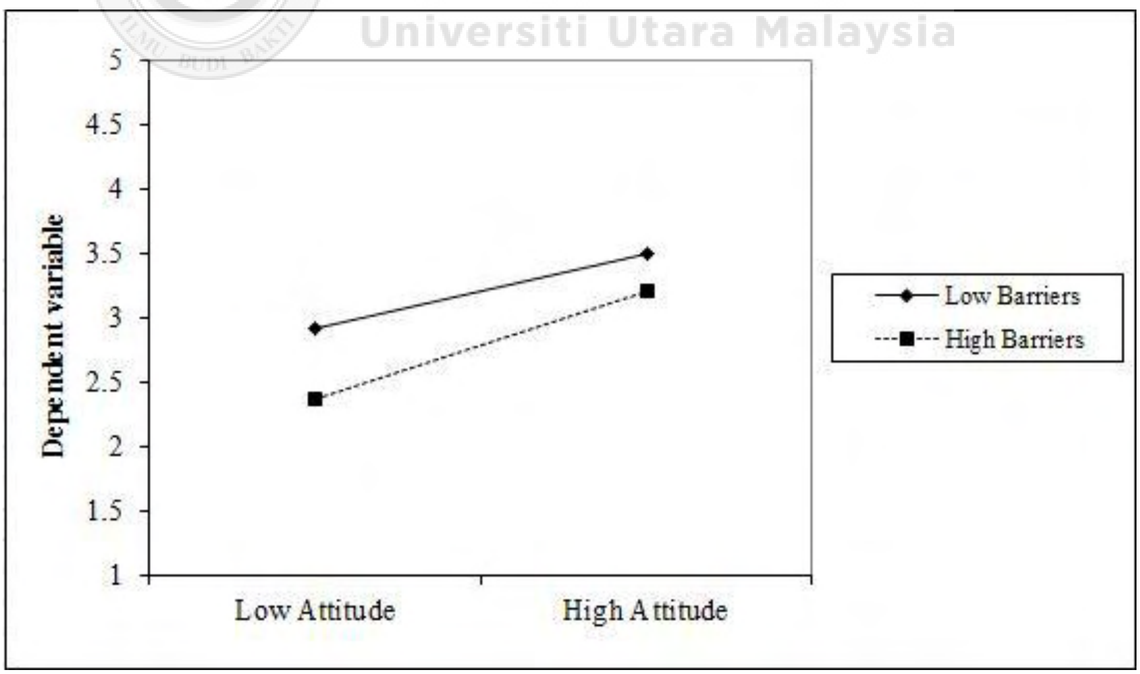


Figure 4. 7
The moderating effect of patients' barriers on the relationship between attitude towards pain management and pain management practices

Hypothesis 6 predicted that patient-related barriers moderate the relationship between self-efficacy of pain management and pain management practices among nurses in Jordanian hospitals. The study result (Table 4.17, Figure 4.6) showed no support for H6 (β = 0.009, t = 0.202). This implies that the patient-related barriers had no moderating effect.

Hypothesis 7 posited that patient-related barriers moderate the relationship between knowledge of pain management and pain management practices among nurses in Jordanian hospitals. The study's findings (Table 4.17, Figure 4.6) provided no support for H7 (β = -0.024, t = 0.62). This indicates that the patient-related barriers had no moderating effect.

Hypothesis 8 predicted that patient-related barriers moderate the relationship between subjective norm towards pain management and pain management practices among nurses in Jordanian hospitals. The study's findings (Table 4.17, Figure 4.6) revealed no support for H8 (β = 0.011, t = 0.237). This implies that the patient-related barriers had no moderating effect.

Determining the Strength of the Moderating Effects

The strength of the moderating effects of patient-related barriers on the relationship between the independent variables (attitude, self-efficacy, knowledge, and subjective norm) and the dependent variable (pain management practices) was assessed using the effect size (f^2) formula (Cohen's, 1988). In this formula, R^2 included demonstrates the R-square value of the full model (exogenous latent variables and moderating variable) and the R^2 excluded is the R^2 values of the endogenous latent variable.

$$f^2 = \frac{R^2_{\text{included}} - R^2_{\text{excluded}}}{1 - R^2_{\text{included}}}$$

According to Cohen (1988), the effect size (f^2) value of 0.35 demonstrates a high effect, f^2 values of 0.15 represent a moderate effect, and f^2 value of 0.02 explains s weak effect. However, a low effect size f^2 value does not necessarily indicate that the moderating effect is not significant (Chin et al., 2003). Table 4.21 shows the strength of the moderating effects of the patient-related barriers.

Table 4. 21
Strength of the Moderating Effects Based on Cohen's (1988) Guideline

Endogenous latent variable	**R^2**		**f^2**	**Effect size**
	Included	**Excluded**		
Pain management practices	0.792	0.779	0.06	Small

Following Cohen's (1988) criterion for assessing the strength of the moderating effects, the effect size (f^2) value for pain management practices was 0.06, suggesting that the moderating effect was weak.

4.9 Summary of Findings

As shown in the various analyses above, five of eight hypotheses were accepted as being significant. On the other hand, three hypotheses were rejected because of insignificant findings. Table 4.22 summarizes the results of all hypotheses tested including the main and moderating effects.

Table 4. 22
Summary of Hypotheses Testing

Hypotheses	Statements	Findings
H1	Attitude towards pain management relates positively with pain management practices	Supported
H2	Self-efficacy of pain management relates positively with pain management practices	Supported
H3	Knowledge of pain management relates positively with pain management practices	Supported
H4	Subjective norms towards pain management relate positively with pain management practices	Supported
H5	Patient-related barriers to pain management moderate the relationship between attitude towards pain management and pain management practices	Supported
H6	Patient-related barriers to pain management moderate the relationship between self-efficacy of pain management and pain management practices	Not supported
H7	Patient-related barriers to pain management moderate the relationship between knowledge of pain management and pain management practices	Not supported
H8	Patient-related barriers to pain management moderate the relationship between subjective norms towards pain management and pain management practices	Not supported

4.10 Chapter Summary

This chapter evaluated the level of pain management practices among Jordanian nurses. The study findings presented that nurses had moderate level of practices regarding pain management, which is presented by the mean score of 71% (see Table 4.11). Additional item analysis revealed that nurses had highly performed in practices in some areas such as “I asked my patients to locate the area of pain” and “I asked my patients about the intensity of pain before giving pain killers”. On the other hand, the item analysis showed that some pain management practices was poorly performed such as “I taught my patients alternative methods to reduce pain” and “I explained to my patients the drug addiction to reduce their fear”.

Also, in this chapter, the assessment of the significance of the path coefficients was presented. In particular, the path coefficients revealed a significant positive relationship between: (1) attitude towards pain management and pain management practices ($\beta = 0.355$, $t = 6.236$, $p < 0.001$), (2) self-efficacy of pain management and pain management practices ($\beta = 0.226$, $t = 3.82$, $p < 0.001$), (3) knowledge of pain management and pain management practices ($\beta = 0.067$, $t = 1.287$, $p < 0.10$), and (4) subjective norm towards pain management and pain management practices ($\beta = 0.097$, $t = 1.755$, $p < 0.05$).

Furthermore, this chapter showed the assessment of the moderating effects of patient-related barriers on the relationship between four independent variables and the dependent variable. PLS path coefficients indicated that of four formulated hypotheses, one was significant. In particular, the patient-related barriers moderated the relationship between attitude towards pain management and pain management practices (β =0.064, t = 1.819, $p < 0.05$). Chapter 5 discusses further the findings, followed by implications, limitations, suggestions for future research directions, and conclusion.

CHAPTER FIVE
DISCUSSION AND CONCLUSION

5.1 Introduction

This chapter includes a summary of the study's findings, and a discussion of the findings in the light of the theoretical propositions and previous studies. Next, it discusses the theoretical, methodological, and practical implications of the study. After that, the limitations of the study are noted and suggestions for future research directions are made. Finally, this chapter provides recommendations for practice and concludes the entire study.

5.2 Recapitulation of the Study's Findings

The present study evaluated the pain management practices level among Jordanian nurses. Also, it assessed the relationship between attitude, self-efficacy, knowledge, subjective norm, and pain management practices. Furthermore, this study examined the moderating effect of patient-related barriers on the relationship between the independent variables (attitude, self-efficacy, knowledge, and subjective norms) and a dependent variable (pain management practices) among staff nurses of the Jordanian public hospitals. Overall, this study provided answers to the following research questions:

1. What is the level of pain management practices among Jordanian nurses?
2. What is the relationship between attitude towards pain management, pain management self-efficacy, knowledge of pain management, subjective norm

towards pain management and pain management practices among Jordanian nurses?

3. What is the moderating effect of the patients' related barriers on the relationship between behavioral predictors (attitude, knowledge, subjective norm, and self-efficacy) and pain management practices?

In consideration of the level of pain management practices, the study findings revealed that the level of pain management practices among Jordanian nurses was moderate. Specifically, it was found that more than a quarter of nurses (71 nurses) provided the pain management practice at the low level (27%). Also, it indicated that 53 of them provided pain management at very low level (20%) and 46 of the registered nurses provided moderate level of pain management (17%). Nevertheless, the level of pain management practices was high among 52 nurses (20%) and very high among 44 nurses (17%).

Regarding the direct relationship between the exogenous latent variables (attitude, self-efficacy, knowledge and subjective norm) and the endogenous latent variable (pain management practices), the findings of this study indicated that all of the hypotheses were supported. In other words, the results of the PLS path model showed that the nurses' attitude towards pain management, self-efficacy of pain management, knowledge of pain management, subjective norms towards pain management were significantly and positively related to pain management practices.

With respect to patient-related barriers as a moderator on the relationship between the exogenous latent variables and the endogenous latent variable, the results indicated that of four hypotheses, one hypothesis was supported. Specifically, the patient-related barriers were found to moderate the relationship between attitude towards pain management and pain management practices. On the other hand, the barriers were not found to moderate the relationship between self-efficacy of pain management and pain management practices. The results also revealed that the barriers did not moderate the relationship between knowledge of pain management and pain management practices. In the same vein, the barriers were not found to moderate the relationship between subjective norms towards pain management and pain management practices.

5.3 Discussion of Research Findings

5.3.1 Nurses' Pain Management Practices Level

The first research question the present study seeks to address is "What is the level of pain management practices among nurses?". To answer this question, frequency analysis on pain management practices was run. Overall, the nurses' pain management practices were at the moderate level (M = 71%, SD = .19, minimum = .22% and maximum = 100%). This result is congruent with previous studies (Basak, 2010; Clarke et al., 1996; Hossain, 2010). They found that the level of pain management practices only at the moderate level.

In this study, nurses reported some practices they rarely performed in providing care for patients who had pain. These include: 1) taught the patients alternative methods to reduce pain (65%); 2) explaining to the patients the drug addiction to reduce their fear (68 %); 3) spending the time with the patients to reduce their pain (68 %); 4) giving the prescribed pain medication to the patients on a fixed schedule (68%); 5) using observation to determine patients' pain (69%) (see Table 4.12).

Based on these results the universities and hospitals should mainly focus on these items to enhance pain management practices provided by nurses. Specifically, they should provide proper training and education in pain management to the Jordanian nurses. The education and training must involve in-analgesic side effect, consequences of unrelieved pain and pain management process (i.e. assessment, intervention and reassessment).

5.3.2 Attitude towards Pain Management and Pain Management Practices

Field theory suggests that attitude (one of the internal personal factors) guide practices, implying that the nurses' attitudes toward pain management influence their practices in pain management. In other words, if a nurse has a positive attitude toward pain management, then he or she will practice pain management. As shown in Table 4.17, the finding showed that the nurses' attitude towards pain management had a significant and positive relationship with their pain management practices in the Jordanian public hospitals ($\beta = 0.355$, $t = 6.236$, $p < 0.001$). In this regard, the present finding seems to be consistent with Rony et al.'s (2010), who found a significant positive link between the parents’ attitude towards pain management and their pain management practices. Also, this result is consistent with Edwards et al.'s (2001) and Jurgens's (1996), who found a significant and positive relationship between the nurses’ attitude towards pain management and their likelihood to administer analgesics.

In the above studies, Edwards et al. (2001) assessed the relationship between the nurses’ attitude and their likelihood to administer the opioid analgesics to relieve the patients’ pain. They found a positive relationship between attitude and intention to administer the prescribed opioids among nurses. Jurgens (1996) also found a significant relationship between attitude towards pain management and intention to manage pain by administering morphine post operatively as the nurses’ intervention. This finding is not surprising. Logically, the people who have a positive feeling to perform specific behavior will provide appropriate level of this behavior.

The present study provides empirical evidence that attitude translates into practice, thus validating the practical utility of the proposed model. Therefore, if the Jordanian universities and hospitals can improve the nurses' attitude towards pain management, there are significant chances to convert this attitude into pain management practices. Therefore, it is important to determine the factors affecting their nurses’ attitude towards pain management, as such attitude was found to determine pain management practices.

5.3.3 Self-efficacy of Pain Management and Pain Management Practices

Field theory suggests that self-efficacy (one of the internal personal factors) guide practices, implying that the confidence of nurses in their own ability to perform pain management influence their practices in pain management. As shown in Figure 4.6 and Table 4.17, the result indicated that the relationships between self-efficacy of pain management and pain management practices was found to be significant and positive in the Jordanian public hospitals ($\beta = 0.226$, $t = 3.82$, $p < 0.001$). The findings are theoretically consistent with those of Edwards et al.'s (2001), Jurgens' (1996), Nash et al.'s (1993), and Weber et al.'s (2012), who found a significant and positive link between self-efficacy of pain management and the likelihood to manage pain in a specific manner.

In the above studies, Edwards et al. (2001) found that the relationship between the nurses' self-efficacy and their intention to administer opioid analgesics was significant and positive. Jurgens (1996) assessed the relationship between nurses' self-efficacy and their intention to control pain by administering morphine. The result also showed a significant positive relationship. Similarly, Nash et al. (1993) found that the nurses' self-efficacy was positively and significantly linked to their intention to assess the patients' pain. Finally, Weber et al. (2012) found that paramedics' self-efficacy had a significant relationship with their intention to administer analgesic (i.e. morphine). Thus, the finding of this study enriches the literature by assessing the direct relationship between self-efficacy of pain management and pain management practices.

This result shows that the nurse's self-efficacy of pain management can drive them to implement pain management practices. This implies that universities and hospitals that wish to improve their nurses' practices in pain management should convince them about their abilities in managing the patients' pain. Logically, employees who have high confidence in their own ability to perform specific behavior would provide a higher level of this behavior.

5.3.4 Knowledge of Pain Management and Pain Management Practices

Field theory suggests that knowledge of pain management (one of the internal personal factors) guide practices. This study found that the relationship between knowledge and pain management practices was positively significant ($\beta = 0.067$, $t = 1.287$, $p < 0.10$). This result is consistent with previous studies (e.g., Glajchen & Bookbinder, 2001). Glajchen and Bookbinder (2001), found a significant relationship between the nurses knowledge and their ability to manage the patients pain. Therefore, the more knowledge the health care providers have in managing pain, the more they conduct pain management practices. It is not surprising if individuals with high level of knowledge regarding specific behavior would provide a higher level of this behavior.

Many factors influence health care providers' knowledge of pain management, including the cultural background (McCaffery & Ferrell, 1995), attending educational programs in pain (Abdalrahim et al., 2011; Al Qadire & Al Khalaileh, 2012; Al-Khawaldeh et al., 2013), working environment (Wilson, 2007), working position of the health care providers (Lewthwaite et al., 2011), professional experiences (Basak, 2010;

Wilson, 2007; Yildirim et al., 2008; Yu & Petrini, 2007), and weakness of nursing education programs and curricula (Goodrich, 2006; Plaisance & Logan, 2006; Polomano et al. ,2008; Sauaia et al., 2005; Voshall et al., 2013).

Based on the result, it is important for hospitals to enhance the knowledge of their nurses in pain management. The most important method to improve there is by conducting continuous medical education (CME), which includes informative and practical pain management programs (Levett-Jones, 2005; Tse & Ho, 2014). According to Cohen et al. (2003), staff members must complete a comprehensive pain management program and conferences, including a review of pain intensity, location, character, frequency, and duration. Also, in the medical education, case studies as one practical pain management program (Lai et al., 2003) and e-learning interventions to improve the quality of pain education (Keefe & Wharrad, 2012) can be used.

The role in improving the nurses' knowledge in pain management is not limited to the hospitals only. Universities have also an important role in improving the nurses' knowledge in pain management by analyzing the nursing curricula (Aziato & Adejumo, 2014). Many researchers found that nursing schools need to critically review their curricula to determine whether students are being taught in-depth and up-to-date about pain management and recommended that the nursing education incorporates evidence-based research and improves the current standards of care (Al-Khawaldeh et al., 2013; Plaisance & Logan, 2006).

5.3.5 Subjective Norms towards Pain Management and Pain Management Practices

Field theory suggests that subjective norms (external social stimulus) guide practices, implying that perceived favorableness of important others influences the nurses' practices in pain management. The finding of this study revealed that the relationship between subjective norms towards pain management and pain management practices was positive and significant in the Jordanian public hospitals ($\beta = 0.097$, $t = 1.755$, $p < 0.05$), supporting hypothesis 4 (see Table 4.17). This finding is in line with the results of past studies (Edwards et al., 2001; Weber et al., 2012), thus, contributing to the enrichment of the literature in the relationship between subjective norm towards pain management and pain management practices.

In the above studies, Edwards et al. (2001) found a significant and positive relationship between subjective norms and the nurses' intention to administer the opioid analgesic to manage the patients' pain. Similarly, Weber et al. (2012) found that subjective norm was a significant predictor of behavioral intention in morphine administration among paramedics. Logically, social pressure an individual feelings to perform the behavior would encourage him/her to provide higher level of this behavior.

Universities and hospitals can benefit from the result as social norms could influence nurses' pain management practices. Therefore, these institutions need to work on improving the normative forces. In other words, to take advantage of the influence of such important referents (family members, friends, and supervisors), health promotion about the consequences of unrelieved pain should be provided for them.

5.3.6 Moderating Effect of Patients-related Barriers

Field theory suggests that patient-related barriers are one of the environmental factors affect individual practices. Patient-related barriers are defined as the patient refusing to report his/her pain, inasmuch as wrong belief or misconception about pain management. This study proposes that patient-related barriers act to moderate the relationship between the independent variables (attitude, self-efficacy, subjective norms, and knowledge) and the dependent variable (pain management practices).

i. Significant effect of patients related barriers as a moderator

Table 4.17 shows that the patient-related barriers only moderated the relationship between attitude toward pain management and pain management practices in that the barriers were found to weaken the relationship (see Figure 4.7). This result is consistent with a study conducted by Huy Tuu et al. (2011), who found that barriers acted as a good moderator on the relationship between satisfaction and loyalty. Also, Bogdanovich (2013) found that perceived barriers weakened the association between controlled motivation and vegetable intake. Also, this result consistent with the field theory, high practices (i.e. pain management) was associated with environmental factor (i.e. patients' barriers).

For simplicity sake, the findings revealed that the interaction between attitudes towards pain management and pain management practices was lower among nurses that are encounter high levels of patients' barriers. Stated differently, under conditions of high attitude towards pain management, nurses who encounter high levels of patients' barriers experienced low pain management practices compared to their counterparts with low levels of patients' barriers.

ii. Insignificant effect of patients related barriers as a moderator

Unexpectedly, no moderating effect was found on the relationships between knowledge, subjective norms, self-efficacy and pain management practices. One possible reason for the absence of support for the hypothesized relationships might be because of the low trust between patients and health care providers. According to Daibes (2011), the health care providers in Jordan do not trust patients. Thus, they may not be concerned much about the patients' reporting of their pain and only rely on clinical signs, such as vital signs and facial expressions for pain management.

Another possible explanation for the lack of support for the hypothesized relationships pertains to the poor communication between patients and health care providers. According to Daibes (2011), Jordanian nurses seemed to pay more attention to the medical profiles of the patients than to patients themselves. Thus, they may not be concerned about the patients' opinion on pain management. Also, in Jordan, the English language is a foreign language, but the nurses often speak using the English medical terms (Daibes, 2011). So, the majority of the patients could not understand the nurses' plan to relieve their pain. Consequently, the patients could not express their opinion on pain management.

The alternative explanation for the lack of support might be related to socio-cultural influence that could affect strongly the relationships between professionals and patients of opposite genders (Daibes, 2011), which prevent the patients from expressing their opinion about their pain. Furthermore, Jordan is a strongly family-oriented society (Shoup, 2007). Thus, visitors (friends and relatives) could visit the patients at any time and report the patients' pain instead of the patients themselves. In addition, the presence of visitors in a large number and for long periods could further hinder the professional-patient communication regarding the patients' pain. Thus, the health care professional may administer the prescribed medication or procedures without explaining them to the patient.

Another possible explanation for the absence of support for the hypothesized relationships might be due to the political situation. According to Syrian refugees' affairs spokesman in Jordan, more than 1.2 million Syrian refugees now live in Jordan (Fakhoury, 2013). Thus, Jordanian health services have been under a great deal of pressure to provide the services to the Syrian refugees who enter the country. This pressure may lead to increased workload of the health care providers which decrease their concern about the patients' right to refuse the prescribed treatment. Thus, the health care providers may provide the health services without explaining them to the patients.

5.4 Implications of the Study

The results of the current study have practical and theoretical implications as follows.

5.4.1 Practical Implications

The results have important implications to the management of the Jordanian public hospitals and the institutions related to health care in general. Firstly, the results suggest that the nursing attitude towards pain management is an important consideration in managing the patients' pain. Thus, hospitals and universities can make considerable efforts in minimizing the occurrence of pain management deficiency by focusing on the factors that lead to a negative attitude towards pain management, such as education insufficiency, a weak relationship between nurses and patients and wrong ideas about pain (Patiraki et al., 2006), little coverage of the pain management topic within the nursing curricula (McMillan et al., 2000), and unavailability of training programs to the health care providers (Abdalrahim et al., 2011; Ravaud et al., 2004; Simpson et al., 2002).

Secondly, the findings suggest that self-efficacy was related to pain management practices. Thus, the management of the hospitals could minimize the occurrence of pain management deficiency of the nurses by improving the conditions that lead to their lack of confidence to perform pain management. For example, the management of the hospitals may wish to implement an appropriate pain education program in the early stage of a nurse's career (Chiang et al., 2006).

Thirdly, the results of the current study suggest that the nurses' knowledge of pain management is an important determinant of pain management practices. Therefore, hospitals and universities can make considerable efforts in minimizing the occurrence of pain management deficiency by focusing on the leading factors of knowledge deficiency in pain management, such as the poor nursing education programs and curricula (Daibes, 2011; Rahimi-Madiseh et al., 2010; Twycross, 2000; Wallace et al., 1995). In addition, these organizations should focuses, in their curricula, on the ethical and legal implications of not assessing, managing and monitoring pain (Registered Nurses Association of Ontario [RNAO], 2013).

.

Fourthly, the findings revealed that the subjective norms towards pain management were related to pain management practices. Thus, the management of the hospitals and universities could reduce the occurrence of pain management deficiency of the nurses by focusing on the nurses' families, friends, and supervisors by offering health education to them on the consequences of unrelieved pain.

Finally, the results indicated that the wrong belief patients have about pain management (patients' barriers) is an important determinant of nurses' practices in pain management. So, the management of the hospitals could reduce the occurrence of pain management deficiency of nurses by focusing on the factors that lead to the patients developing a wrong belief about pain management, such as by offering health education for the patients and their families about the consequences of unrelieved pain.

5.4.2 Theoretical Implications

The current results have contributed to the literature and theory development in three major ways, including (1) establishing the moderating effect of patients' barriers on the relationship between attitude towards pain management and pain management practices, (2) establishing the positive effect of self-efficacy and subjective norms on pain management practices, (3) revalidating the significant relationship of attitude, knowledge, and pain management practices, and (4) utilizing the field theory to assess pain management practices.

Firstly, with regards to the moderating effect of patients' barriers, the current study has theoretically offered new knowledge on moderation by demonstrating that the patient' barriers weakened the relationship between attitude towards pain management and pain management practices.

Secondly, with respect to the direct effect of self-efficacy and subjective norms on pain management, previous studies only assessed the relationship between health care providers' self-efficacy of and subjective norms towards pain management and their intention to perform pain management (Edwards et al., 2001; Jurgens, 1996; Nash et al., 1993; Pellino, 1997; Weber et al., 2012). The current study added another contribution to the literature by assessing the relationship between self-efficacy, subjective norms, and the pain management practices. Specifically, the study has demonstrated a positive directional relationship between self-efficacy, subjective norms, and pain management practices.

Thirdly, the current study further contributes to the existing literature by assessing the relationship between attitude, knowledge, and pain management practices. The findings of this study have provided other demographic bases for comparative studies and additional validation regarding the significant relationship between attitude, knowledge and pain management practices.

Finally, this study utilized a different model to explain the relationship between the study variables (attitude, self-efficacy, knowledge, subjective norm, and pain management practices). Previous studies utilized various theories and models to assess pain management. Some of these studies utilized the theory of planned behavior to predict the nurses' intention to perform pain management. Jurgens (1996) assessed the nurses' intention to administer morphine for post-operative patients. Also, Nash et al. (1993) examined the nurses' intention to provide appropriate documentation in pain management. In addition, the theory of planned behavior was employed by Edwards et al. (2001) to investigate the nurses' intention to administer opioids. Other studies applied the theory of planned behavior to assess the paramedics' intention to administer morphine (e.g., Weber et al., 2012).

According to Ajzen (1991), the theory of planned behavior (TPB) is appropriate to assess the optional behaviors and the behaviors that are not completely under optional control. However, pain management practices are classified as essential tasks for nurses and they are one of the patients' rights (International Association for the Study of Pain [IASP], 2010a; South African Society of Anesthesiologists [SASA], 2009). In other words, the nurses' intention to perform pain management is not an important predictor to perform pain management practices. Therefore, the theory of planned behavior (TPB) was not used in this study as the underpinning theory.

Besides TPB, other researchers have utilized the knowledge, attitude and practice (KAP) model to assess the health care providers' practices in pain management (Basak, 2010; Hossain, 2010). This model is only concerned about the personal determinants (knowledge and attitude). In comparison, pain management practices are not only affected by the personal determinants (health care providers' personal factors) but also by the environmental determinants, such as the health care system factors and patient-related factors (Glajchen, 2001; Jacobsen et al., 2009; Von Roenn, 2001). Thus, the KAP model is not suitable to assess the relationship between pain management practices and its determinants.

The field theory concentrates on the personal determinants (such as knowledge, attitude, and self-efficacy) and the environmental determinants (such as subjective norms and patient-related barriers). Therefore, this study contributes to the existing literature by utilizing the field theory to assess the relationship between pain management practices and their determinants.

5.5 Limitations and Future Research Directions

Firstly, the study model was able to explain 78% of the total variance in pain management practices, which means that there are other latent variables that could also significantly explain the variance in pain management practices. In other words, the remaining 22% of the variance in pain management practices could be explained by other factors. Therefore, future research is needed to consider other possible factors that could affect the pain management practices, such as organizational policies, organizational structures, workload, and a shortage of nursing staff.

Secondly, the present study adopts a cross-sectional design which does not allow causal inferences to be made from the population. Therefore, a longitudinal design in the future needs to be considered to measure the theoretical constructs at different points in time to confirm the findings of the present study.

Thirdly, even though the nurses who participated in this study did so voluntarily, the results might be skewed and not representative of all practicing nurses in Jordanian public hospitals. In other words, those who did not participate may have had different responses to the study instruments.

Fourthly, as a non-experimental design was used, other external factors that might affect the relationship between the determinants and pain management practices could not be controlled and only tentative correlations can be made. Thus, future researchers should conduct experimental studies to assess the pain management practices.

Fifthly, the participants of this study were the registered nurses because they have a key role in managing the patients' pain (Lewthwaite et al., 2011; Zalon, 1995). But, they are not the only one responsible for relieving the patients' pain (McMillan et al., 2000). Thus, future research should also consider other health care providers, such as physicians.

Finally, this study focused on pain management practices in the Jordanian public hospitals. Future researchers should conduct a comparative study between public and private hospitals to enhance the generalizability of the results.

5.6 Conclusions

The results of the present study generally support the utility of the field theory in predicting nurses' practices in pain management. A large proportion of the variance in pain management practices was accounted for by the model components (i.e. 78%).

Furthermore, the results of this study have lent support for the key theoretical propositions. In particular, the current study has successfully answered all research questions. While there have been many studies that examined the determinants of pain management practices, however, the present study addressed the theoretical gap by assessing the direct relationship between self-efficacy, subjective norms, and pain management practices. In addition, this study assessed the moderating effect of patients' barriers as a theoretical contribution.

The results of this study have important practical implications to the universities and hospitals. Moreover, based on the limitations of the current study, several future research directions are drawn. In conclusion, the present study has added valuable theoretical, practical, and methodological contributions to the growing body of knowledge in the field of health management.

REFERENCES

Abdalrahim, M. S., Majali, S. A., & Bergbom, I. (2008). Documentation of postoperative pain by nurses in surgical wards. *Acute Pain*, *10*(2), 73-81. http://dx.doi.org/10.1016/j.acpain.2008.04.001

Abdalrahim, M. S., Majali, S. A., Stomberg, M. W., & Bergbom, I. (2011). The effect of postoperative pain management program on improving nurses' knowledge and attitudes toward pain. *Nurse Education in Practice*, *11*(4), 250-255. http://dx.doi.org/10.1016/j.nepr.2010.11.016

Abrahamson, K., Arling, P., & Gillette, J. (2012). Does self-efficacy influence the application of evidence-based practice: A survey and structural equation model. *Journal of Nursing Education and Practice*, *3*(5), p1. http://dx.doi.org/10.5430/jnep.v3n5p1

Abushaikha, L. A. (2007). Methods of coping with labor pain used by Jordanian women. *Journal of Transcultural Nursing*, *18*(1), 35-40. http://dx.doi.org/10.1177/1043659606294194

Agency for Health Care Policy and Research. (1992). *A cute pain management: operative or medical procedures and trauma*. Retrieved from http://www.ncbi.nlm.nih.gov/books/NBK52153/

Agency for Health Care Policy and Research. (2002). *Management of cancer symptoms: Pain, depression, and fatigue*. AHRQ Publication No. 02-E032. Retrieved from http://archive.ahrq.gov/downloads/pub/evidence/pdf/cansymp/cansymp.pdf

Aisuodionoe-Shadrach, O. I., Olapade-Olaopa, E. O., & Soyannwo, O. A. (2006). Preoperative analgesia in emergency surgical care in Ibadan. *Tropical Doctor*, *36*(1), 35-36. http://dx.doi.org/10.1258/004947506775598789

Ajzen, I. (1985). *From intentions to actions: A theory of planned behavior* (pp. 11-39). Springer Berlin Heidelberg.

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, *50*(2), 179-211. http://dx.doi.org/10.1016/0749-5978(91)90020-t

Ajzen, I. (June 6, 2016). Icek Ajzen, Professor of Psychology, University of Massachusetts. Retrieved from http://people.umass.edu/aizen/faqtxt.html

Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behaviour*. Englewood Cliffs, NJ: Prentice-Hall.

Akuma, A. O., & Jordan, S. (2012). Pain management in neonates: a survey of nurses and doctors. *Journal of advanced nursing*, *68*(6), 1288-1301. http://dx.doi.org/10.1111/j.1365-2648.2011.05837.x

Al Qadire, M., & Al Khalaileh, M. (2012). Jordanian nurses knowledge and attitude regarding pain management. *Pain Management Nursing. 15*(1), 220-228. http://dx.doi.org/10.1016/j.pmn.2012.08.006

American Medical Directors Association. (2012). *Pain management in the long term care setting*. American Medical Directors Association (AMDA). Retrieved from https://www.guideline.gov/content.aspx?id=45524

Al Samaraee, A., Rhind, G., Saleh, U., & Bhattacharya, V. (2010). Factors contributing to poor post-operative abdominal pain management in adult patients: A review. *The Surgeon*, *8*(3), 151-158. http://dx.doi.org/10.1016/j.surge.2009.10.039

Al-Atiyyat, N. M. H. (2008). Patient-related barriers to effective cancer pain management. *Journal of Hospice & Palliative Nursing*, *10*(4), 198-204. http://dx.doi.org/10.1097/01.njh.0000319161.97477.b0

Alcenius, M. (2004). Successfully meet pain assessment standards. *Nursing Management*, *35*(3), 12. http://dx.doi.org/10.1097/00006247-200403000-00005

Al-Hassan, M. A., & Omran, S. M. (2005). The effects of health beliefs on health care-seeking decisions of Jordanian patients with myocardial infarction symptoms. *International Journal of Nursing Practice*, *11*(1), 13-20. http://dx.doi.org/10.1111/j.1440-172x.2005.00497.x

Al-Hassan, M., & Hweidi, I. (2004). The perceived needs of Jordanian families of hospitalized, critically ill patients. *International Journal of Nursing Practice, 10*(2), 64-71. http://dx.doi.org/10.1111/j.1440-172x.2003.00460.x

Al-Hassan, M., Alkhalil, M. S., & Al Ma'Aitah, R. (1999). Jordanian nurses' roles in the management of postoperative pain in the postanesthesia care unit. *Journal of PeriAnesthesia Nursing*, *14*(6), 384-389. http://dx.doi.org/10.1016/s1089-9472(99)80101-4

Ali, H. S., Ibrahim, Y., & Mohamed, E. (2013). Non-Pharmacological Pain Management: Nurses' Knowledge, Attitudes and Practices in selected Hospitals at Makkah El-Mukarramah. *Life Science Journal*, *2*, 10. Retrieved from http://www.lifesciencesite.com/lsj/life1002/184_18276life1002_1327_1335.pdf

Al-Khawaldeh, O. A., Al-Hussami, M., & Darawad, M. (2013). Knowledge and attitudes regarding pain management among Jordanian nursing students. *Nurse Education Today*, *33*(4), 339-345. http://dx.doi.org/10.1016/j.nedt.2013.01.006

Alley, L. G. (2001). The influence of an organizational pain management policy on nurses' pain management practices. *Oncology Nursing Forum*, *28*(5), 867-874. Retrieved from http://europepmc.org/abstract/med/11421146

Al-Ma'aitah, R. M., & Gharaibeh, M. M. (2000). Perception of Jordanian male nursing students about caring for children in the pediatric units after graduation. *Journal of pediatric nursing*, *15*(3), 198-203. http://dx.doi.org/10.1016/s0882-5963(00)70012-1

Al-Makhamreh, S. (2005). *Social work as an emerging profession in the Middle East : An ethnographic case study of Jordanian hospital social work* (PhD dissertation). University of Warwick, Coventry.

Alrai Newspaper (2012, March). الخصاونة يؤكد اهتمام الأردن بتحسين الرعاية الصحية للمواطنين. Alrai Newspaper. Amman, Alrai. Retrieved from http://www.alrai.com/article/498978.html

Al-Shaer, D., Hill, P. D., & Anderson, M. A. (2011). Nurses' knowledge and attitudes regarding pain assessment and intervention. *Medsurg Nursing*, *20*(1), 7-11. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/21446289

Andersson, E. P. (1993). The perspective of student nurses and their perceptions of professional nursing during the nurse training programme. *Journal of Advanced Nursing*, *18*(5), 808-815. http://dx.doi.org/10.1046/j.1365-2648.1993.18050808.x

Apfelbaum, J. L., Chen, C., Mehta, S. S., & Gan, T. J. (2003). Postoperative pain experience: Results from a national survey suggest postoperative pain continues to be undermanaged. *Anesthesia & Analgesia*, *97*(2), 534-540. http://dx.doi.org/10.1213/01.ane.0000068822.10113.9e

Arathuzik, D. (1991). Pain experience for metastatic breast cancer patients: Unraveling the mystery. *Cancer Nursing*, *14*(1), 41-48. http://dx.doi.org/10.1097/00002820-199102000-00007

Armitage, C. J., & Conner, M. (2001). Efficacy of the theory of planned behaviour: A meta-analytic review. *British Journal of Social Psychology*, *40*(4), 471-499. http://dx.doi.org/10.1348/014466601164939

Armstrong, J. S., & Overton, T. S. (1977). Estimating Nonresponse Bias in Mail Surveys. *Journal of Marketing Research* *14*(3), 396-402. Retrieved from http://repository.upenn.edu/cgi/viewcontent.cgi?article=1024&context=marketing_papers

Aziato, L., & Adejumo, O. (2014). Determinants of nurses' knowledge gap on pain management in Ghana. *Nurse education in practice*, *14*(2), 195-199. http://dx.doi.org/10.1016/j.nepr.2013.08.004

Bagley, C. S., Falinski, E., Garnizo, N., & Hooker, L. (1982). Pain management: A pilot project. *Cancer Nursing*, *5*(3), 191-200. http://dx.doi.org/10.1097/00002820-198206000-00003

Baker, M., Collett, B., & Fischer, A. (2014). *Improving the current and future management of chronic pain: A European Consensus Report*. Retrieved from http://www.efic.org/userfiles/file/pain_proposal.pdf

Bandolier. (2007). The Oxford Pain Internet Site. Retrieved from http://www.medicine.ox.ac.uk/bandolier/booth/painpag/index2.html

Bandura, A. (1977). Self-efficacy: toward a unifying theory of behavioral change. *Psychological Review*, *84*(2), 191-215. http://dx.doi.org/10.1037//0033-295x.84.2.191

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory* (pp. 5-107). Englewood Cliffs, NJ: Prentice Hall.

Bandura, A. (1999). A social cognitive theory of personality. In L. Pervin & O. John (Ed.), *Handbook of personality* (2nd ed., pp. 154-196). New York: Guilford Publications. (Reprinted in D. Cervone & Y. Shoda [Eds.], *The coherence of personality*. New York: Guilford Press.)

Baratta, J. L., Schwenk, E. S., & Viscusi, E. R. (2014). Clinical consequences of inadequate pain relief: barriers to optimal pain management. *Plastic and reconstructive surgery*, *134*(4S-2), 15S-21S. http://dx.doi.org/10.1097/prs.0000000000000681

Barnett, V., & Lewis, T. (1994). *Outliers in statistical data*. New York: Wiley.

Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of personality and social psychology*, *51*(6), 1173-1182. http://dx.doi.org/10.1037//0022-3514.51.6.1173

Bartlett, J. E., Kotrlik, J. W., & Higgins, C. C. (2001). Organizational research: Determining appropriate sample size in survey research appropriate sample size in survey research. *Information Technology, Learning, and Performance Journal*, *19*(1), 43-50. Retrieved from http://www.opalco.com/wp-content/uploads/2014/10/Reading-Sample-Size.pdf

Baruch, Y., & Holtom, B. C. (2008). Survey response rate levels and trends in organizational research. *Human Relations*, *61*(8), 1139-1160. http://dx.doi.org/10.1177/0018726708094863

Basak, S. (2010). Knowledge and attitudes of nurses and their practices regarding post-operative pain management in Bangladesh (Master dissertation, Prince of Songkla University, Thailand). Retrieved from http://kb.psu.ac.th/psukb/bitstream/2010/7827/1/320221.pdf

Batiha, A. M. (2014). Pain management barriers in critical care units: A qualitative study. *International Journal of Advanced Nursing Studies*, *3*(1), 1. http://dx.doi.org/10.14419/ijans.v3i1.1494

Beduz, M. A. (2012). The role of attitudes, subjective norms, percieved behavioural control and context in nurses's behavioural intentions (PhD dissertation, McMaster University, Canada). Retrieved from http://digitalcommons.mcmaster.ca/cgi/viewcontent.cgi?article=8026&context=opendissertations

Bell, L., & Duffy, A. (2009). Pain assessment and management in surgical nursing: A literature review. *British Journal of Nursing*, *18*(3), 153-159. http://dx.doi.org/10.12968/bjon.2009.18.3.39042

Bernardi, M., Catania, G., Lambert, A., Tridello, G., & Luzzani, M. (2007). Knowledge and attitudes about cancer pain management: A national survey of Italian oncology nurses. *European Journal of Oncology Nursing*, *11*(3), 272-279. http://dx.doi.org/10.1016/j.ejon.2006.09.003

Berry, P. H., & Dahl, J. L. (2000). The new JCAHO pain standards: Implications for pain management nurses. *Pain Management Nursing*, *1*(1), 3-12. http://dx.doi.org/10.1053/jpmn.2000.5833

Berthier, F., Potel, G., Leconte, P., Touze, M. D., & Baron, D. (1998). Comparative study of methods of measuring acute pain intensity in an ED. *The American Journal of Emergency Medicine*, *16*(2), 132-136. http://dx.doi.org/10.1016/s0735-6757(98)90029-8

Bisbee, G.E., Clark, P.A., Jones, S.I., Wang, E., Watts, C.M. (2011) Profiling Best Practices: Chronic Pain Management in the Leading Health Systems. *Health Management Academy Benchmarking Series*, 1–45. Retrieved from http://www.hmacademy.com/pdfs/Chronic_Pain_Management.pdf

Blumberg, B., Cooper, D. R., & Schindler, P. S. (2008). *Business research methods* (2nd ed.). London: McGraw-Hill.

Bogdanovich, V. (2013). Self-determination motivation and perceived barriers in the vegetable eating context (Doctoral dissertation, The University of Guelph, Ontario, Canada). Retrieved fromhttp://dspace.lib.uoguelph.ca:8080/xmlui/bitstream/handle/10214/7385/Bogdanovich_Vera_201308_Msc.pdf?sequence=1&isAllowed=y

Bookbinder, M., Covle, N., Kiss, M., Goldstein, M. L., Holritz, K., Thaler, H., ... & Portenoy, R. K. (1996). Implementing national standards for cancer pain management: Program model and evaluation. *Journal of Pain and Symptom Management*, *12*(6), 334-347. http://dx.doi.org/10.1016/s0885-3924(96)00204-7

Borenstein, M., Rothstein, H., & Cohen, J. (2001). *Power and precision*. Englewood, NJ: Biostat, Inc.

Borgatti, P. (1999). *Elements of research: Theoretical framework*. Retrieved from http://www.analytictech.comlmb313/elements.htm

Borromeo, A. R., & Windle, P. E. (1996). Benchmarking for unrelieved pain in a postanesthesia care unit. *Best Practices and Benchmarking in Healthcare: A Practical Journal for Clinical and Management Application*, *2*(1), 20-23. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/9214861

Boström, B. (2003). Acute postoperative and cancer-related pain management: Patients experiences and perceptions in relation to health-related quality of life and the multidimensionality of pain (Doctoral dissertation, Lund University, Faculty of Medicine, Lund, Sweden). Retrieved from https://www.diva-portal.org/smash/get/diva2:239124/FULLTEXT01.pdf

Bostrom, M. (1997). Summary of the mayday fund survey: Public attitudes about pain and analgesics. *Journal of Pain and Symptom Management*, *13*(3), 166-168. http://dx.doi.org/10.1016/s0885-3924(96)00273-4

Bower, G. H. (1975). Cognitive psychology: An introduction. In W. K. Estes (Ed.), *Handbook of learning and cognition* (pp. 25-80). Hillsdale, NJ: Erlbaum.

Brennan, F., Carr, D. B., & Cousins, M. (2007). Pain management: A fundamental human right. *Anesthesia & Analgesia*, *105*(1), 205-221. http://dx.doi.org/10.1213/01.ane.0000268145.52345.55

Briggs, M., & Dean, K. L. (1998). A qualitative analysis of the nursing documentation of post-operative pain management. *Journal of Clinical Nursing*, *7*(2), 155-163. http://dx.doi.org/10.1046/j.1365-2702.1998.00125.x

Brink, H., Van der Walt, C. & Van Rensburg, G. (2006). *Fundamentals of Research Methodology for Health Care Professionals* (2nd ed.). Cape Town: Juta.

Brink, P. J., & Wood, M. J. (1997). *Advanced design in nursing research*. Sage Publications.

Brockopp, D., Downey, E., Powers, P., Vanderveer, B., Warden, S., Ryan, P., & Saleh, U. (2004). Nurses' clinical decision-making regarding the management of pain. *Accident and Emergency Nursing*, *12*(4), 224-229. http://dx.doi.org/10.1016/j.aaen.2004.01.008

Broekmans, S., Vanderschueren, S., Morlion, B., Kumar, A., & Evers, G. (2004). Nurses' attitudes toward pain treatment with opioids: A survey in a Belgian university hospital. *International Journal of Nursing Studies*, *41*(2), 183-189. http://dx.doi.org/10.1016/s0020-7489(03)00129-9

Broome, M. E., Richtsmeier, A., Maikler, V., & Alexander, M. A. (1996). Pediatric pain practices: A national survey of health professionals. *Journal of Pain and Symptom Management*, *11*(5), 312-320. http://dx.doi.org/10.1016/0885-3924(95)00205-7

Brorson, H., Plymoth, H., Örmon, K., & Bolmsjö, I. (2014). Pain relief at the end of life: nurses' experiences regarding end-of-life pain relief in patients with dementia. *Pain Management Nursing*, *15*(1), 315-323. http://dx.doi.org/10.1016/j.pmn.2012.10.005

Brown, D., & McCormack, B. (2006). Determining factors that have an impact upon effective evidence-based pain management with older people, following colorectal surgery: An ethnographic study. *Journal of Clinical Nursing*, *15*(10), 1287-1298. http://dx.doi.org/10.1111/j.1365-2702.2006.01553.x

Brown, R. L. (1994). Efficacy of the indirect approach for estimating structural equation models with missing data: A comparison of five methods. *Structural Equation Modeling*, *1*(4), 287–316. http://dx.doi.org/10.1080/10705519409539983

Brown, S. T., Bowman, J. M., & Eason, F. R. (1999). Assessment of nurses' attitudes and knowledge regarding pain management. *Journal of Continuing Education in Nursing*, *30*(3), 132-139. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/10640072

Brunier, G., Carson, G., & Harrison, D. E. (1995). What do nurses know and believe about patients with pain? Results of a hospital survey. *Journal of Pain and Symptom Management*, *10*(6), 436-445. http://dx.doi.org/10.1016/0885-3924(95)00020-y

Bucknall, T., Manias, E., & Botti, M. (2007). Nurses' reassessment of postoperative pain after analgesic administration. *The Clinical Journal of Pain*, *23*(1), 1-7. http://dx.doi.org/10.1097/01.ajp.0000210936.50816.49

Buscemi, N., Vandermeer, B., & Curtis, S. (2008). The Cochrane Library and procedural pain in children: An overview of reviews. *Evidence-Based Child Health: A Cochrane Review Journal*, *3*(2), 260-279. http://dx.doi.org/10.1002/ebch.225

Byrne, A., Morton, J., & Salmon, P. (2001). Defending against patients' pain: A qualitative analysis of nurses' responses to children's postoperative pain. *Journal of Psychosomatic Research*, *50*(2), 69-76. http://dx.doi.org/10.1016/s0022-3999(00)00207-5

Cadden, K. A. (2007). Better pain management. *Nursing Management*, *38*(8), 31-36. http://dx.doi.org/10.1097/01.numa.0000286189.98808.24

Cason, C. L., Jones, T., Brock, J., Maese, P., & Milligan, C. (1999). Nurses' knowledge of pain management: Implications for staff education. *Journal for Nurses in Professional Development*, *15*(6), 228-235. http://dx.doi.org/10.1097/00124645-199911000-00001

Cavana, R., Delahaye, B. L., & Sekeran, U. (2001). *Applied business research: Qualitative and quantitative methods*. John Wiley & Sons Australia.

Chatterjee, S., & Yilmaz, M. (1992). A Review of regression diagnostics for behavioral research. *Applied Psychological Measurement*, *16*(3), 209-227. http://dx.doi.org/10.1177/014662169201600301

Chen, W. L. (2005). Nurses' and parents' attitudes toward pain management and parental participation in postoperative care of children (Queensland University of Technology, Brisbane, Australia). Retrieved from http://eprints.qut.edu.au/16127/1/Wen-Lin_Chen_Thesis.pdf

Cherasse, A., Muller, G., Ornetti, P., Piroth, C., Tavernier, C., & Maillefert, J. F. (2004). Tolerability of opioids in patients with acute pain due to nonmalignant musculoskeletal disease. A hospital-based observational study. *Joint Bone Spine*, *71*(6), 572-576. http://dx.doi.org/10.1016/j.jbspin.2003.10.014

Chiang, L. C., Chen, H. J., & Huang, L. (2006). Student nurses' knowledge, attitudes, and self-efficacy of children's pain management: Evaluation of an education program in Taiwan. *Journal of Pain and Symptom Management*, *32*(1), 82-89. http://dx.doi.org/10.1016/j.jpainsymman.2006.01.011

Chin, W. (2010). How to write up and peport PLS analyses. In V. Esposito Vinzi, W. W. Chin, J. Henseler & H. Wang (Eds.), *Handbook of Partial Least Squares* (pp. 655-690): Springer Berlin Heidelberg.

Chin, W. W. (1998). The partial least squares approach to structural equation modeling. In G. A. Marcoulides (Ed.), *Modern Methods for Business Research* (pp. 295-336). Mahwah, New Jersey: Laurence Erlbaum Associates.

Chin, W. W., Marcolin, B. L., & Newsted, P. R. (2003). A partial least squares latent variable modeling approach for measuring interaction effects: Results from a Monte Carlo Simulation study and an electronic-mail emotion/adoption study. *Information Systems Research*, *14*(2), 189-217. http://dx.doi.org/10.1287/isre.14.2.189.16018

Chin, W.W. (1998). Issues and opinion on structural equation modeling. *MIS Quarterly, 22,* 1, 7-16. Retrieved from http://hbanaszak.mjr.uw.edu.pl/TempTxt/Chin_1998_Issues%20and%20Opinion%20on%20Structural%20Equation%20Modeling.pdf

Chiu, L. H., Trinca, J., Lim, L. M., & Tuazon, J. A. (2003). A study to evaluate the pain knowledge of two sub-populations of final year nursing students: Australia and Philippines. *Journal of Advanced Nursing*, *41*(1), 99-108. http://dx.doi.org/10.1046/j.1365-2648.2003.02511.x

Choiniere, M., Melzack, R., Girard, N., Rondeau, J., & Paquin, M. J. (1990). Comparisons between patients' and nurses' assessment of pain and medication efficacy in severe burn injuries. *Pain*, *40*(2), 143-152. http://dx.doi.org/10.1016/0304-3959(90)90065-l

Clarke, E. B., French, B., Bilodeau, M. L., Capasso, V. C., Edwards, A., & Empoliti, J. (1996). Pain management knowledge, attitudes and clinical practice: The impact of nurses' characteristics and education. *Journal of Pain and Symptom Management*, *11*(1), 18-31. http://dx.doi.org/10.1016/0885-3924(95)00134-4

Cleeland, C. S. (1984). The impact of pain on the patient with cancer. *Cancer*, *54*(S2), 2635-2641.http://dx.doi.org/10.1002/1097-0142(19841201)54:2+<2635::aid-cncr2820541407>3.0.co;2-p

Cleeland, C. S. (1987). Barriers to the management of cancer pain. *Oncology (Williston Park, NY)*, *1*(2 Suppl), 19-26. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/2484445

Cleeland, C. S., Gonin, R., Hatfield, A. K., Edmonson, J. H., Blum, R. H., Stewart, J. A., & Pandya, K. J. (1994). Pain and its treatment in outpatients with metastatic cancer. *New England Journal of Medicine*, *330*(9), 592-596. http://dx.doi.org/10.1056/nejm199403033300902

Clinical Standards Advisory Group (CSAG) (1999). *Services for patients with pain.* London Clinical Standards Advisory Group. Retrieved from http://www.nationalpainaudit.org/media/files/servicesforpatientswithpain.pdf

Closs, S. J. (1996). Pain and elderly patients: A survey of nurses' knowledge and experiences. *Journal of Advanced Nursing*, *23*(2), 237-242. http://dx.doi.org/10.1111/j.1365-2648.1996.tb02662.x

Coakes, S. J. & Steed, L. G. (2003). *SPSS: analysis without anguish: version 11.0 for Windows*. Brisbane: Jacaranda Wiley.

Cohen, F. L. (1980). Postsurgical pain relief: Patients' status and nurses' medication choices. *Pain*, *9*(2), 265-274. http://dx.doi.org/10.1016/0304-3959(80)90013-5

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. Hillsdale, NJ: Lawrence Erlbaum Associates.

Cohen, M. Z., Easley, M. K., Ellis, C., Hughes, B., Ownby, K., Rashad, B. G., ... & Westbrooks, J. B. (2003). Cancer pain management and the JCAHO's pain standards: An institutional challenge. *Journal of Pain and Symptom Management*, *25*(6), 519-527. http://dx.doi.org/10.1016/s0885-3924(03)00068-x

Collier, S., Philips, D., Camp, V., & Kirk, A. (1995). The influence of attitudes to acupuncture on the outcome of treatment. *Acupuncture in Medicine*, *13*(2), 74-77. http://dx.doi.org/10.1136/aim.13.2.74

Cooper, D. R., & Schindler, P. S. (2008). *Business research methods* (10th ed.). New York, NY: McGraw-Hill Companies, Ins.

Cornally, N., & McCarthy, G. (2011). Help-seeking behaviour for the treatment of chronic pain. *British journal of community nursing*, *16*(2). 90-98. http://dx.doi.org/10.12968/bjcn.2011.16.2.90

Coulling, S. (2005). Nurses' and doctors' knowledge of pain after surgery. *Nursing Standard*, *19*(34), 41-49. http://dx.doi.org/10.7748/ns2005.05.19.34.41.c3859

Cullen, L., Greiner, J., & Titler, M. G. (2001). Pain management in the culture of critical care. *Critical Care Nursing Clinics of North America*, *13*(2), 151-166. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/11866399

Daibes, M. (2011). "A pain that ruins mountains": A case study of factors influencing postoperative pain management in two Jordanian hospitals (Doctoral dissertation, University of Warwick, Coventry, England). Retrieved from http://wrap.warwick.ac.uk/47360/

Dar, R., Beach, C. M., Barden, P. L., & Cleeland, C. S. (1992). Cancer pain in the marital system: A study of patients and their spouses. *Journal of Pain and Symptom Management*, *7*(2), 87-93. http://dx.doi.org/10.1016/0885-3924(92)90119-3

Darawad, M. W., Al-Hussami, M., Saleh, A. M., & Al-Sutari, M. (2014). Jordanian patients' satisfaction with pain management. *Pain Management Nursing*, *15*(1), 116-125. http://dx.doi.org/10.1016/j.pmn.2012.07.005

Desai, P. M. (1999). Pain management and pulmonary dysfunction. *Critical Care Clinics*, *15*(1), 151-166. http://dx.doi.org/10.1016/s0749-0704(05)70045-2

Dhimal, M., Aryal, K. K., Dhimal, M. L., Gautam, I., Singh, S. P., Bhusal, C. L., & Kuch, U. (2014). Knowledge, attitude and practice regarding dengue fever among the healthy population of highland and lowland communities in central Nepal. *PloS one*, *9*(7), e102028. http://dx.doi.org/10.1371/journal.pone.0102028

Diekmann, J. M., Engber, D., & Wassem, R. (1989). Cancer pain control: One state's experience. *Oncology Nursing Forum*, *16*(2), 219–223. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/2564672

Draugalis, J. R., & Plaza, C. M. (2009). Best practices for survey research reports revisited: implications of target population, probability sampling, and response rate. *American journal of pharmaceutical education*, *73*(8), 142. http://dx.doi.org/10.5688/aj7308142

Du Pen, S. L., Du Pen, A. R., Polissar, N., Hansberry, J., Kraybill, B. M., Stillman, M., ... & Syrjala, K. (1999). Implementing guidelines for cancer pain management: Results of a randomized controlled clinical trial. *Journal of Clinical Oncology*, *17*(1), 361-370. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/10458255

Duarte, P., & Raposo, M. (2010). A PLS model to study brand preference: An application to the mobile phone market. In V. Esposito Vinzi, W. W. Chin, J. Henseler & H. Wang (Eds.), *Handbook of Partial Least Squares* (pp. 449-485): Springer Berlin Heidelberg.

Dunwoody, C. J., Krenzischek, D. A., Pasero, C., Rathmell, J. P., & Polomano, R. C. (2008). Assessment, physiological monitoring, and consequences of inadequately treated acute pain. *Journal of PeriAnesthesia Nursing*, *23*(1), S15-S27. http://dx.doi.org/10.1016/j.jopan.2007.11.007

Edwards, H. E., Nash, R. E., Najman, J. M., Yates, P. M., Fentiman, B. J., Dewar, A., ... & Skerman, H. M. (2001). Determinants of nurses' intention to administer opioids for pain relief. *Nursing & Health Sciences*, *3*(3), 149-159. http://dx.doi.org/10.1046/j.1442-2018.2001.00080.x

Ely, B. (2001). Pediatric nurses' pain management practice: Barriers to change. *Pediatric Nursing*, *27*(5), 473-480. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/12025311

Ene, K. W., Nordberg, G., Bergh, I., Johansson, F. G., & Sjöström, B. (2008). Postoperative pain management: The influence of surgical ward nurses. *Journal of Clinical Nursing*, *17*(15), 2042-2050. http://dx.doi.org/10.1111/j.1365-2702.2008.02278.x

Erniyati, M. (2002). *Nurses' caring behavior in pain management as perceived by nurses and patients with post-operative pain*. (Master thesis). Prince of Songkla University, Songkhla, Thailand.

Ersek, M., Irving, G. (2007). Pain, In: Lewis, S., Heitkemper, M., Dirksen, S., O Brien, P., Bucher, L. (Eds.), *Medical-surgical nursing—assessment and management of clinical problems* (7th ed., pp. 125–150). Mosby.

Fairbrother, G., Jastrzab, G., Kerr, S., & McInerney, M. (2003). Profiling the 'pain aware' nurse: Acute care nurses' attitudes and knowledge concerning adult pain management. *The Australian Journal of Advanced Nursing, 21*(2), 27-32. Retrieved from http://www.ajan.com.au/Vol21/Vol21.2-4.pdf

Fakhoury, R. (2013, May 15). Number of Syrians in Jordan. *Alrai Newspaper,* Retrieved from http://www.alrai.com/article/585191.html

Farokhzadian, J., & Shahrbabaki, P. M. (2014). Survey of Women's Knowledge, Attitude and Practice Regarding Prevention of Common Genital Tract Infection. *Procedia-Social and Behavioral Sciences*, *136*, 381-384. http://dx.doi.org/10.1016/j.sbspro.2014.05.344

Faul, F., Erdfelder, E., Lang, A.-G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, *39*(2), 175-191. http://dx.doi.org/10.3758/bf03193146

Ferrell, B. (2005). Ethical perspectives on pain and suffering. *Pain Management Nursing*, *6*(3), 83-90. http://dx.doi.org/10.1016/j.pmn.2005.06.001

Ferrell, B. R., Cohen, M. Z., Rhiner, M., & Rozek, A. (1991). Pain as a metaphor for illness. Part II: Family caregivers' management of pain. *Oncology Nursing Forum*, *18*(8), 1315–1321. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/1762972

Ferrell, B. R., McGuire, D. B., & Donovan, M. I. (1993). Knowledge and beliefs regarding pain in a sample of nursing faculty. *Journal of Professional Nursing*, *9*(2), 79-88. http://dx.doi.org/10.1016/8755-7223(93)90023-6

Ferrell, B. R., Virani, R., & Grant, M. (1999). Analysis of symptom assessment and management content in nursing textbooks. *Journal of Palliative Medicine*, *2*(2), 161-172. http://dx.doi.org/10.1089/jpm.1999.2.161

Ferrell, BR. (2000). *Family Pain Questionnaire.* Retrieved from http://prc.coh.org/pdf/FPQTOOL.pdf

Field, A. (2009). *Discovering Statistics using SPSS* (3rd ed.). London: Sage Publications.

Field, L. (1996). Are nurses still underestimating patients' pain postoperatively?. *British Journal of Nursing*, *5*(13), 778-784. http://dx.doi.org/10.12968/bjon.1996.5.13.778

Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention and behavior: An introduction to theory and research*.

Fitzcharles, M. A., DaCosta, D., Ware, M. A., & Shir, Y. (2009). Patient barriers to pain management may contribute to poor pain control in rheumatoid arthritis. *The Journal of Pain*, *10*(3), 300-305. http://dx.doi.org/10.1016/j.jpain.2008.09.012

Fitzpatrick, J. M., While, A. E., & Roberts, J. D. (1996). Key influences on the professional socialisation and practice of students undertaking different preregistration nurse education programmes in the United Kingdom. *International Journal of Nursing Studies*, *33*(5), 506-518. http://dx.doi.org/10.1016/0020-7489(96)00003-x

Foley, K. M. (2002). *Changing concepts of tolerance to opioids: What the cancer patient has taught us*. New York: New York. Retrieved from http://www.painresearch.utah.edu/cancerpain/ch20.html

Fornell, C., & Bookstein, F. L. (1982). Two structural equation models: LISREL and PLS applied to consumer exit-voice theory. *Journal of Marketing Research (JMR)*, *19*(4), 440-452. http://dx.doi.org/10.2307/3151718

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of marketing research*, *18*(1), 39-50. http://dx.doi.org/10.2307/3151312

Fothergill-Bourbonnais, F., & Wilson-Barnett, J. (1992). A comparative study of intensive therapy unit and hospice nurses' knowledge on pain management. *Journal of Advanced Nursing*, *17*(3), 362-372. http://dx.doi.org/10.1111/j.1365-2648.1992.tb01915.x

Francis, G. M., & Munjas, B. (1975). *Promoting psychological comfort*. WC Brown.

Francis, J. J., Eccles, M. P., Johnston, M., Walker, A., Grimshaw, J., Foy, R., ... & Bonetti, D. (2004). Constructing questionnaires based on the theory of planned behaviour. *A Manual for Health Services Researchers*, *2010*, 2-12. Retrieved from http://openaccess.city.ac.uk/1735/1/TPB%20Manual%20FINAL%20May2004.pdf

Francke, A. L., Lemmens, A. B., Huijer Abu-Saad, H., & Grypdonck, M. (1997). Nurses' perceptions of factors influencing the use of a pain program. *Journal of Pain and Symptom Management*, *14*(5), 300-310. http://dx.doi.org/10.1016/s0885-3924(97)00240-6

Gay, L. R. (1987). *Educational research: Competences for analysis and application* (3rd ed.). New York : Macmillam.

Gay, L. R., & Diehl, P. L. (1992). *Research methods for business and management*. New York: Macmillan.

Geisser, S. (1974). A predictive approach to the random effect model. *Biometrika*, *61*(1), 101-107. http://dx.doi.org/10.1093/biomet/61.1.101

Gelinas, C. (2007). Management of pain in cardiac surgery ICU patients: Have we improved over time?. *Intensive and Critical Care Nursing*, *23*(5), 298-303. http://dx.doi.org/10.1016/j.iccn.2007.03.002

Gimbler-Berglund, I., Ljusegren, G., & Enskär, K. (2008). Factors influencing pain management in children. *Paediatric Care*, *20*(10), 21-24. http://dx.doi.org/10.7748/paed2008.12.20.10.21.c6901

Glajchen, M. (2001). Chronic pain: Treatment barriers and strategies for clinical practice. *The Journal of the American Board of Family Practice*, *14*(3), 211-218. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/11355054

Glajchen, M., & Bookbinder, M. (2001). Knowledge and perceived competence of home care nurses in pain management: A national survey. *Journal of Pain and Symptom Management*, *21*(4), 307-316. http://dx.doi.org/10.1016/s0885-3924(01)00247-0

Gloth, F. M. (2001). Pain management in older adults: Prevention and treatment. *Journal of the American Geriatrics Society*, *49*(2), 188-199. http://dx.doi.org/10.1046/j.1532-5415.2001.49041.x

Godin, G., Bélanger-Gravel, A., Eccles, M., & Grimshaw, J. (2008). Healthcare professionals' intentions and behaviours: A systematic review of studies based on social cognitive theories. *Implement Sci*, *3*(36), 1-12. http://dx.doi.org/10.1186/1748-5908-3-36

Goodrich, C. (2006). Students' and faculty members' knowledge and attitudes regarding pain management: A descriptive survey. *The Journal of Nursing Education*, *45*(3), 140-142. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/16562805

Government of Western Australia Department of Health. (2013). *Pain Management Teams.* Retrieved from http://painhealth.csse.uwa.edu.au/resources/painHEALTH-using-a-pain-team.pdf

Graffam, S. (1981). Congruence of nurse-patient expectations regarding nursing intervention in pain. *Nursing Leadership*, *4*(2), 12-15. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/6909611

Greenwood, J., Sullivan, J., Spence, K., & McDonald, M. (2000). Nursing scripts and the organizational influences on critical thinking: Report of a study of neonatal nurses' clinical reasoning. *Journal of Advanced Nursing*, *31*(5), 1106-1114. http://dx.doi.org/10.1046/j.1365-2648.2000.01378.x

Greer, S. M., Dalton, J. A., Carlson, J., & Youngblood, R. (2001). Surgical patients' fear of addiction to pain medication: The effect of an educational program for clinicians. *The Clinical Journal of Pain*, *17*(2), 157-164. http://dx.doi.org/10.1097/00002508-200106000-00008

Gregory, J. (2011). An exploration of factors impacting on changing pain assessment practice on a medical unit (Doctoral dissertation, Manchester Metropolitan University, North West England). Retrieved from https://www.rcn.org.uk/__data/assets/pdf_file/0006/496563/Gregory_J_complete_thesis_.pdf

Griffiths, R. J., & Justins, D. M. (2006). Perioperative management of pain. *Surgery (Oxford)*, *24*(10), 325-328. http://dx.doi.org/10.1053/j.mpsur.2006.08.006

Grossman, S. A., Sheidler, V. R., Swedeen, K., Mucenski, J., & Piantadosi, S. (1991). Correlation of patient and caregiver ratings of cancer pain. *Journal of Pain and Symptom Management*, *6*(2), 53-57. http://dx.doi.org/10.1016/0885-3924(91)90518-9

Gunnarsdottir, S., Donovan, H. S., Serlin, R. C., Voge, C., & Ward, S. (2002). Patient-related barriers to pain management: The Barriers Questionnaire II (BQ-II). *Pain*, *99*(3), 385-396. http://dx.doi.org/10.1016/s0304-3959(02)00243-9

Gunningberg, L., & Idvall, E. (2007). The quality of postoperative pain management from the perspectives of patients, nurses and patient records. *Journal of Nursing Management*, *15*(7), 756-766. http://dx.doi.org/10.1111/j.1365-2934.2006.00753.x

Gureje, O., Von Korff, M., Simon, G. E., & Gater, R. (1998). Persistent pain and well-being: A World Health Organization study in primary care. *JAMA: The Journal of the American Medical Association*, *280*(2), 147-151. http://dx.doi.org/10.1001/jama.280.2.147

Gustafsson, A., & Johnson, M. D. (2004). Determining attribute importance in a service satisfaction model. *Journal of Service Research*, *7*(2), 124-141. http://dx.doi.org/10.1177/1094670504268453

Guyton, A. C. (1991). *Textbook of medical physiology* (8th ed.). Philadelphia, PA: Saunders.

Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2006). *Multivariate data analysis* (6th ed.). Upper Saddle River, NJ: Pearson/Prentice Hall.

Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2014). *A primer on partial least squares structural equation modeling (PLS-SEM).* Thousand Oaks: Sage Publications.

Hair, J. F., Jr., Black, W. C., Babin, B. J., & Andersen, R. E. (2010). *Multivariate data analysis* (7th ed.). Upper Saddle River, NJ: Pearson Prentice Hall.

Hair, J. F., Money, A. H., Samouel, P., & Page, M. (2007). *Research method for business*. West Sussex, England: John Wiley & Sons Ltd.

Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a Silver Bullet. *Journal of Marketing Theory and Practice, 19*(2), 139-152. http://dx.doi.org/10.2753/mtp1069-6679190202

Hair, J. F., Ringle, C. M., & Sarstedt, M. (2013). Partial least squares structural equation modeling: Rigorous applications, better results and higher acceptance. *Long Range Planning, 46*(1–2), 1-12. http://dx.doi.org/10.1016/j.lrp.2013.01.001

Hair, J. F., Sarstedt, M., Ringle, C. M., & Mena, J. A. (2012). An assessment of the use of partial least squares structural equation modeling in marketing research. *Journal of the Academy of Marketing Science, 40*(3), 414-433. http://dx.doi.org/10.1007/s11747-011-0261-6

Haljamäe, H., & Warrén Stomberg, M. (2003). Postoperative pain management—clinical practice is still not optimal. *Current Anaesthesia & Critical Care*, *14*(5-6), 207-210. http://dx.doi.org/10.1016/j.cacc.2003.09.005

Hamilton, J., & Edgar, L. (1992). A survey examining nurses' knowledge of pain control. *Journal of Pain and Symptom Management*, *7*(1), 18-26. http://dx.doi.org/10.1016/0885-3924(92)90103-o

Hamilton, P. M. (1996). *Realities of contemporary nursing* (2nd ed.). St. Louis, MO: Mosby.

Han, J. Y., Park, H. S., & Jin, M. J. (2016). Nurses' Knowledge and Performance of Pain Management at a General hospital. *Journal of Korean Academy of Fundamentals of Nursing*, *23*(1), 6-11. http://dx.doi.org/10.7739/jkafn.2016.23.1.6

Harrison, A. (1991). Assessing patients' pain: Identifying reasons for error. *Journal of Advanced Nursing*, *16*(9), 1018-1025. http://dx.doi.org/10.1111/j.1365-2648.1991.tb03361.x

Hawthorn, J., & Redmond, K. (1999). Pain: causes and management. *Journal of Psychiatric and Mental Health Nursing*, *6*(5), 409-410. http://dx.doi.org/10.1046/j.1365-2850.1999.00227-8.x

Henseler, J., Ringle, C. M., & Sinkovics, R. R. (2009). The use of partial least squares path modeling in international marketing. *Advances in International Marketing (AIM)*, *20*, 277-320. http://dx.doi.org/10.1108/s1474-7979(2009)0000020014

Herr, K., & Titler, M. (2009). Acute pain assessment and pharmacological management practices for the older adult with a hip fracture: Review of ED trends. *Journal of Emergency Nursing*, *35*(4), 312-320. http://dx.doi.org/10.1016/j.jen.2008.08.006

Hodges, S. C., Mijumbi, C., Okello, M., McCormick, B. A., Walker, I. A., & Wilson, I. H. (2007). Anaesthesia services in developing countries: Defining the problems. *Anaesthesia*, *62*(1), 4-11. http://dx.doi.org/10.1111/j.1365-2044.2006.04907.x

Holley, S., McMillan, S. C., Hagan, S. J., Palacios, P., & Rosenberg, D. (2005). Pain resource nurses: Believing the patients, believing in themselves. *Oncology Nursing Forum*, *32*(4), 843–848. http://dx.doi.org/10.1188/05.onf.843-848

Horbury C, Henderson A, Bromley B (2005) Influences of patient behaviour on clinical nurses pain assessment: Implications for continuing education. *The Journal of Continuing Education in Nursing. 36* (1) 18-24. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/15715204

Hossain, M. S. (2010). Nurses' knowledge and attitudes, and pain management practice of post-operative children in Bangladesh (Master dissertation, Prince of Songkla University, Southern Thailand). Retrieved from http://kb.psu.ac.th/psukb/bitstream/2010/7826/1/325999.pdf

Hsieh LF, Lin CC, Lai YH & Tsou TS. (1998).The relationship of the caregiver's concerns about using analgesics to the patient's cancer pain management. *The Journal of Nursing Research,* *6*(4), 327–336. http://140.112.114.62/handle/246246/199756#.VmtBp9J97IU

Huang, N., Cunningham, F., Laurito, C. E., & Chen, C. (2001). Can we do better with postoperative pain management?. *The American Journal of Surgery*, *182*(5), 440-448. http://dx.doi.org/10.1016/s0002-9610(01)00766-8

Hulland, J. (1999). Use of partial least squares (PLS) in strategic management research: A review of four recent studies. *Strategic Management Journal*, *20*(2), 195-204. http://dx.doi.org/10.1002/(sici)1097-0266(199902)20:2<195::aid-smj13>3.0.co;2-7

Hutchison, R. W. (2007). Challenges in acute post-operative pain management. *American Journal of Health-System Pharmacy*, *64*(6 Supplement 4), S2-S5. http://dx.doi.org/10.2146/ajhp060679

Huy Tuu, H., Ottar Olsen, S., & Thi Thuy Linh, P. (2011). The moderator effects of perceived risk, objective knowledge and certainty in the satisfaction-loyalty relationship. *Journal of Consumer Marketing*, *28*(5), 363-375. http://dx.doi.org/10.1108/07363761111150017

Ignatavicius, D. D., & Workman, M. L. (2002). *Medical-surgical nursing: Critical thinking for collaborative care* (4th ed.). Philadelphia, PA: Saunders.

Imarengiaye, C. O., & Ande, A. B. A. (2006). Demand and utilisation of labour analgesia service by Nigerian women. *Journal of Obstetrics & Gynecology*, *26*(2), 130-132. http://dx.doi.org/10.1080/01443610500443402

International Association for the Study of Pain. (2010a). *IASP Declaration of Montréal*. Retrieved from http://www.iasp-pain.org/DeclarationofMontreal?navItemNumber=582

International Association for the Study of Pain. (2010b). *Jordan Initiative for Pain Management*. Retrieved from http://www.iasp-pain.org/files/Content/NavigationMenu/Advocacy/InternationalPainSummit/JordanReport.pdf

International Association for the Study of Pain. (2012). *IASP pain Taxonomy*. Retrieved from http://www.iasp-pain.org/Education/Content.aspx?ItemNumber=1698#Pain

Jackson, E. B. (2011). Evaluating knowledge and attitudes of graduate nursing students regarding pain (Master dissertation, University of South Florida, Tampa, Florida, USA). Retrieved from http://scholarcommons.usf.edu/cgi/viewcontent.cgi?article=4360&context=etd

Jacob, E. (2007). Pain assessment and management in children. In M. J. Hockenberry, & D. Wilson (Eds.), *Wong's nursing care of infants and children* (pp. 205- 256). Canada: Mosby Elsevier.

Jacob, E., & Puntillo, K. A. (1999). Pain in hospitalized children: Pediatric nurses' beliefs and practices. *Journal of Pediatric Nursing*, *14*(6), 379-391. http://dx.doi.org/10.1016/s0882-5963(99)80067-0

Jacobsen, R., Liubarskienë, Z., Moldrup, C., Christrup, L., Sjogren, P., & Samsanaviciene, J. (2009). Barriers to cancer pain management: A review of empirical research. *Medicina (Kaunas)*, *45*(6), 427-433. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/19605961

Jacox, A, Carr, D., Payne, R., Berde, C., Brietbart, C, Cain, J., et al. (1994). *Management of cancer pain. Clinical Practice Guideline No. 9* [AHCPR Publication No. 940592]. Rockville, MD: Agency for Health Care Policy and Research. Retrieved from https://archive.org/details/managementofcanc00usde

Jalalian, M., Latiff, L., Hassan, S. T. S., Hanachi, P., & Othman, M. (2010). Development of a questionnaire for assessing factors predicting blood donation among university students: A pilot study. *Southeast Asian Journal of Tropical Medicine and Public Health*, *41*(3), 660-666. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/20578556

JMoH. (2005). *National health strategy 2006-2010*. Amman: Jordan. Retrieved from http://www.mindbank.info/item/1358

JMoH. (2012). *Periodic-Newsletters*. Retrieved from http://www.moh.gov.jo/EN/Pages/Periodic-Newsletters.aspx

JMoH. (2014). *Periodic-Newsletters*. Retrieved from http://www.moh.gov.jo/EN/Pages/Periodic-Newsletters.aspx

Joint Commission on Accreditation of Health Care Organizations (JCAHO). (1999). *Standards for pain assessment and treatment. Comprehensive accreditations manual for ambulatory care, behavioral health care, health care networks, home care, hospitals, and long-term care.* Oakbrook, IL. JCAHO.

Jones, W. L., Rimer, B. K., Levy, M. H., & Kinman, J. L. (1984). Cancer patients' knowledge, beliefs, and behavior regarding pain control regimens: Implications for education programs. *Patient Education and Counseling*, *5*(4), 159-164. http://dx.doi.org/10.1016/0738-3991(84)90175-7

Jurgens, D. W. (1996). Nurses' intentions to administer morphine for postoperative pain: An application of Ajzen's theory of planned behaviour (Doctoral dissertation, University of Saskatchewan, Saskatoon, Saskatchewan, Canada). Retrieved from http://www.collectionscanada.gc.ca/obj/s4/f2/dsk3/ftp04/nq24026.pdf

Kaki, A. M., Daghistani, M. F., & Msabeh, A. A. (2009). Nurses' knowledge of pharmacological measures on acute pain management in Western Saudi Arabia. *Saudi Medical Journal*, *30*(2), 279-283. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/19198720

Kam, Y. C. (2007). Medical nurses' knowledge, attitudes and barriers in pain management (Master dissertation, The University of Hong Kong, Hong Kong). Retrieved from http://hdl.handle.net/10722/131384

Keefe, G., & Wharrad, H. J. (2012). Using e-learning to enhance nursing students' pain management education. *Nurse education today*, *32*(8), e66-e72. http://dx.doi.org/10.1016/j.nedt.2012.03.018

Kehlet, H., Jensen, T. S., & Woolf, C. J. (2006). Persistent postsurgical pain: Risk factors and prevention. *The Lancet*, *367*(9522), 1618-1625. http://dx.doi.org/10.1016/s0140-6736(06)68700-x

Kitson, A. (1994). Post-operative pain management: A literature review. *Journal of Clinical Nursing*, *3*(1), 7-18. http://dx.doi.org/10.1111/j.1365-2702.1994.tb00353.x

Kizza, I. B. (2012). Nurses' knowledge and practices related to pain assessment in critically ill patients at Mulago Hospital, Uganda (Doctoral dissertation, Muhimbili University of Health and Allied Sciences, Dar es Salaam, Tanzania). Retrieved from http://ihi.eprints.org/1598/1/Irene_Betty_Kizza.pdf

Kline, R. B. (1998). *Principles and Practice of Structural Equation Modeling*. New York: The Guilford Press.

Klopper, H., Andersson, H., Minkkinen, M., Ohlsson, C., & Sjöström, B. (2006). Strategies in assessing post operative pain—A South African study. *Intensive and Critical Care Nursing*, *22*(1), 12-21. http://dx.doi.org/10.1016/j.iccn.2005.05.001

Kneafsey, R. (2000). The effect of occupational socialization on nurses' patient handling practices. *Journal of Clinical Nursing*, *9*(4), 585–593. http://dx.doi.org/10.1046/j.1365-2702.2000.00391.x

Knowles, R. (1996). Standardization of pain management in the postanesthesia care unit. *Journal of PeriAnesthesia Nursing*, *11*(6), 390-398. http://dx.doi.org/10.1016/s1089-9472(96)90050-7

Kozier, B., Erb, G., Berman, A. & Snyder, S. (2004). *Fundamentals of nursing: Concepts, process, and practice* (7th. ed.). New Jersey: Pearson Education, Inc.

Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement*, *30*(3), 607-610. Retrieved from file:///C:/Users/bashar/Downloads/KrejcieandMorgan_article.pdf

Kwekkeboom, K. L., & Herr, K. A. (2001). Assessment of pain in the critically ill. *Critical Care Nursing Clinics of North America*, *13*(2), 181-194. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/11866401

Lai, Y. H., Chen, M. L., Tsai, L. Y., Lo, L. H., Wei, L. L., Hong, M. Y., ... & Guo, S. L. (2003). Are nurses prepared to manage cancer pain? A national survey of nurses' knowledge about pain control in Taiwan. *Journal of Pain and Symptom Management*, *26*(5), 1016-1025. http://dx.doi.org/10.1016/s0885-3924(03)00330-0

Lambert, D. M., & Harrington, T. C. (1990). Measuring nonresponse bias in customer service mail surveys. *Journal of Business Logistics, 11*(2), 5-25. Retrieved from http://hbanaszak.mjr.uw.edu.pl/TempTxt/lambert_harrington_1990_measuring_nonresponse_bias_in_customer_service_mail_surveys.pdf

Layman Young, J., Horton, F. M., & Davidhizar, R. (2006). Nursing attitudes and beliefs in pain assessment and management. *Journal of Advanced Nursing*, *53*(4), 412-421. http://dx.doi.org/10.1111/j.1365-2648.2006.03735.x

Lee, F. H., & Wu, W. Y. (2011). Moderating effects of technology acceptance perspectives on e-service quality formation: Evidence from airline websites in Taiwan. *Expert Systems with Applications*, *38*(6), 7766-7773. http://dx.doi.org/10.1016/j.eswa.2010.12.131

Lellan, K. M. (1997). A chart audit reviewing the prescription and administration trends of analgesia and the documentation of pain, after surgery. *Journal of Advanced Nursing*, *26*(2), 345-350. http://dx.doi.org/10.1046/j.1365-2648.1997.1997026345.x

Lellan, K.M. (2004). Postoperative pain: Strategy for improving patient experiences. *Journal of Advanced Nursing*, *46*(2), 179-185. http://dx.doi.org/10.1111/j.1365-2648.2003.02977.x

Levett-Jones, T. L. (2005). Continuing education for nurses: A necessity or a nicety?. *The Journal of Continuing Education in Nursing*, *36*(5), 229. Retrieved from http://search.proquest.com/openview/a8111abc90f3fb9e89b74a82556c51a2/1?pq origsite=gscholar

Levin, D. N., Cleeland, C. S., & Dar, R. (1985). Public attitudes toward cancer pain. *Cancer*, *56*(9), 2337-2339. http://dx.doi.org/10.1002/1097-0142(19851101)56:9<2337::aid-cncr2820560935>3.0.co;2-w

Lewin, K. (1951). *Field theory in social science: Selected theoretical papers*. New York: Harper.

Lewis, S. L., Heitkemper, M. M., Dirksen, S. R., O'Brien, P. G., & Bucher, L. (2007). *Medical surgical nursing* (7th ed.). St Louis, MO: Mosby.

Lewthwaite, B. J., Jabusch, K. M., Wheeler, B. J., Schnell-Hoehn, K. N., Mills, J., Estrella-Holder, E., & Fedorowicz, A. (2011). Nurses' knowledge and attitudes regarding pain management in hospitalized adults. *Journal of Continuing Education in Nursing*, *42*(6), 251-257. http://dx.doi.org/10.3928/00220124-20110103-03

Li, L., & Liu, X. Q. (2003). A survey of nurses' current knowledge regarding pain. *Journal of Chinese Nursing Research*, *17*, 633-635. Retrieved from http://en.cnki.com.cn/Article_en/CJFDTotal-SXHZ200311008.htm

Linton, A. D., & Maebius, N. K. (2003). *Introduction to medical-surgical nursing* (3rd ed.). Philadelphia, PA: Saunders.

Linton, S. J. (1997). Overlooked and underrated?: The role of acute pain intensity in the development of chronic back pain problems. *Pain Forum*, *6*(2), 145-147. http://dx.doi.org/10.1016/s1082-3174(97)70049-7

Lui, L. Y., So, W. K., & Fong, D. Y. (2008). Knowledge and attitudes regarding pain management among nurses in Hong Kong medical units. *Journal of Clinical Nursing*, *17*(15), 2014-2021. http://dx.doi.org/10.1111/j.1365-2702.2007.02183.x

Macfarlane, G. J., Crombie, I. K., McBeth, J., & Silman, A. J. (2001). Widespread body pain and mortality: prospective population based study Commentary: An interesting finding, but what does it mean?. *Bmj*, *323*(7314), 662. http://dx.doi.org/10.1136/bmj.323.7314.662

Mackintosh, C. (2007). Assessment and management of patients with post-operative pain. *Nursing Standard*, *22*(5), 49-55. http://dx.doi.org/10.7748/ns2007.10.22.5.49.c4640

Manworren, R. C. B. (2000). Pediatric nurses knowledge and attitudes survey regarding pain. *Pediatric Nursing*, *26*(6), 610-614. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/12026363

Mathew, P. J., Mathew, J. L., & Singhi, S. (2011). Knowledge, attitude and practice of pediatric critical care nurses towards pain: Survey in a developing country setting. *Journal of Postgraduate Medicine*, *57*(3), 196-200. http://dx.doi.org/10.4103/0022-3859.85203

Matthews, E., & Malcolm, C. (2007). Nurses' knowledge and attitudes in pain management practice. *British Journal of Nursing*, *16*(3), 174-179. http://dx.doi.org/10.12968/bjon.2007.16.3.22972

McCaffery, M. (1968). *N-110B Clinical nursing: Nursing practice theories related to cognition, bodily pain, and man-environment interactions*. Regents of the University of California.

McCaffery, M. (1979). *Nursing management of the patient with pain*. Philadelphia: Lippincott.

McCaffery, M. (1983). *Nursing management of the patient in pain* (2nd ed.). Philadelphia: JB Lippincott.

McCaffery, M., & Ferrell, B. R. (1992). Nurses' knowledge of doses and psychological dependence. *Journal for Nurses in Professional Development*, *8*(2), 77-84. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/1432189

McCaffery, M., & Ferrell, B. R. (1995). Nurse's knowledge about cancer pain: A survey of five countries. *Journal of Pain and Symptom Management*, *10*(5), 356-369. http://dx.doi.org/10.1016/0885-3924(95)00059-8

McCaffery, M., & Pasero, C. (1999). *Pain: Clinical manual* (2nd ed.). St. Louis: Mosby.

McCaffery, M., & Robinson, E. (2002). Your patient is in pain: Here's how your respond. *Nursing*, *32*(10), 36-45. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/12395040

McCaffery, M., Fe1rrell, B., O'Neil-Page, E., & Lester, M. (1990). Nurses' knowledge of opioid analgesic drugs and psychological dependence. *Cancer Nursing*, *13*(1), 21-27. http://dx.doi.org/10.1097/00002820-199002000-00004

McCaffrey, M., & Ferrell, B. R. (1997). Nurses' knowledge of pain assessment and management: How much progress have we made?. *Journal of Pain and Symptom Management*, *14*(3), 175-188. http://dx.doi.org/10.1016/s0885-3924(97)00170-x

McDonald, D. D., McNulty, J., Erickson, K., & Weiskopf, C. (2000). Communicating pain and pain management needs after surgery. *Applied Nursing Research*, *13*(2), 70-75. http://dx.doi.org/10.1016/s0897-1897(00)80003-8

McDonald, M. (2002). *Systematic assessment of learning outcomes: Developing multiple-choice exams*. Jones & Bartlett Learning.

McInerney, M., Goodenough, B., Jastrzab, G., & Kerr, S. (2003). Paediatric nurses' knowledge and attitudes concerning suboptimal pain management for children. *Neonatal, Paediatric & Child Health Nursing*, *6*(2), 15-23. Retrieved from https://www.researchgate.net/publication/236985394_Paediatric_nurses%27_knowledge_and_attitudes_concerning_suboptimal_pain_management_for_children

McLean, S. A., Maio, R. F., & Domeier, R. M. (2002). The epidemiology of pain in the prehospital setting. *Prehospital emergency care*, *6*(4), 402-405. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/12385606

McMillan, B., & Conner, M. (2003). Using the theory of planned behaviour to understand alcohol and tobacco use in students. *Psychology, Health & Medicine, 8*(3), 317-328. http://dx.doi.org/10.1080/1354850031000135759

McMillan, S. C., Tittle, M., Hagan, S., & Laughlin, J. (2000). Management of pain and pain-related symptoms in hospitalized veterans with cancer. *Cancer Nursing*, *23*(5), 327-336. http://dx.doi.org/10.1097/00002820-200010000-00001

McMillan, S. C., Tittle, M., Hagan, S., Laughlin, J., & Tabler, R. E. (2000). Knowledge and attitudes of nurses in veterans hospitals about pain management in patients with cancer. *Oncology Nursing Forum, 27*(9), 1415- 1423. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/11058973

McQuay, H. J., Moore, R. A., McQuay, H. J., & Moore, A. (1998). *An evidence-based resource for pain relief*. Oxford: Oxford University Press.

Melzack, R. & Hall, P. (1996). *The challenge of pain* (2nd ed.). London: Penguin Books.

Melzack, R. (1990). The tragedy of needless pain. *Sci Am*, *262*(2), 27-33. http://dx.doi.org/10.1038/scientificamerican0290-27

Merboth, M. K., & Barnason, S. (2000). Managing pain: The fifth vital sign. *The Nursing Clinics of North America, 35*(2), 375-383. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/10873249

Middleton, C. (2003). Understanding the physiological effects of unrelieved pain. *Nursing Times*, *99*(37), 28-31. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/14533321

Miller, K. L., & Smith, L. E. (1983). Handling non-response issues. *Journal of Extension*, *21*(5), 45-50. Retrieved from http://www.joe.org/joe/1983september/83-5-a7.pdf

Mirsanjari, M., Muda, W. A. M. W., Ahmad, A., Othman, M. S., Mosavat, M., & Mirsanjari, M. M. (2012). Relationship between nutritional knowledge and healthy attitude and practice during pregnancy. *Borneo Sci*, *31*, 104-112.

Montes-Sandoval, L. (1999). An analysis of the concept of pain. *Journal of Advanced Nursing*, *29*(4), 935-941. http://dx.doi.org/10.1046/j.1365-2648.1999.00971.x

Moulin, D. E., Clark, A. J., Speechley, M., & Morley-Forster, P. K. (2002). Chronic pain in Canada--prevalence, treatment, impact and the role of opioid analgesia. *Pain Research & Management*, *7*(4), 179-184. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/12518174

Mrozek, J. E., & Werner, J. S. (2001). Nurses' attitudes toward pain, pain assessment, and pain management practices in long-term care facilities. *Pain Management Nursing*, *2*(4), 154-162. http://dx.doi.org/10.1053/jpmn.2001.26530

Musgrave, C. F. (1990). Acute postoperative pain: The cause and the care. *Journal of Post Anesthesia Nursing*, *5*(5), 329-337. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/2213625

Nash, R., Edwards, H., & Nebauer, M. (1993). Effect of attitudes, subjective norms and perceived control on nurses' intention to assess patients' pain. *Journal of Advanced Nursing*, *18*(6), 941-947. http://dx.doi.org/10.1046/j.1365-2648.1993.18060941.x

Nash, R., Najman, J., Yates, P., Edwards, H., Fentiman, B., Dewar, A., ... & Skerman, H. (1996). *Educating nurses and patients for effective usage of analgesic medications*. Brisbane: Queensland University of Technology.

Neisser, U. (1976). *Cognition and reality: Principles and implications of cognitive psychology*. San Francisco: Freeman.

Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.). New York: McGraw- Hill.

O'Brien, S., Dalton, J. A., Konsler, G., & Carlson, J. (1996). The knowledge and attitudes of experience oncology nurses regarding the management of cancer-related pain. *Oncology Nursing Forum*, *23*(3), 515–521. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/8801512

Olinsky, A., Chen, S., & Harlow, L. (2003). The comparative efficacy of imputation methods for missing data in structural equation modeling. *European Journal of Operational Research*, *151*(1), 53–79. http://dx.doi.org/10.1016/s0377-2217(02)00578-7

Oncology Nursing Society. (2012). *Oncology Nursing Society position on cancer pain management*. Retrieved from http://www2.ons.org/Publications/Positions/media/ons/docs/positions/summary-cancerpainmanagement.pdf

Oppenheim, A. N. (1966). *Questionnaire design and attitude measurement*. New York: Basic Books, Inc.

Osborne, J. W., & Waters, E. (2002). Four assumptions of multiple regression that researchers should always test. *Practical Assessment, Research and Evaluation*, *8*(2), 1-5. Retrieved from http://www-psychology.concordia.ca/fac/kline/601/osborne.pdf

Page, G. G., & Halvorson, M. (1991). Pediatric nurses: The assessment and control of pain in preverbal infants. *Journal of Pediatric Nursing*, *6*(2), 99-106. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/2019972

Pallant, J. (2001). *SPSS Survival Manual: A Step by Step Guide to Data Analysis Using SPSS for Windows (10th ed.)*: Open University Press.

Pallant, J. (2005). *SPSS survival manual: a step by step guide to data analysis using SPSS for windows* (2nd ed.). Maidenhead: Open University Press.

Pallant, J. (2010). *SPSS survival manual: A step by step guide to data analysis using SPSS* (4th ed.). New York, NY: Open University Press.

Pasero, C., & McCaffery, M. (2011). *Pain assessment and pharmacologic management*. Elsevier Health Sciences.

Patiraki, E. I., Papathanassoglou, E. D., Tafas, C., Akarepi, V., Katsaragakis, S. G., Kampitsi, A., & Lemonidou, C. (2006). A randomized controlled trial of an educational intervention on Hellenic nursing staff's knowledge and attitudes on cancer pain management. *European Journal of Oncology Nursing*, *10*(5), 337-352. http://dx.doi.org/10.1016/j.ejon.2005.07.006

Patterson, D. R., & Jensen, M. P. (2003). Hypnosis and clinical pain. *Psychological Bulletin*, *129*(4), 495-521. http://dx.doi.org/10.1037/0033-2909.129.4.495

Pederson, C., & Lee Harbaugh, B. (1995). Nurses' use of nonpharmacologic techniques with hospitalized children. *Issues in Comprehensive Pediatric Nursing*, *18*(2), 91-109. http://dx.doi.org/10.3109/01460869509080962

Pellino, T. A. (1997). Relationships between patient attitudes, subjective norms, perceived control, and analgesic use following elective orthopedic surgery. *Research in nursing & health*, *20*(2), 97-105. http://dx.doi.org/10.1002/(sici)1098-240x(199704)20:2<97::aid-nur2>3.0.co;2-o

Peng, D. X., & Lai, F. (2012). Using partial least squares in operations management research: A practical guideline and summary of past research. *Journal of Operations Management*, *30*(6), 467-480. http://dx.doi.org/10.1016/j.jom.2012.06.002

Phillips, C. J. & Schopflocher, D. (2008). *Health policy perspectives on chronic pain: The economics of chronic pain*. UK: Wiley Press.

Plaisance, L., & Logan, C. (2006). Nursing students' knowledge and attitudes regarding pain. *Pain Management Nursing*, *7*(4), 167-175. http://dx.doi.org/10.1016/j.pmn.2006.09.003

Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: a critical review of the literature and recommended remedies. *Journal of Applied Psychology*, *88*(5), 879-903. http://dx.doi.org/10.1037/0021-9010.88.5.879

Pölkki, T., Vehviläinen-Julkunen, K., & Pietilä, A. M. (2001). Non pharmacological methods in relieving children's postoperative pain: A survey on hospital nurses in Finland. *Journal of Advanced Nursing*, *34*(4), 483-492. http://dx.doi.org/10.1046/j.1365-2648.2001.01777.x

Polomano, R. C., Dunwoody, C. J., Krenzischek, D. A., & Rathmell, J. P. (2008). Perspective on pain management in the 21st century. *Pain Management Nursing*, *9*(1), 3-10. http://dx.doi.org/10.1016/j.pmn.2007.11.002

Portenoy, R. K., & Kanner, R. (Eds.). (1996). *Pain management: theory and practice*. FA Davis Company.

Rahimi-Madiseh, M., Tavakol, M., & Dennick, R. (2010). A quantitative study of Iranian nursing students' knowledge and attitudes towards pain: Implication for education. *International Journal of Nursing Practice*, *16*(5), 478-483. http://dx.doi.org/10.1111/j.1440-172x.2010.01872.x

Ramayah, T., Lee, J. W. C. & In, J. B. C. (2011). Network collaboration and performance in the tourism sector. *Service Business, 5*(4), 411–428. http://dx.doi.org/10.1007/s11628-011-0120-z

Ravaud, P., Keita, H., Porcher, R., Durand-Stocco, C., Desmonts, J. M., & Mantz, J. (2004). Randomized clinical trial to assess the effect of an educational programme designed to improve nurses' assessment and recording of postoperative pain. *British Journal of Surgery*, *91*(6), 692-698. http://dx.doi.org/10.1002/bjs.4506

Registered Nurses Association of Ontario (RNAO). (2002). *Assessment and management of pain*. Toronto, ON: Registered Nurses Association of Ontario. Retrieved from http://www.bluewaterhealth.ca/documents/187/Assessment_Management_of_Pain.pdf

Registered Nurses Association of Ontario (RNAO). (2013). *Assessment and management of pain*. Toronto, ON: Registered Nurses Association of Ontario. Retrieved from http://rnao.ca/sites/rnao-ca/files/AssessAndManagementOfPain2014.pdf

Richards, J., & Hubbert, A. O. (2007). Experiences of expert nurses in caring for patients with postoperative pain. *Pain Management Nursing*, *8*(1), 17-24. http://dx.doi.org/10.1016/j.pmn.2006.12.003

Riddell, A., & Fitch, M. I. (1997). Patients' knowledge of and attitudes toward the management of cancer pain. *Oncology Nursing Forum*, *24*(10), 1175– 1784. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/9399275

Rieman, M. T., & Gordon, M. (2007). Pain management competency evidenced by a survey of pediatric nurses' knowledge and attitudes. *Pediatric Nursing*, 33(4), 307-312. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/17907731

Ringle, C. M., Sarstedt, M., & Straub, D. W. (2012). Editor's comments: a critical look at the use of PLS-SEM in MIS quarterly. *MIS Quarterly*, *36*(1), iii-xiv. Retrieved from http://misq.org/skin/frontend/default/misq/pdf/V36I1/EdCommentsV36N1.pdf

Ringle, C. M., Wende, S., & Will, A. (2005). *SmartPLS 2.0*. Retrieved from www.smartpls.de.

Rittenmeyer, H., Dolezal, D., & Vogel, E. (1997). Pain management: A quality improvement project. *Journal of PeriAnesthesia Nursing*, *12*(5), 329-335. http://dx.doi.org/10.1016/s1089-9472(97)80051-2

Rollman, G. B., Abdel-Shaheed, J., Gillespie, J. M., & Jones, K. S. (2004). Does past pain influence current pain: Biological and psychosocial models of sex differences. *European Journal of Pain*, *8*(5), 427-433. http://dx.doi.org/10.1016/j.ejpain.2004.03.002

Romsing, J. (1996). Assessment of nurses' judgement for analgesic requirements of postoperative children. *Journal of Clinical Pharmacy and Therapeutics*, *21*(3), 159-163. http://dx.doi.org/10.1111/j.1365-2710.1996.tb00016.x

Rony, R. Y. Z., Fortier, M. A., Chorney, J. M., Perret, D., & Kain, Z. N. (2010). Parental postoperative pain management: attitudes, assessment, and management. *Pediatrics*, *125*(6), e1372-e1378. http://dx.doi.org/10.1542/peds.2009-2632

Roscoe, J. T. (1975). *Fundamental research statistics for the behavioral sciences* (2nd ed.). New York: Holt, Rinehart and Winston.

Rosenfeld, B. A., Faraday, N., Campbell, D., Dise, K., Bell, W., & Goldschmidt, P. (1994). Hemostatic effects of stress hormone infusion. *Anesthesiology*, *81*(5), 1116-1126. http://dx.doi.org/10.1097/00000542-199411000-00005

Royal College of Surgeons and The College of Anaesthetists (1990) *Commission on the provision of services report of the working party on pain after surgery*. London, Royal college of Surgeons and College of Anaesthetists. Retrieved from http://www.rcoa.ac.uk/system/files/FPM-Pain-After-Surgery.pdf

Roykulcharoen, V., & Good, M. (2004). Systematic relaxation to relieve postoperative pain. *Journal of Advanced Nursing*, *48*(2), 140-148. http://dx.doi.org/10.1111/j.1365-2648.2004.03181.x

Rummans, T. A., Frost, M., Suman, V. J., Taylor, M., Novotny, P., Gendron, T., ... & Evans, R. W. (1998). Quality of life and pain in patients with recurrent breast and gynecologic cancer. *Psychosomatics*, *39*(5), 437-445. http://dx.doi.org/10.1016/s0033-3182(98)71303-9

Salantera, S., & Lauri, S. (2000). Nursing students' knowledge of and views about children in pain. *Nurse Education Today*, *20*(7), 537-547. http://dx.doi.org/10.1054/nedt.2000.0472

Salantera, S., Lauri, S., Salmi, T. T., & Helenius, H. (1999). Nurses' knowledge about pharmacological and nonpharmacological pain management in children. *Journal of Pain and Symptom Management*, *18*(4), 289-299. http://dx.doi.org/10.1016/s0885-3924(99)00065-2

Salkind, N. J. (1997). *Exploring research* (3rd ed.). Upper Saddle River, NJ: Prentice Hall.

Sanders, M. R., & Woolley, M. L. (2005). The relationship between maternal self-efficacy and parenting practices: implications for parent training. *Child: care, health and development*, *31*(1), 65-73. http://dx.doi.org/10.1111/j.1365-2214.2005.00487.x

Sandie, C. L., & Heindel, L. J. (1999). The knowledge and attitudes of nonanesthesia nurses regarding postoperative epidural analgesia. *American Journal of Nurse Anesthetists*, *67*, 455-460. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/10876436

Sattler, H., Völckner, F., Riediger, C., & Ringle, C. M. (2010). The impact of brand extension success drivers on brand extension price premiums. *International Journal of Research in Marketing*, *27*(4), 319-328. http://dx.doi.org/10.1016/j.ijresmar.2010.08.005

Sauaia, A., Min, S. J., Leber, C., Erbacher, K., Abrams, F., & Fink, R. (2005). Postoperative pain management in elderly patients: Correlation between adherence to treatment guidelines and patient satisfaction. *Journal of the American Geriatrics Society*, *53*(2), 274-282. http://dx.doi.org/10.1111/j.1532-5415.2005.53114.x

Schafheutle, E. I., Cantrill, J. A., & Noyce, P. R. (2001). Why is pain management suboptimal on surgical wards?. *Journal of Advanced Nursing*, *33*(6), 728-737. http://dx.doi.org/10.1046/j.1365-2648.2001.01714.x

Schmidt, K., Eland, J., & Weiler, K. (1994). Pediatric cancer pain management: A survey of nurses' knowledge. *Journal of Pediatric Oncology Nursing*, *11*(1), 4-12. http://dx.doi.org/10.1177/104345429401100103

Schmieding, N. J., & Waldman, R. C. (1997). Nasogastric tube feeding and medication administration: A survey of nursing practices. *Gastroenterology Nursing*, *20*(4), 118-124. http://dx.doi.org/10.1097/00001610-199707000-00003

Schopflocher, D., R. Jovey, et al. (2010). The burden of pain in Canada, results of a Nanos survey. *Pain Resident Manage*: In Press.

Seers, K., & Carroll, D. (1998). Relaxation techniques for acute pain management: A systematic review. *Journal of Advanced Nursing*, *27*(3), 466-475. http://dx.doi.org/10.1046/j.1365-2648.1998.00538.x

Sekaran, U. & Bougie, R. (2010). *Research methods for business: A skill building approach* (5th ed.). UK: John Willey

Sekaran, U. (2003). *Research methods for business: A skill building approach* (4th ed.). New York: John Wiley & Sons.

Sheeran, P. (2002). Intention—behavior relations: A conceptual and empirical review. *European Review of Social Psychology*, *12*(1), 1-36. http://dx.doi.org/10.1080/14792772143000003

Sherwood, G., Adams-McNeill, J., Starck, P. L., Nieto, B., & Thompson, C. J. (2000). Qualitative assessment of hospitalized patients' satisfaction with pain management. *Research in Nursing & Health*, *23*(6), 486-495. http://dx.doi.org/10.1002/1098-240x(200012)23:6<486::aid-nur7>3.3.co;2-x

Shimizu, I. (1998). Multistage Sampling. *Encyclopedia of Biostatistics*. http://dx.doi.org/10.1002/0470011815.b2a16041

Shoup, J. A. (2007). *Culture and customs of Jordan*. Greenwood Publishing Group.

Shuriquie, M., While, A., & Fitzpatrick, J. (2008). Nursing work in Jordan: an example of nursing work in the Middle East. *Journal of clinical nursing*, *17*(8), 999-1010. http://dx.doi.org/10.1111/j.1365-2702.2007.01973.x

Simpson, K., Kautzman, L., & Dodd, S. (2002). The effects of a pain management education program on the knowledge level and attitudes of clinical staff. *Pain Management Nursing*, *3*(3), 87-93. http://dx.doi.org/10.1053/jpmn.2002.126071

Singh, A., Purohit, B. M., Bhambal, A., Saxena, S., Singh, A., & Gupta, A. (2011). Knowledge, attitudes, and practice regarding infection control measures among dental students in Central India. *Journal of dental education*, *75*(3), 421-427. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/21368266

Skevington, S. M. (1998). Investigating the relationship between pain and discomfort and quality of life, using the WHOQOL. *Pain*, *76*(3), 395-406. http://dx.doi.org/10.1016/s0304-3959(98)00072-4

Sloman, R., Ahern, M., Wright, A., & Brown, L. (2001). Nurses' knowledge of pain in the elderly. *Journal of Pain and Symptom Management*, *21*(4), 317-322. http://dx.doi.org/10.1016/s0885-3924(01)00248-2

Sloman, R., Rosen, G., Rom, M., & Shir, Y. (2005). Nurses' assessment of pain in surgical patients. *Journal of Advanced Nursing*, *52*(2), 125-132. http://dx.doi.org/10.1111/j.1365-2648.2005.03573.x

Smart, S. (2005). Post-operative pain management knowledge and attitude of pediatric nurses: A New Zealand Regional view (master's dissertation, Victoria University of Willington, Wellington, New Zealand). Retrieved from http://researcharchive.vuw.ac.nz/xmlui/bitstream/handle/10063/38/thesis.pdf?sequence=2

Snijders, T. A. B. (2005). Power and sample size in multilevel linear models. In B. S. Everitt & D. C. Howell (Eds.), *Encyclopedia of statistics in behavioral science* (Vol. 3, pp. 1570-1573). Chicester: Wiley.

Stephens, J., Laskin, B., Pashos, C., Pena, B., & Wong, J. (2003). The burden of acute postoperative pain and the potential role of the COX-2-specific inhibitors. *Rheumatology*, *42*(90003), 40-52. http://dx.doi.org/10.1093/rheumatology/keg497

Stone, M. (1974). Cross-validatory choice and assessment of statistical predictions. *Journal of the Royal Statistical Society. Series B (Methodological)*, 36(2), 111-147. Retrieved from http://www.jstor.org/stable/2984809

Strong, J., Unruh, A., Wright, A., & Baxter, G. (2002). *Pain: A textbook for therapists*. Elsevier Churchill Livingstone.

Suen, K. P. L. (1999). Knowledge, attitude and practice of nursing home staff towards physical restraints in Hong Kong nursing homes. *Asian journal of nursing studies*, *5*(2), 73-86. Retrieved from http://repository.lib.polyu.edu.hk/jspui/bitstream/10397/2498/1/AJNS11.pdf

Sullivan, L. M. (1994). Factors influencing pain management: A nursing perspective. *Journal of Post Anesthesia Nursing*, *9*(2), 83-90. Retrieved from http://europepmc.org/abstract/med/8158575

Summer, G. J., & Puntillo, K. A. (2001). Management of surgical and procedural pain in a critical care setting. *Critical Care Nursing Clinics of North America*, *13*(2), 233-242. http://www.ncbi.nlm.nih.gov/pubmed/11866405

Suri, V., Rao, N. C., & Aggarwal, N. (2014). A study of obstetricians' knowledge, attitudes and practices in oral health and pregnancy. *Education for Health*,*27*(1), 51-55. http://dx.doi.org/ 10.4103/1357-6283.134313

Sykes, N., Fallon, M., & Patt, R. (2003). *Clinical pain management*: *Cancer pain*. London: Arnold.

Tabachnick, B. G., & Fidell, L. S. (2001). *Using multivariate statistics* (4th ed.). Allyn and Bacon

Tabachnick, B. G. & Fidel, L. S. (2007). *Using multivariate statistics* (5th ed.). Boston: Pearson Education Inc.

Tapp, J., & Kropp, D. (2005). Evaluating pain management delivered by direct care nurses. *Journal of Nursing Care Quality*, *20*(2), 167-173. http://dx.doi.org/10.1097/00001786-200504000-00013

Taylor, C. (1997). Problem solving in clinical nursing practice. *Journal of Advanced Nursing*, *26*(2), 329-336. http://dx.doi.org/10.1046/j.1365-2648.1997.1997026329.x

Teske, K., L Daut, R., & S Cleeland, C. (1983). Relationships between nurses' observations and patients' self-reports of pain. *Pain*, *16*(3), 289-296. http://dx.doi.org/10.1016/0304-3959(83)90117-3

Tesler, M. D., Wilkie, D. J., Holzemer, W. L., & Savedra, M. C. (1994). Postoperative analgesics for children and adolescents: Prescription and administration. *Journal of Pain and Symptom Management*, *9*(2), 85-95. http://dx.doi.org/10.1016/0885-3924(94)90161-9

The British Pain Society. (2010). *Understanding and managing pain: Information for patients*. London: The British Pain Society. Retrieved from http://www.britishpainsociety.org/book_understanding_pain.pdf

The South African Society of Anaesthesiologists. (2009). South African Acute Pain Guidelines. *Southern African Journal of Anaesthesia and Analgesia*, *15*(6):1-120. Retrieved from http://www.sasaweb.com/content/images/SASA_Pain_Guidelines.pdf

Thomas VN. (1997). *Pain: Its nature and management*. London: Balliere and Tindell.

Titler, M. G., Herr, K., Schilling, M. L., Marsh, J. L., Xie, X. J., Ardery, G., ... & Everett, L. Q. (2003). Acute pain treatment for older adults hospitalized with hip fracture: Current nursing practices and perceived barriers. *Applied Nursing Research*, *16*(4), 211-227. http://dx.doi.org/10.1016/s0897-1897(03)00051-x

Tsai, F. C., Tsai, Y. F., Chien, C. C., & Lin, C. C. (2007). Emergency nurses' knowledge of perceived barriers in pain management in Taiwan. *Journal of Clinical Nursing*, *16*(11), 2088-2095. http://dx.doi.org/10.1111/j.1365-2702.2006.01646.x

Tse, M. M. Y., & Ho, S. S. (2014). Enhancing knowledge and attitudes in pain management: A pain management education program for nursing home staff. *Pain Management Nursing*, *15*(1), 2-11. http://dx.doi.org/10.1016/j.pmn.2012.03.009

Tse, M. M., & Chan, B. S. (2004). Knowledge and attitudes in pain management: Hong Kong nurses' perspective. *Journal of Pain and Palliative Care Pharmacotherapy*, *18*(1), 47-58. http://dx.doi.org/10.1080/j354v18n01_04

Tu, M. S., & Chiou, C. P. (2007). Perceptual consistency of pain and quality of life between hospice cancer patients and family caregivers: A pilot study. *International Journal of Clinical Practice*, *61*(10), 1686-1691. http://dx.doi.org/10.1111/j.1742-1241.2007.01347.x

Turina, M., Miller, F. N., Tucker, C. F., & Polk, H. C. (2006). Short-term hyperglycemia in surgical patients and a study of related cellular mechanisms. *Annals of Surgery*, *243*(6), 845- 853. http://dx.doi.org/10.1097/01.sla.0000220041.68156.67

Twycross, A. (2000). Education about pain: A neglected area?. *Nurse Education Today*, *20*(3), 244-253. http://dx.doi.org/10.1054/nedt.1999.0412

Twycross, A. (2007a). Children's nurses' post-operative pain management practices: An observational study. *International Journal of Nursing Studies*, *44*(6), 869-881. http://dx.doi.org/10.1016/j.ijnurstu.2006.03.010

Twycross, A. (2007b). What is the impact of theoretical knowledge on children's nurses' post-operative pain management practices? An exploratory study. *Nurse Education Today*, *27*(7), 697-707. http://dx.doi.org/10.1016/j.nedt.2006.10.004

Twycross, A. (2008). Does the perceived importance of a pain management task affect the quality of children's nurses' post-operative pain management practices?. *Journal of Clinical Nursing*, *17*(23), 3205-3216. http://dx.doi.org/10.1111/j.1365-2702.2008.02631.x

Twycross, R. G., & Lack, S. A. (1983). *Symptom control in far advanced cancer: Pain relief*. London: Pitman.

Tzeitlin, T., & Shvartzman, P. (2000). Knowledge, attitudes and skills of family physicians in Israel with regard to chronic pain management in cancer. *Harefuah*, *139*(7-8), 252-5. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/11062963

Tzeng, J. I., Chou, L. F., & Lin, C. C. (2006). Concerns about reporting pain and using analgesics among Taiwanese postoperative patients. *The Journal of Pain*, *7*(11), 860-866. http://dx.doi.org/10.1016/j.jpain.2006.04.007

Ung, A., Salamonson, Y., Hu, W., & Gallego, G. (2015). Assessing knowledge, perceptions and attitudes to pain management among medical and nursing students: a review of the literature. *British Journal of Pain*, 2049463715583142. http://dx.doi.org/10.1177/2049463715583142

Urden, L. D., Stacy, K. M., & Lough, M. E. (2008). *Priorities in critical care nursing* (5th ed.). St. Louis, MO: Mosby Inc.

Van den Beuken-van Everdingen, M. H. J., De Rijke, J. M., Kessels, A. G., Schouten, H. C., Van Kleef, M., & Patijn, J. (2007). Prevalence of pain in patients with cancer: A systematic review of the past 40 years. *Annals of Oncology*, *18*(9), 1437-1449. http://dx.doi.org/10.1093/annonc/mdm056

Van der Does A.J. (1989). Patients' and nurses' ratings of pain and anxiety during burn wound care. *Pain*, *39*(1), 95-101. http://dx.doi.org/10.1016/0304-3959(89)90179-6

Vanegas, G., Ripamonti, C., Sbanotto, A., & DeConno, F. (1998). Side effects of morphine administration in cancer patients. *Cancer Nursing*, *21*(4), 289-297. http://dx.doi.org/10.1097/00002820-199808000-00011

Verardi, V., & Croux, C. (2008). Robust regression in Stata. Retrived from https://lirias.kuleuven.be/bitstream/123456789/202142/1/KBI_0823.pdf

Vincent, C. V. H. (2005). Nurses' knowledge, attitudes, and practices: regarding children's pain. *MCN: The American Journal of Maternal/Child Nursing*, *30*(3), 177-183. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/15867678

Vincent, C. V. H., & Denyes, M. J. (2004). Relieving children's pain: Nurses' abilities and analgesic administration practices. *Journal of Pediatric Nursing*, *19*(1), 40-50. http://dx.doi.org/10.1016/j.pedn.2003.09.006

Vink, J. M., & Boomsma, D. I. (2008). A comparison of early and late respondents in a twin-family survey study. *Twin Research and Human Genetics*, *11*(2), 165- 173. http://dx.doi.org/10.1375/twin.11.2.165

Von Roenn, J. H. (2001). Are we the barrier?. *Journal of Clinical Oncology*, *19*(23), 4273-4274. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/11731508

Von Roenn, J. H., Cleeland, C. S., Gonin, R., Hatfield, A. K., & Pandya, K. J. (1993). Physician attitudes and practice in cancer pain management: A survey from the Eastern Cooperative Oncology Group. *Annals of Internal Medicine*, *119*(2), 121-126. http://dx.doi.org/10.7326/0003-4819-119-2-199307150-00005

Vortherms, R., Ryan, P., & Ward, S. (1992). Knowledge of, attitudes toward, and barriers to pharmacologic management of cancer pain in a statewide random sample of nurses. *Research in Nursing & Health*, *15*(6), 459-466. http://dx.doi.org/10.1002/nur.4770150608

Voshall, B., Dunn, K. S., & Shelestak, D. (2013). Knowledge and attitudes of pain management among nursing faculty. *Pain Management Nursing*, *14*(4), e226-e235. http://dx.doi.org/10.1016/j.pmn.2012.02.001

Walkenstein, M. D. (1982). Comparison of burned patients' perception of pain with nurses' perception of patients' pain. *Journal of Burn Care & Research*, *3*(4), 233-236. http://dx.doi.org/10.1097/00004630-198207000-00010

Wallace, K. G., Reed, B. A., Pasero, C., & Olsson, G. L. (1995). Staff nurses' perceptions of barriers to effective pain management. *Journal of Pain and Symptom Management*, *10*(3), 204-213. http://dx.doi.org/10.1016/0885-3924(94)00125-5

Ward, S. E., Goldberg, N., Miller-McCauley, V., Mueller, C., Nolan, A., Pawlik-Plank, D., ... & Weissman, D. E. (1993). Patient-related barriers to management of cancer pain. *Pain*, *52*(3), 319-324. http://dx.doi.org/10.1016/0304-3959(93)90165-l

Watson, C. B. (2002). Respiratory complications associated with anesthesia. *Anesthesiology Clinics of North America*, *20*(3), 513-537. http://dx.doi.org/10.1016/s0889-8537(02)00015-9

Watt-Watson, J., Chung, F., Chan, V. W., & McGillion, M. (2004). Pain management following discharge after ambulatory same-day surgery. *Journal of Nursing Management*, *12*(3), 153-161. http://dx.doi.org/10.1111/j.1365-2834.2004.00470.x

Watt-Watson, J., Stevens, B., Garfinkel, P., Streiner, D., & Gallop, R. (2001). Relationship between nurses' pain knowledge and pain management outcomes for their postoperative cardiac patients. *Journal of Advanced Nursing*, *36*(4), 535-545. http://dx.doi.org/10.1046/j.1365-2648.2001.02006.x

Weber, A., Dwyer, T., & Mummery, K. (2012). Morphine administration by paramedics: An application of the theory of planned behaviour. *Injury*, *43*(9), 1393-1396. http://dx.doi.org/10.1016/j.injury.2010.12.006

Wells, N. (2000). Pain intensity and pain interference in hospitalized patients with cancer. *Oncology Nursing Forum*, *27*(6), 985–991. http://www.ncbi.nlm.nih.gov/pubmed/10920837

Wells, N., Johnson, R. L., & Wujcik, D. (1998). Development of a short version of the Barriers Questionnaire. *Journal of Pain and Symptom Management*, *15*(5), 294-297. http://dx.doi.org/10.1016/s0885-3924(98)00019-0

Werner, S. A. (2011). Pain assessment and pain alleviation practices of ambulance officers in Auckland (Master dissertation, AUT University, New Zealand). Retrieved from http://aut.researchgateway.ac.nz/bitstream/handle/10292/1401/WernerS.pdf?sequence=3

Werts, C. E., Linn, R. L., & Jöreskog, K. G. (1974). Intraclass reliability estimates: Testing structural assumptions. *Educational and Psychological measurement*, *34*(1), 25-33. http://dx.doi.org/10.1177/001316447403400104

Williams, L.D. (2005). Pain. In Baird, M. S., Keen, J. H. & Swearinger, P. L., *Nursing interventions and collaborative management* (5th ed.). St. Louis: Elsevier Mosby.

Wilson, B. (2007). Nurses' knowledge of pain. *Journal of Clinical Nursing*, *16*(6), 1012-1020. http://dx.doi.org/10.1111/j.1365-2702.2007.01692.x

Wilson, B., Callaghan, W., Ringle, C., & Henseler, J. (2007). *Exploring causal path directionality for a marketing model using Cohen's path method.* Paper presented at the PLS'07 international symposium on PLS and related methods– Causalities explored by indirect observation, Oslo.

Winefield, H. R., Katsikitis, M., Hart, L. M., & Rounsefell, B. F. (1990). Postoperative pain experiences: Relevant patient and staff attitudes. *Journal of Psychosomatic Research*, *34*(5), 543-552. http://dx.doi.org/10.1016/0022-3999(90)90029-4

Wold, H. (1982). Soft modeling: The basic design and some extensions. In Jo¨reskog, K.G., & Wold, H. E. (Eds), *Systems under indirect observation: Causality, structure, prediction*. Amsterdam: North-Holland.

Wolfert, M. Z., Gilson, A. M., Dahl, J. L., & Cleary, J. F. (2010). Opioid analgesics for pain control: Wisconsin physicians' knowledge, beliefs, attitudes, and prescribing practices. *Pain Medicine*, *11*(3), 425-434. http://dx.doi.org/10.1111/j.1526-4637.2009.00761.x

Wong, D., Hockenberry-Eaton, M., Wilson, D., Winklestein, M., & Schwatrz, P. (2001). *Wong's essentials of pediatric nursing* (6th ed.). St Louis: Mosby.

Wood, S. (2004). Factors influencing the selection of appropriate pain assessment tools. *Nursing Times*, *100*(35), 42-47. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/15471273

World Health Organisation. (2007). *WHO normative guidelines on pain management*. Retrieved from http://www.who.int/medicines/areas/quality_safety/delphi_study_pain_guidelines.pdf.

Wulff, T. (2012). Knowledge and clinical practice of nurses for adult post-operative orthopaedic pain management (Master dissertation, Stellenbosch University, the town of Stellenbosch, South Africa). Retrieved from http://scholar.sun.ac.za/handle/10019.1/20219

Yates, P. M., Edwards, H. E., Nash, R. E., Walsh, A. M., Fentiman, B. J., Skerman, H. M., & Najman, J. M. (2002). Barriers to effective cancer pain management: A survey of hospitalized cancer patients in Australia. *Journal of Pain and Symptom Management*, *23*(5), 393-405. http://dx.doi.org/10.1016/s0885-3924(02)00387-1

Yean, T. F., & Sukery, A. F. B. M. (2012). A study of attitude, subjective norms, perceived behavioral control and the intention to return to work as SOCSO's insured person. In *Proceedings of USM-AUT International Conference 2012 Sustainable Economic Development: Policies and Strategies* (Vol. 167, p. 423). Retrieved from https://www.researchgate.net/publication/236736940_Sustainable_Economic_Development_Policies_and_Strategies

Yildirim, Y. K., Cicek, F., & Uyar, M. (2008). Knowledge and attitudes of Turkish oncology nurses about cancer pain management. *Pain Management Nursing*, *9*(1), 17-25. http://dx.doi.org/10.1016/j.pmn.2007.09.002

Young, D. M. (1999). Acute pain management protocol. *Journal of Gerontological Nursing*, *25*(6), 10-21. http://dx.doi.org/10.3928/0098-9134-19990601-06

Yu, H. D., & Petrini, M. A. (2007). A survey of Chinese nurses' current knowledge of pain in older people. *Journal of Clinical Nursing*, *16*(5), 963-970. http://dx.doi.org/10.1111/j.1365-2702.2006.01779.x

Zalon, M. L. (1993). Nurses' assessment of postoperative patients' pain. *Pain*, *54*(3), 329-334. http://dx.doi.org/10.1016/0304-3959(93)90033-l

Zalon, M. L. (1995). Pain management instruction in nursing curricula. *The Journal of Nursing Education*, *34*(6), 262-267. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/7472637

Zhang, C. H., Hsu, L., Zou, B. R., Li, J. F., Wang, H. Y., & Huang, J. (2008). Effects of a pain education program on nurses' pain knowledge, attitudes and pain assessment practices in China. *Journal of Pain and Symptom Management*, *36*(6), 616-627. http://dx.doi.org/10.1016/j.jpainsymman.2007.12.020

Zhu, D. Q., Norman, I. J., & While, A. E. (2013). Nurses' self-efficacy and practices relating to weight management of adult patients: a path analysis. *International Journal of Behavioral Nutrition and Physical Activity*, *10*(1), 131. http://dx.doi.org/10.1186/1479-5868-10-131

Zhukovsky, D. S., Gorowski, E., Hausdorff, J., Napolitano, B., & Lesser, M. (1995). Unmet analgesic needs in cancer patients. *Journal of Pain and Symptom Management*, *10*(2), 113-119. http://dx.doi.org/10.1016/0885-3924(94)00072-s

Zikmund, W., Babin, B., Carr, J., & Griffin, M. (2009). *Business research methods* (8th ed.). Cincinnati, OH: South-Western.

Appendix A

Approval letter from Universiti Utara Malaysia to start data collection

OTHMAN YEOP ABDULLAH
GRADUATE SCHOOL OF BUSINESS
Universiti Utara Malaysia
06010 UUM SINTOK
KEDAH DARUL AMAN
MALAYSIA

UUM
Universiti Utara Malaysia

Tel: 604-928 7118/7119/7130
Faks (fax): 604-928 7160
Laman Web (Web): www.oyagsb.uum.edu.my

KEDAH AMAN MAKMUR • BERSAMA MEMACU TRANSFORMASI

UUM/OYAGSB/K-14
2 October 2014

TO WHOM IT MAY CONCERN

Dear Sir/Madam

DATA COLLECTION

PROGRAMME: DOCTOR OF PHILOSOPHY
SUPERVISOR: DR. NOR AZIMAH CHEW BINTI ABDULLAH

This is to certify that the following is a postgraduate student from the OYA Graduate School of Business, Universiti Utara Malaysia. he is pursuing the above mentioned course which requires him to undertake an academic study and prepare an assignment. The details are as follows:

NO.	NAME	MATRIC NO.
1.	Bashar Isam Saleem Al-Zghoul	95434

In this regard, I hope that you could kindly provide assistance and cooperation for him to successfully complete the assignment given. All the information gathered will be strictly used for academic purposes only.

Your cooperation and assistance is very much appreciated.

Thank you.

"SCHOLARSHIP, VIRTUE, SERVICE"

Yours faithfully

ABDUL SHAKUR BIN ABDULLAH
Assistant Registrar
for Dean
Othman Yeop Abdullah Graduate School of Business

-IED TRUE COPY
UL SHAKUR ABDULLA
Assistant Registrar
Othman Yeop Abdullah
raduate School of Business
Universiti Utara Malaysia

C.C - Student's File (95434)

Universiti Pengurusan Terkemuka
The Eminent Management University

Appendix B

Approval letter to collect data from Military Hospitals (King Hussein Medical Center & Prince Hashem Bin Al_Hussein hospital)

بسم الله الرحمن الرحيم

G. H. Q. Jordan Armed Forces
DIRECTORATE
ROYAL MEDICAL SERVICES
Director of Professional Training
and Human Resources Development
Amman – Jordan

القيادة العامة للقوات المسلحة الأردنية
مديريـــــــــــة
الخدمــــــات الطبية الملكيـــــة
مديرية التأهيل الفني وتنمية القوى البشرية
عمان – الأردن

الرقـــم : ت ف ٣/١/اخلاقيات المهنه
التاريخ : ربيع الاول ١٤٣٦
كانون ثاني ٢٠١٥

مستشفى الامير هاشم بن الحسين
مدينة الحسين الطبيـــــــــه

الموضوع : جمع عينات

١. تمت الموافقه على السماح لطالب الدكتوراه بشار عصام الزغول على جمع بيانات الاستبانه لاغراض اعداد رسالة الدكتوراه وحسب موافقة لجنة البحوث والدراسات السريرية والدوائية واخلاقيات المهنة باجتماعها الذي عقد يوم الاثنين الموافق ٢٠١٤/١٢/٨.

٢. لاجراءاتكم لطفـــــــــــاً .

لا مانع من جمع البيانات
كونه حاصل على موافقة
وحسب تعليمات الخدمات
الطبية

ع/ اللواء الطبيب
مدير عام الخدمات الطبيه الملكيـــــــة

٢١/١١/٢٠١٥

نسخه الى :

- مدير التأهيل الفني وتنمية القوى البشرية
- سكرتير لجنة اخلاقيات المهنة
- التداول

FAX: 962-6-5347485 TEL: 5804804 EXT: 4341/ 4373 P.O. BOX: 122 Dahyat Al-Amir Rashid, Amman 11831 Jordan
فاكس : ٥٣٤٧٤٨٥-٦-٩٦٢ ، تلفون: ٥٨٠٤٨٠٤ فرعي ٤٣٤٢/٤٣٤١/٤٣٧٣ ، ص.ب ١٢٢ ضاحية الأمير راشد، عمان ١١٨٣١ الأردن

UKAS

Appendix C

Approval letter to collect data from hospitals belonging to Jordanian Ministry of Health

i. AL_Basheer Hospital

وزارة الصحة

لائحة الوقائع

رقم الكتاب وتاريخه

رقم الملف ورقم المعاملة

من مدير تطوير الموارد البشرية بخصوص الطالب بشار الزعبي.

الرقم	التاريخ	إلى	المشروحات والتوقيع
١	٩/١١/١٤م	المساعد الاداري	بعد التحية، للاطلاع واجراءاتكم لطفا.
	٩/١١	الزميل	
			مستشفى البشير الدكتور محمد القادري المساعد الاداري
		٩/١١/١٤	
		م ٩/١١/١٤	والتعاون

Appendix C- Continue

ii. AL_Hussein (Salt) Hospital

بسم الله الرحمن الرحيم

المملكة الأردنية الهاشمية
وزارة الصحة
مستشفى الحسين السلط
القلم
الرقم ٤٣٥
التاريخ

وزارة الصحة

الرقم تطوير/خطط/١٠٣٩٠
التاريخ
الموافق ٦/١١/٢٠١٤

مدير مستشفى ....

تحية طيبة وبعد ،،،

أرفق طياً صورة عن كتاب مدير مستشفى البشير / رئيس لجنة أخلاقيات البحث العلمي رقم م ب أ / لجنة أخلاقيات١٥٣٥٩ تاريخ ٢٠١٤/١١/٤بخصوص السماح للطالب بشار عصام الزغول والذي يطلب فيه جمع بيانات من المستشفيات الحكومية التابعة لوزارة الصحة وحسب البرنامج المعد لهذه الغاية.

أرجو التكرم بالإيعاز لمن يلزم تسهيل مهمة اجراء البحث اعلاه .

وتفضلوا بقبول فائق الاحترام ،،،

مدير تطوير الموارد البشرية

الدكتورة فدوى الشوابكة

المملكة الأردنية الهاشمية
هاتف: ٥٢٠٠٢٣٠ ٦ ٩٦٢+ فاكس: ٥٦٨٨٣٧٣ ٦ ٩٦٢+ ص.ب: ٨٦ عمان ١١١١٨ الأردن. الموقع الإلكتروني: www.moh.gov.jo

Appendix C- Continue

iii. AL_Nadeem Hospital

وزارة الصحة

الرقم تطوير/خطط/١٠٢٩٠

التاريخ

الموافق ٢٦/١١/٢٠١٤

مدير مستشفى ....

تحية طيبة وبعد ،،،

أرفق طياً صورة عن كتاب مدير مستشفى البشير / رئيس لجنة أخلاقيات البحث العلمي رقم م ب أ / لجنة أخلاقيات١٥٣٥٩ تاريخ ٢٠١٤/١١/٤ بخصوص السماح للطالب بشار عصام الزغول والذي يطلب فيه جمع بيانات من المستشفيات الحكومية التابعة لوزارة الصحة وحسب البرنامج المعد لهذه الغاية.

أرجو التكرم بالإيعاز لمن يلزم تسهيل مهمة اجراء البحث اعلاه .

وتفضلوا بقبول فائق الاحترام ،،،

مدير تطوير الموارد البشرية

الدكتورة ندى الشوابكة

مستشفى النديم الحكومي

التاريخ

ع ع

المملكة الأردنية الهاشمية

www.moh.gov.jo

Appendix C- Continue

iv. AL_Shuneh (South) Hospital

وزارة الصحة

الرقم تطوير/خطط/١٠٢٩٠
التاريخ
الموافق ٦/١١/٢٠١٤

مدير مستشفى ....

تحية طيبة وبعد ،،،

أرفق طياً صورة عن كتاب مدير مستشفى البشير / رئيس لجنة أخلاقيات البحث العلمي رقم م ب أ / لجنة أخلاقيات١٥٣٥٩ تاريخ ٢٠١٤/١١/٤بخصوص السماح للطالب بشار عصام الزغول والذي يطلب فيه جمع بيانات من المستشفيات الحكومية التابعة لوزارة الصحة وحسب البرنامج المعد لهذه الغاية.

أرجو التكرم بالإيعاز لمن يلزم تسهيل مهمة اجراء البحث اعلاه .

وتفضلوا بقبول فائق الاحترام ،،،

مدير تطوير الموارد البشرية

الدكتورة فدوى الشوابكه

رئيس التمريض
يرجى اجراء اللازم

د. غازي الحراحشة

المملكة الأردنية الهاشمية
هاتف: ٥٢٠٠٢٣٠ ٦ ٩٦٢+ فاكس: ٥٦٨٨٣٧٣ ٦ ٩٦٢+ ص.ب: ٨٦ عمان ١١١١٨ الأردن. الموقع الإلكتروني: www.moh.gov.jo

Appendix C- Continue

v. AL_Zarqa Hospital

وزارة الصحة

الرقم تطوير/خطط/١٠٣٢٠

التاريخ

الموافق ٢٠١٤/١١/٦

مدير مستشفى ....

تحية طيبة وبعد ،،،

أرفق طياً صورة عن كتاب مدير مستشفى البشير / رئيس لجنة أخلاقيات البحث العلمي رقم م ب أ / لجنة أخلاقيات١٥٣٥٩ تاريخ ٢٠١٤/١١/٤ بخصوص السماح للطالب بشار عصام الزغول والذي يطلب فيه جمع بيانات من المستشفيات الحكومية التابعة لوزارة الصحة وحسب البرنامج المعد لهذه الغاية.

أرجو التكرم بالإيعاز لمن يلزم تسهيل مهمة اجراء البحث اعلاه .

وتفضلوا بقبول فائق الاحترام ،،،

مدير تطوير الموارد البشرية

الدكتورة فدوى الشوابكه

٢٠١٤/١٢/٢

٣٠ كانون الأول ٢٠١٤

١٥٦

الوارد

المملكة الأردنية الهاشمية

هاتف: ٥٢٠٠٢٣٠ ٦ ٩٦٢+ فاكس: ٥٦٨٨٣٧٣ ٦ ٩٦٢+ ص.ب: ٨٦ عمان ١١١١٨ الأردن. الموقع الإلكتروني: www.moh.gov.jo

Appendix C- Continue

vi. Dr. Jamil tutanji Hospital

وزارة الصحة

الرقم تطوير/خطط/١٠٣٢٠

التاريخ

الموافق ٦/١١/٢٠١٤

مدير مستشفى ....

تحية طيبة وبعد ،،،

أرفق طياً صورة عن كتاب مدير مستشفى البشير / رئيس لجنة أخلاقيات البحث العلمي رقم م ب أ / لجنة أخلاقيات١٥٣٥٩ تاريخ ٢٠١٤/١١/٤ بخصوص السماح للطالب بشار عصام الزغول والذي يطلب فيه جمع بيانات من المستشفيات الحكومية التابعة لوزارة الصحة وحسب البرنامج المعد لهذه الغاية.

أرجو التكرم بالإيعاز لمن يلزم تسهيل مهمة اجراء البحث اعلاه .

وتفضلوا بقبول فائق الاحترام ،،،

مدير تطوير الموارد البشرية

الدكتورة فدوى الشوابكة

المملكة الأردنية الهاشمية
وزارة الصحة
م. د. جميل التوتنجي - سحاب
الديوان

المملكة الأردنية الهاشمية
هاتف: ٥٢٠٠٢٣٠ ٦ ٩٦٢+ فاكس: ٥٦٨٨٣٧٣ ٦ ٩٦٢+ ص.ب: ٨٦ عمان ١١١١٨ الأردن. الموقع الإلكتروني: www.moh.gov.jo

Appendix C- Continue

vii. Prince AL-Hussein Bin Abdullah II Hospital

بسم الله الرحمن الرحيم

وزارة الصحة

وزارة الصحة
مستشفى الأمير الحسين بن عبد الله الثاني
القلم / الوارد
الرقم ٣م ح ب / ١ / ٦٦ / ١٣
التاريخ ١٨ / ١٢ / ٢٠١٤

الرقم تطوير / خطط / ١٠٣٩٠
التاريخ
الموافق ٦ / ١١ / ٢٠١٤

مدير مستشفى ....

تحية طيبة وبعد ،،،

أرفق طياً صورة عن كتاب مدير مستشفى البشير / رئيس لجنة أخلاقيات البحث العلمي رقم م ب أ / لجنة أخلاقيات١٥٣٥٩ تاريخ ٤/١١/ ٢٠١٤بخصوص السماح للطالب بشار عصام الزغول والذي يطلب فيه جمع بيانات من المستشفيات الحكومية التابعة لوزارة الصحة وحسب البرنامج المعد لهذه الغاية.

أرجو التكرم بالإيعاز لمن يلزم تسهيل مهمة اجراء البحث اعلاه .

وتفضلوا بقبول فائق الاحترام ،،،

مدير تطوير الموارد البشرية

الدكتورة فدوى الشوابكة

المملكة الأردنية الهاشمية
هاتف: ٥٢٠٠٢٣٠ ٦ ٩٦٢+ فاكس: ٥٦٨٨٣٧٣ ٦ ٩٦٢+ ص.ب: ٨٦ عمان ١١١١٨ الأردن. الموقع الإلكتروني: www.moh.gov.jo

Appendix C- Continue

viii. Prince Faisal Hospital

وزارة الصحة

الرقم تطوير/تخطيط/١٠٢٩٠

التاريخ

الموافق ٦/١١/٢٠١٤

مدير مستشفى ....

تحية طيبة وبعد ،،،

أرفق طياً صورة عن كتاب مدير مستشفى البشير / رئيس لجنة أخلاقيات البحث العلمي رقم م ب أ / لجنة أخلاقيات١٥٣٥٩ تاريخ ٤/١١/ ٢٠١٤بخصوص السماح للطالب بشار عصام الزغول والذي يطلب فيه جمع بيانات من المستشفيات الحكومية التابعة لوزارة الصحة وحسب البرنامج المعد لهذه الغاية.

أرجو التكرم بالإيعاز لمن يلزم تسهيل مهمة اجراء البحث اعلاه.

وتفضلوا بقبول فائق الاحترام ،،،

مدير تطوير الموارد البشرية

الدكتورة فدوى الشوابكه

وزارة الصحة
مستشفى الأمير فيصل بن الحسين
الرقم
التاريخ: ١ / ٢ / ٢٠١٥
الادارة

المملكة الأردنية الهاشمية

هاتف ٥٢٠٠٢٣٠ ٦ ٩٦٢+ فاكس ٥٦٨٨٣٧٣ ٦ ٩٦٢+ ص.ب ٨٦ عمان ١١١١٨ الأردن. الموقع الإلكتروني www.moh.gov.jo

Appendix C- Continue

ix. Prince Hamzah Hospital

وزارة الصحة

مستشفى الامير حمزة بن الحسين

الرقم ح م/٣٢/٣٣١٢

التاريخ

الموافق ٢٠١٤/١١/١٨

مديرة الدائرة التمريضية

تحية طيبة وبعد ،،،

اشارة لاجتماع لجنة اخلاقيات المهنة في مستشفى الامير حمزة والمنعقد بتاريخ 2014/11/18 م فقد اطلعت اللجنة على البحث المقدم من: **طالب الدكتوراه : بشار عصام الزغول دراسه بعنوان :**

" Pain Management "

وبعد دراسة المستفيضة حول هذا البحث قررت اللجنة الموافقة على اجراء الدراسة مع اطلاع اللجنة على النتائج قبل النشر .

للتكرم بالاطلاع وتسهيل مهمة الباحث في إجراء البحث اعلاه .

وتفضلوا بقبول فائق الإحترام

م. مدير عام مستشفى الأمير حمزه

الدكتور مازن نغوي

2014/11/18

المملكة الاردنية الهاشمية

هاتف ٠٠٩٦٢٦٥٠٥٣٨٢٦ فاكس : ٠٠٩٦٢٦٥٠٥٣٧٩٠ الموقع الإلكتروني www.phh.gov.jo

Appendix C- Continue

x. Princess Eiman Hospital

وزارة الصحة

الرقم تطوير/خطط/١٠٣٩٠
التاريخ
الموافق ٦/١١/٢٠١٤

مدير مستشفى ....

تحية طيبة وبعد ،،،

أرفق طياً صورة عن كتاب مدير مستشفى البشير / رئيس لجنة أخلاقيات البحث العلمي رقم م ب أ / لجنة أخلاقيات١٥٣٥٩ تاريخ ٢٠١٤/١١/٤بخصوص السماح للطالب بشار عصام الزغول والذي يطلب فيه جمع بيانات من المستشفيات الحكومية التابعة لوزارة الصحة وحسب البرنامج المعد لهذه الغاية.

أرجو التكرم بالإيعاز لمن يلزم تسهيل مهمة اجراء البحث اعلاه .

وتفضلوا بقبول فائق الاحترام ،،،

مدير تطوير الموارد البشرية

الدكتورة فدوى الشوابكه

وزارة الصحة
مستشفى الأميرة إيمان - معدي
الديوان

المملكة الأردنية الهاشمية
هاتف: ٥٢٠٠٢٣٠ ٦ ٩٦٢+ فاكس: ٥٦٨٨٣٧٣ ٦ ٩٦٢+ ص.ب: ٨٦ عمان ١١١١٨ الأردن. الموقع الإلكتروني: ww.moh.gov.jo..

Appendix C- Continue

xi. Princess Salma Hospital

وزارة الصحة

الرقم تطوير/خطط/١٠٣٩٠

التاريخ

الموافق ٦/١١/٢٠١٤

المملكة الأردنية الهاشمية

وارد ٣٦٥٨٣/٤

تاريخ ٩/٢/٢٠١٥

مدير مستشفى ....

تحية طيبة وبعد ،،،

أرفق طياً صورة عن كتاب مدير مستشفى البشير / رئيس لجنة أخلاقيات البحث العلمي رقم م ب أ / لجنة أخلاقيات١٥٣٥٩ تاريخ ٤/١١/ ٢٠١٤بخصوص السماح للطالب بشار عصام الزغول والذي يطلب فيه جمع بيانات من المستشفيات الحكومية التابعة لوزارة الصحة وحسب البرنامج المعد لهذه الغاية.

أرجو التكرم بالإيعاز لمن يلزم تسهيل مهمة اجراء البحث اعلاه.

وتفضلوا بقبول فائق الاحترام ،،،

مدير تطوير الموارد البشرية

الدكتورة فدوى الشوابكة

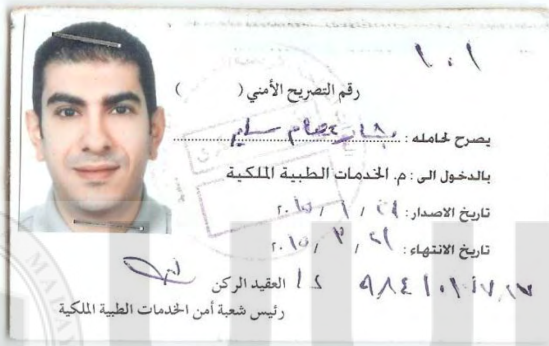
المملكة الأردنية الهاشمية
وزارة الصحة
٠٩ شباط ٢٠١٥
مستشفى الأميرة سلمى

المملكة الأردنية الهاشمية

هاتف ٥٢٠٠٢٣٠ ٦ ٩٦٢+ فاكس ٥٦٨٨٣٧٣ ٦ ٩٦٢+ ص.ب ٨٦ عمان ١١١١٨ الأردن. الموقع الالكتروني www.moh.gov.jo

Appendix D

The researcher’s access card to the Military Hospitals (Security Clearance), clarifying the beginning and ending dates


١٠١
رقم التصريح الأمني (   )
يصرح لحامله :
بالدخول الى : م. الخدمات الطبية الملكية
تاريخ الاصدار :
تاريخ الانتهاء : ٢١ / ٣ / ٢٠١٥
العقيد الركن
رئيس شعبة أمن الخدمات الطبية الملكية

Appendix E
Survey Questionnaire

Date:

Dear Respected Participant,

My name is Bashar Isam Saleem AL Zghoul. I am PhD student majoring occupational safety and health management at Universiti Utara Malaysia. As a part of my doctoral study, I must conduct a research study. The aim of this research to assess the factors which affect the pain management practices among nurses in Jordanian hospitals. The participants of this research will not face any risk or accountability. You are invited to participate in this study because you are a nurse who is able to assess and manage patients' pain effectively. Your cooperation and participation in this study will be appreciated. This questionnaire consists of eight pages, and it is only requires approximately 20 minutes of your time. The information will be confidential. This data will be destroyed after the end of the study. Please don't write your name or any identifying information in this form and do not discuss any research questions with others while you are completing it. Your return of the survey will be regarded as your informed consent to utilize the information.

Thank you very much for your time, cooperation and effort.

Yours sincerely,

Student Name: Bashar Isam Saleem Alzghoul
Student Number (Matric No): 95434
College of Business
Universiti Utara Malaysia
Kedah, Sintok (06010), Malaysia.
bashar-esam@hotmail.com

Please answer <u>ALL</u> questions in this questionnaire. As each respondent may perceive the question differently; there is therefore no right or wrong answers. What is important is you have to answer all the questions as honest as you can by reading carefully each of the following questions.

Section A: Personal and Work Information

Below are few questions about your personal and job background. The following questions are meant only for analysis purpose. Kindly answer by writing or tick (√) your choice of answer:

A1. Gender: Male □ Female □ **A2. Age**: ______________

A3. **Highest qualification**: Bachelor degree □ Master degree □

Others: Please specify: ________________________________

A4. Professional experiences: □From 1-5 years □From 6-10 years □From 11-15 years □From 16-20 years

A5. **Have you ever got pain experience in your life?**

□ Yes □ No

A6. Did you attend any course or training program about pain management after finishing the bachelor degree in nursing?

□ Yes □ No if yes please specify year of attending: __________

Section B: Research Information

In this section, the statements below are about your attitude, subjective norm, self-efficacy, knowledge and your pain management practices. Furthermore, this section includes statement about the patient's related barriers regarding pain management. Kindly answer each statement in a way that is true for you most of the time. Think about how you most often see yourself, feel, behave and react to the research variables. Kindly answer all questions. Your honest answers will make your scores more useful. Please indicate to what extent you agree with the statements below by circling your response according to the following scale.

RESEARCH QUESTIONS

Instruction : Please circling your response according to the following scale
(1)Strongly disagree ← ··· → Strongly agree(7)

Below are statements that describe your attitude towards pain management

1.	Giving narcotics on a regular schedule is preferred over a PRN schedule for continuous pain.	**1 2 3 4 5 6 7**
2.	A patient should experience discomfort prior to getting the next dose of pain medication.	**1 2 3 4 5 6 7**
3.	Continuous assessment of pain and medication effectiveness is necessary for good pain management.	**1 2 3 4 5 6 7**
4.	Patients have a right to expect total pain relief as a goal of treatment.	**1 2 3 4 5 6 7**
5.	Patients may be hesitant to ask for pain medications due to their fears about the use of narcotics.	**1 2 3 4 5 6 7**
6.	Patients receiving narcotics on a PRN basis are more likely to develop clock-watching behaviours.	**1 2 3 4 5 6 7**
7.	Estimation of pain by RN is a more valid measure of pain than patient self-report.	**1 2 3 4 5 6 7**
8.	Patients in pain can tolerate high doses of narcotics without sedation.	**1 2 3 4 5 6 7**
9.	If a patient reports pain relief, the patient should be given a lower dose of the analgesic.	**1 2 3 4 5 6 7**
10.	Patients with chronic pain should receive pain medications at regular intervals.	**1 2 3 4 5 6 7**
11.	Patients receiving around the clock narcotics are at more risk for sedation.	**1 2 3 4 5 6 7**
12.	Patients having severe chronic pain need higher dosages of pain medications compared to acute pain.	**1 2 3 4 5 6 7**

	Attitude towards pain management : (Continued) (1)Strongly disagree ← ··· → Strongly agree(7)							
13.	Lack of pain expression does not necessarily mean lack of pain.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
14.	If a patient continues to have pain after receiving pain relieving medication(s), the nurse should contact the physician.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
15.	diversion of patient's attention (use of music, relaxation) can decrease the perception of pain	**1**	**2**	**3**	**4**	**5**	**6**	**7**
16.	A constant level of analgesic should be maintained in the blood to control pain effectively.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
17.	Increasing analgesic requirements are signs_that the patient is becoming addicted to the narcotic.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
18.	The nurse can make a more accurate assessment of the patient's pain than the patient can.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
19.	Cutaneous stimulation (e.g. heat, massage, ice) are only effective for mild pain.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
20.	Cancer pain can be relieved with appropriate treatment (such as anti-cancer drugs, radiation therapy and/or pain relieving drugs).	**1**	**2**	**3**	**4**	**5**	**6**	**7**
21.	Patients receiving narcotics around the clock for cancer pain are likely to become addicted.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
22.	The cancer patient should have more control over the schedule for analgesics than the health professional	**1**	**2**	**3**	**4**	**5**	**6**	**7**

Instruction : Please circling your response according to the following scale
(1)Strongly disagree ← ··· → Strongly agree(7)

Below are statements that describe your pain management knowledge

1.	Pain can be effectively relieved.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
2.	Pain medicines should be given only when pain is severe.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
3.	Most patients on pain medicines will become addicted to the medicines over time.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
4.	It is important to give the lowest amount of medicine possible to save larger doses for later when the pain is worse.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
5.	It is better to give pain medications around the clock (on a schedule) rather than only when needed.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
6.	Treatments other than medications (such as massage, heat, relaxation) can be effective for relieving pain.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
7.	Pain medicines can be dangerous and can often interfere with breathing.	**1**	**2**	**3**	**4**	**5**	**6**	**7**
8.	Patients are often given too much pain medicine.	**1**	**2**	**3**	**4**	**5**	**6**	**7**

	Pain management knowledge: (Continued) (1)Strongly disagree ← ··· → Strongly agree(7)	
9.	If pain is worse, the disease must be getting worse.	**1 2 3 4 5 6 7**

Instruction : Please circling your response according to the following scale
(1)Strongly disagree ← ··· → Strongly agree(7)

Below are statements that describe your subjective norm towards pain management

1.	Most people who are important to me think that I should manage patients' pain	**1 2 3 4 5 6 7**
2.	It is expected of me that I manage patients' pain.	**1 2 3 4 5 6 7**
3.	I feel that I am under social pressure to manage patients' pain.	**1 2 3 4 5 6 7**
4.	People who are important to me want me to manage patients' pain.	**1 2 3 4 5 6 7**

Instruction: Please circling your response according to the following scale
(1) Not at all confident ← ··· → extremely confident (7)

Below are statements that describe your self-efficacy of pain management

1.	How confident are you that you could assess the pain for patients?	**1 2 3 4 5 6 7**
2.	How confident are you that you could choose appropriate pain assessment methods?	**1 2 3 4 5 6 7**
3.	How confident are you that you could use the pain assessment tool for your patients?	**1 2 3 4 5 6 7**
4.	How confident are you of your ability to give the correct pain controller to patients?	**1 2 3 4 5 6 7**
5.	How confident are you of your ability to provide non pharmacological pain management to patients?	**1 2 3 4 5 6 7**
6.	How confident are you of your ability to cooperate with the medical team to relieve patient pain?	**1 2 3 4 5 6 7**

Instruction : Please circling your response according to the following scale
(1) Never← ··· → Constantly (7)

Below are statements that describe your pain management practices

1.	I used observation to determine patients' pain	**1**	**2**	**3**	**4**	**5**	**6**	**7**
2.	I asked my patients to determine patients' pain	**1**	**2**	**3**	**4**	**5**	**6**	**7**
3.	I asked my patients to describe the intensity of pain using a scale	**1**	**2**	**3**	**4**	**5**	**6**	**7**
4.	I asked my patients to evaluate their pain	**1**	**2**	**3**	**4**	**5**	**6**	**7**
5.	I asked my patients to locate the area of pain	**1**	**2**	**3**	**4**	**5**	**6**	**7**
6.	I asked my patients about frequency of pain experience	**1**	**2**	**3**	**4**	**5**	**6**	**7**
7.	I asked my patients to describe the pain by own words	**1**	**2**	**3**	**4**	**5**	**6**	**7**
8.	I asked my patients about the most severe pain	**1**	**2**	**3**	**4**	**5**	**6**	**7**
9.	I asked my patients about the least severe pain	**1**	**2**	**3**	**4**	**5**	**6**	**7**
10.	I asked my patients about the average pain	**1**	**2**	**3**	**4**	**5**	**6**	**7**
11.	I asked my patients about the presence of any other symptoms	**1**	**2**	**3**	**4**	**5**	**6**	**7**
12.	I asked my patients about the intensity of pain before giving pain killers	**1**	**2**	**3**	**4**	**5**	**6**	**7**
13.	I asked my patients about the intensity of pain after giving pain drug	**1**	**2**	**3**	**4**	**5**	**6**	**7**
14.	I asked my patients about factors that increase the intensity of pain	**1**	**2**	**3**	**4**	**5**	**6**	**7**
15.	I asked my patients about factors that reduce the intensity of pain	**1**	**2**	**3**	**4**	**5**	**6**	**7**
16.	I asked my patients about the cause if their pain becomes worst	**1**	**2**	**3**	**4**	**5**	**6**	**7**
17.	I asked my patients about non-pharmacological method to reduce pain	**1**	**2**	**3**	**4**	**5**	**6**	**7**
18.	I asked my patients about the side effects of pain medication	**1**	**2**	**3**	**4**	**5**	**6**	**7**
19.	I gave prescribed pain medication to my patients on a fixed schedule	**1**	**2**	**3**	**4**	**5**	**6**	**7**
20.	I gave my patients a medication as necessary	**1**	**2**	**3**	**4**	**5**	**6**	**7**
21.	I explained the pain experience for my patients	**1**	**2**	**3**	**4**	**5**	**6**	**7**

	pain management practices:(Continued) (1) Never← ··· → Constantly (7)							
22.	I taught my patients alternative methods to reduce pain	**1**	**2**	**3**	**4**	**5**	**6**	**7**
23.	I explained for my patients the side effects of pain medication	**1**	**2**	**3**	**4**	**5**	**6**	**7**
24.	I explained to my patients the drug addiction to reduce their fear	**1**	**2**	**3**	**4**	**5**	**6**	**7**
25.	I taught my patients the importance of pain evaluation	**1**	**2**	**3**	**4**	**5**	**6**	**7**
26.	I provided comfort after surgery to my patients	**1**	**2**	**3**	**4**	**5**	**6**	**7**
27.	I helped my patients to position comfortably after surgery	**1**	**2**	**3**	**4**	**5**	**6**	**7**
28.	I helped patients when they need help	**1**	**2**	**3**	**4**	**5**	**6**	**7**
29.	I helped my patients to have enough sleep	**1**	**2**	**3**	**4**	**5**	**6**	**7**
30.	I spent time with my patients to reduce their pain	**1**	**2**	**3**	**4**	**5**	**6**	**7**
31.	I taught my patients to perform distracted activities	**1**	**2**	**3**	**4**	**5**	**6**	**7**
32.	I helped my patients to ambulate such as sitting up	**1**	**2**	**3**	**4**	**5**	**6**	**7**
33.	I taught my patients to support their surgical wound	**1**	**2**	**3**	**4**	**5**	**6**	**7**
34.	I helped my patients to support pain area	**1**	**2**	**3**	**4**	**5**	**6**	**7**
35.	I took care of patients' wounds	**1**	**2**	**3**	**4**	**5**	**6**	**7**
36.	I provided alternative activities to alleviate the patients pain	**1**	**2**	**3**	**4**	**5**	**6**	**7**

Instruction : Please circling your response according to the following scale
(1)Strongly disagree ← ··· → Strongly agree(7)

Below are statements that describe patients' related barriers regarding pain management

1.	The patients believe that drowsiness from pain medicine is really a bother	**1**	**2**	**3**	**4**	**5**	**6**	**7**
2.	The patients believe that confusion from pain medicine is really a bother	**1**	**2**	**3**	**4**	**5**	**6**	**7**
3.	The patients believe that pain medicine cannot really control pain	**1**	**2**	**3**	**4**	**5**	**6**	**7**

	patients related barriers regarding pain management : (Continued) (1)Strongly disagree ← ··· → Strongly agree(7)	
4.	The patients believe that people get addicted to pain medicine easily	**1 2 3 4 5 6 7**
5.	The patients believe that nausea from pain medicine is really distressing	**1 2 3 4 5 6 7**
6.	The patients believe that having pain means that the illness is worse	**1 2 3 4 5 6 7**
7.	The patients believe that pain medicine often makes you say or do embarrassing things	**1 2 3 4 5 6 7**
8.	The patients believe that constipation from pain medicine is really upsetting	**1 2 3 4 5 6 7**
9.	The patients believe that good patients avoid talking about pain	**1 2 3 4 5 6 7**
10.	The patients believe that it doesn't do any good to talk about pain because the doctor will not do anything about it anyway	**1 2 3 4 5 6 7**
11.	The patients believe that it is more important for the doctor to focus on curing illness than to put time into controlling pain	**1 2 3 4 5 6 7**
12.	The patients believe that ,the experience of pain is a sign that the illness has gotten worse	**1 2 3 4 5 6 7**
13.	The patients believe that it is easier to put up with pain than with the side effects that come from pain medicine	**1 2 3 4 5 6 7**
14.	The patients believe that pain medicine should be saved in case the pain gets worse	**1 2 3 4 5 6 7**
15.	The patients believe that, medicine cannot relieve cancer pain	**1 2 3 4 5 6 7**
16.	The patients believe that complaints of pain could distract a doctor from curing.	**1 2 3 4 5 6 7**

THANK YOU FOR SPARING YOUR VALUABLE TIME

YOU HAVE COMPLETED THE QUESTIONNAIRE! IF YOU HAVE ANY HESITATIONS, PLEASE FEEL FREE TO CONTACT ME VIA EMAIL:
Bashar-esam @hotmail.com

THANK YOU ONCE AGAIN FOR YOUR COOPERATION.

Appendix F
Statistical normality test

Descriptive Statistics for the Normality Test

	N	Min.	Max.	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
ATT01	266	1	7	4.34	1.871	-.159	.149	-.980	.298
ATT02	266	1	7	4.16	1.786	-.132	.149	-.959	.298
ATT03	266	1	7	5.21	1.827	-.652	.149	-.744	.298
ATT04	266	1	7	5.00	1.710	-.464	.149	-.755	.298
ATT05	266	1	7	4.57	1.529	-.292	.149	-.680	.298
ATT06	266	1	7	4.43	1.568	-.320	.149	-.533	.298
ATT07	266	1	7	4.00	1.742	-.147	.149	-.916	.298
ATT08	266	1	7	4.08	1.677	-.072	.149	-.708	.298
ATT09	266	1	7	4.37	1.826	-.284	.149	-.873	.298
ATT10	266	1	7	4.75	1.735	-.408	.149	-.780	.298
ATT11	266	1	7	4.61	1.611	-.219	.149	-.653	.298
ATT12	266	1	7	4.57	1.695	-.305	.149	-.759	.298
ATT13	266	1	7	4.37	1.774	-.221	.149	-.848	.298
ATT14	266	1	7	5.19	1.737	-.681	.149	-.627	.298
ATT15	266	1	7	4.66	1.662	-.274	.149	-.753	.298
ATT16	266	1	7	4.53	1.602	-.081	.149	-.799	.298
ATT17	266	1	7	4.72	1.741	-.353	.149	-.817	.298

Appendix F (Continued)

	N	Min.	Max.	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
ATT18	266	1	7	4.05	1.701	-.091	.149	-.775	.298
ATT19	266	1	7	4.21	1.568	-.086	.149	-.680	.298
ATT20	266	1	7	4.47	1.753	-.316	.149	-.773	.298
ATT21	266	1	7	4.31	1.792	-.225	.149	-.907	.298
ATT22	266	1	7	4.50	1.710	-.183	.149	-.882	.298
KNL01	266	1	7	4.74	1.741	-.428	.149	-.796	.298
KNL02	266	1	7	3.63	1.727	.079	.149	-1.013	.298
KNL03	266	1	7	4.18	1.659	-.185	.149	-.772	.298
KNL04	266	1	7	4.55	1.678	-.436	.149	-.541	.298
KNL05	266	1	7	4.25	1.776	-.258	.149	-.954	.298
KNL06	266	1	7	4.77	1.502	-.479	.149	-.315	.298
KNL07	266	1	7	4.63	1.625	-.398	.149	-.687	.298
KNL08	266	1	7	4.27	1.585	-.206	.149	-.670	.298
KNL09	266	1	7	4.04	1.733	-.010	.149	-.912	.298
SN01	266	1	7	4.60	1.628	-.332	.149	-.610	.298
SN02	266	1	7	4.75	1.525	-.392	.149	-.443	.298
SN03	266	1	7	4.44	1.636	-.261	.149	-.839	.298
SN04	266	1	7	4.75	1.703	-.415	.149	-.676	.298
SE01	266	1	7	4.48	1.598	-.305	.149	-.783	.298
SE02	266	1	7	4.70	1.443	-.456	.149	-.283	.298
SE03	266	1	7	4.77	1.384	-.332	.149	-.463	.298
SE04	266	1	7	4.68	1.401	-.354	.149	-.404	.298
SE05	266	1	7	4.54	1.456	-.260	.149	-.636	.298

Appendix F (Continued)

	N	Min.	Max.	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
SE06	266	1	7	4.97	1.503	-.493	.149	-.397	.298
PMP01	266	1	7	4.82	1.693	-.530	.149	-.508	.298
PMP02	266	1	7	4.97	1.585	-.592	.149	-.341	.298
PMP03	266	1	7	4.94	1.703	-.563	.149	-.520	.298
PMP04	266	1	7	5.05	1.620	-.653	.149	-.248	.298
PMP05	266	1	7	5.21	1.702	-.882	.149	-.013	.298
PMP06	266	1	7	5.09	1.701	-.649	.149	-.494	.298
PMP07	266	1	7	5.15	1.645	-.906	.149	.133	.298
PMP08	266	1	7	5.11	1.665	-.815	.149	-.077	.298
PMP09	266	1	7	4.99	1.636	-.691	.149	-.316	.298
PMP10	266	1	7	4.95	1.649	-.563	.149	-.462	.298
PMP11	266	1	7	5.11	1.605	-.643	.149	-.353	.298
PMP12	266	1	7	5.16	1.621	-.671	.149	-.376	.298
PMP13	266	1	7	5.14	1.650	-.716	.149	-.307	.298
PMP14	266	1	7	5.10	1.664	-.632	.149	-.418	.298
PMP15	266	1	7	5.08	1.671	-.684	.149	-.366	.298
PMP16	266	1	7	5.12	1.542	-.651	.149	-.123	.298
PMP17	266	1	7	4.86	1.617	-.464	.149	-.546	.298
PMP18	266	1	7	4.88	1.645	-.615	.149	-.263	.298
PMP19	266	1	7	4.76	1.613	-.397	.149	-.572	.298
PMP20	266	1	7	4.91	1.552	-.476	.149	-.451	.298
PMP21	266	1	7	4.82	1.607	-.385	.149	-.597	.298
PMP22	266	1	7	4.55	1.590	-.273	.149	-.748	.298

Appendix F (Continued)

	N	Min.	Max.	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
PMP23	266	1	7	4.82	1.570	-.565	.149	-.390	.298
PMP24	266	1	7	4.73	1.633	-.520	.149	-.546	.298
PMP25	266	1	7	4.84	1.614	-.473	.149	-.624	.298
PMP26	266	1	7	4.87	1.750	-.612	.149	-.444	.298
PMP27	266	1	7	5.05	1.643	-.659	.149	-.337	.298
PMP28	266	1	7	5.14	1.667	-.745	.149	-.297	.298
PMP29	266	1	7	5.03	1.642	-.640	.149	-.400	.298
PMP30	266	1	7	4.73	1.594	-.326	.149	-.682	.298
PMP31	266	1	7	4.86	1.531	-.381	.149	-.637	.298
PMP32	266	1	7	4.93	1.562	-.611	.149	-.315	.298
PMP33	266	1	7	5.03	1.604	-.602	.149	-.479	.298
PMP34	266	1	7	4.98	1.582	-.667	.149	-.208	.298
PMP35	266	1	7	5.11	1.606	-.674	.149	-.253	.298
PMP36	266	1	7	4.98	1.578	-.532	.149	-.404	.298
PRB01	266	1	7	3.63	1.459	.278	.149	-.363	.298
PRB02	266	1	7	3.49	1.377	.348	.149	-.164	.298
PRB03	266	1	7	3.91	1.650	.272	.149	-.736	.298
PRB04	266	1	7	3.79	1.731	.160	.149	-.875	.298
PRB05	266	1	7	3.42	1.503	.136	.149	-.714	.298
PRB06	266	1	7	3.30	1.504	.322	.149	-.375	.298
PRB07	266	1	7	3.38	1.526	.246	.149	-.560	.298
PRB08	266	1	7	3.25	1.524	.457	.149	-.379	.298
PRB09	266	1	7	3.62	1.616	.275	.149	-.641	.298

Appendix F (Continued)

	N	Min.	Max.	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
PRB10	266	1	7	3.80	1.573	.192	.149	-.578	.298
PRB11	266	1	7	3.48	1.605	.292	.149	-.679	.298
PRB12	266	1	7	3.43	1.511	.290	.149	-.435	.298
PRB13	266	1	7	3.65	1.532	.362	.149	-.333	.298
PRB14	266	1	7	3.53	1.513	.299	.149	-.528	.298
PRB15	266	1	7	3.49	1.649	.460	.149	-.580	.298
PRB16	266	1	7	3.54	1.611	.245	.149	-.636	.298

Appendix G
The levels of nurses' pain management practices

Levels of Nurses' Pain Management Practice

Case No.	Total score	Pain management practices (%)	Pain management practices level	Case No.	Total score	Pain management practices (%)	Pain management practices level
1	182	0.72	Moderate	43	179	0.71	Moderate
2	249	0.99	Very High	44	170	0.67	Low
3	155	0.62	Low	45	160	0.63	Low
4	252	1.00	Very High	46	191	0.76	Moderate
5	174	0.69	Low	47	158	0.63	Low
6	197	0.78	Moderate	48	179	0.71	Moderate
7	190	0.75	Moderate	49	205	0.81	High
8	191	0.76	Moderate	50	223	0.88	High
9	179	0.71	Moderate	51	217	0.86	High
10	206	0.82	High	52	193	0.77	Moderate
11	243	0.96	Very High	53	236	0.94	Very High
12	159	0.63	Low	54	186	0.74	Moderate
13	172	0.68	Low	55	224	0.89	High
14	201	0.80	High	56	224	0.89	High
15	240	0.95	Very High	57	230	0.91	Very High
16	239	0.95	Very High	58	215	0.85	High
17	192	0.76	Moderate	59	127	0.50	Very Low
18	182	0.72	Moderate	60	138	0.55	Very Low
19	185	0.73	Moderate	61	88	0.35	Very Low
20	184	0.73	Moderate	62	160	0.63	Low
21	122	0.48	Very Low	63	157	0.62	Low
22	212	0.84	High	64	210	0.83	High
23	146	0.58	Very Low	65	206	0.82	High
24	122	0.48	Very Low	66	163	0.65	Low
25	230	0.91	Very High	67	244	0.97	Very High
26	207	0.82	High	68	252	1.00	Very High
27	104	0.41	Very Low	69	248	0.98	Very High
28	57	0.23	Very Low	70	213	0.85	High
29	211	0.84	High	71	215	0.85	High
30	206	0.82	High	72	202	0.80	High
31	202	0.80	High	73	102	0.40	Very Low
32	205	0.81	High	74	137	0.54	Very Low
33	202	0.80	High	75	172	0.68	Low
34	131	0.52	Very Low	76	169	0.67	Low
35	150	0.60	Low	77	250	0.99	Very High
36	193	0.77	Moderate	78	215	0.85	High
37	123	0.49	Very Low	79	195	0.77	Moderate
38	223	0.88	High	80	251	1.00	Very High
39	138	0.55	Very Low	81	250	0.99	Very High
40	155	0.62	Low	82	237	0.94	Very High
41	154	0.61	Low	83	170	0.67	Low
42	170	0.67	Low	84	144	0.57	Very Low

Appendix G (Continued)

Case No.	Total score	Pain management practices (%)	Pain management practices level	Case No.	Total score	Pain management practices (%)	Pain management practices level
85	199	0.79	Moderate	134	87	0.35	Very Low
86	206	0.82	High	135	192	0.76	Moderate
87	178	0.71	Moderate	136	245	0.97	Very High
88	139	0.55	Very Low	137	172	0.68	Low
89	157	0.62	Low	138	158	0.63	Low
90	120	0.48	Very Low	139	171	0.68	Low
91	150	0.60	Low	140	181	0.72	Moderate
92	221	0.88	High	141	166	0.66	Low
93	173	0.69	Low	142	247	0.98	Very High
94	194	0.77	Moderate	143	250	0.99	Very High
95	194	0.77	Moderate	144	210	0.83	High
96	160	0.63	Low	145	224	0.89	High
97	158	0.63	Low	146	240	0.95	Very High
98	179	0.71	Moderate	147	252	1.00	Very High
99	156	0.62	Low	148	225	0.89	High
100	182	0.72	Moderate	149	240	0.95	Very High
101	182	0.72	Moderate	150	246	0.98	Very High
102	200	0.79	Moderate	151	252	1.00	Very High
103	181	0.72	Moderate	152	207	0.82	High
104	196	0.78	Moderate	153	206	0.82	High
105	190	0.75	Moderate	154	243	0.96	Very High
106	163	0.65	Low	155	200	0.79	Moderate
107	157	0.62	Low	156	220	0.87	High
108	128	0.51	Very Low	157	171	0.68	Low
109	83	0.33	Very Low	158	218	0.87	High
110	146	0.58	Very Low	159	163	0.65	Low
111	148	0.59	Very Low	160	230	0.91	Very High
112	146	0.58	Very Low	161	175	0.69	Low
113	122	0.48	Very Low	162	215	0.85	High
114	179	0.71	Moderate	163	239	0.95	Very High
115	170	0.67	Low	164	176	0.70	Moderate
116	144	0.57	Very Low	165	200	0.79	Moderate
117	63	0.25	Very Low	166	160	0.63	Low
118	231	0.92	Very High	167	160	0.63	Low
119	237	0.94	Very High	168	216	0.86	High
120	245	0.97	Very High	169	180	0.71	Moderate
121	235	0.93	Very High	170	200	0.79	Moderate
122	204	0.81	High	171	207	0.82	High
123	158	0.63	Low	172	167	0.66	Low
124	161	0.64	Low	173	232	0.92	Very High
125	170	0.67	Low	174	233	0.92	Very High
126	159	0.63	Low	175	151	0.60	Low
127	165	0.65	Low	176	225	0.89	High
128	218	0.87	High	177	211	0.84	High
129	159	0.63	Low	178	215	0.85	High
130	161	0.64	Low	179	247	0.98	Very High
131	252	1.00	Very High	180	219	0.87	High
132	238	0.94	Very High	181	210	0.83	High
133	197	0.78	Moderate	182	168	0.67	Low

Appendix G (Continued)

Case No.	Total score	Pain management practices (%)	Pain management practices level	Case No.	Total score	Pain management practices (%)	Pain management practices level
183	168	0.67	Low	232	165	0.65	Low
184	168	0.67	Low	233	153	0.61	Low
185	111	0.44	Very Low	234	158	0.63	Low
186	212	0.84	High	235	157	0.62	Low
187	119	0.47	Very Low	236	239	0.95	Very High
188	171	0.68	Low	237	216	0.86	High
189	204	0.81	High	238	172	0.68	Low
190	160	0.63	Low	239	144	0.57	Very Low
191	178	0.71	Moderate	240	160	0.63	Low
192	129	0.51	Very Low	241	240	0.95	Very High
193	168	0.67	Low	242	241	0.96	Very High
194	166	0.66	Low	243	176	0.70	Moderate
195	178	0.71	Moderate	244	84	0.33	Very Low
196	164	0.65	Low	245	89	0.35	Very Low
197	170	0.67	Low	246	165	0.65	Low
198	80	0.32	Very Low	247	153	0.61	Low
199	236	0.94	Very High	248	158	0.63	Low
200	226	0.90	Very High	249	157	0.62	Low
201	99	0.39	Very Low	250	239	0.95	Very High
202	117	0.46	Very Low	251	216	0.86	High
203	221	0.88	High	252	172	0.68	Low
204	147	0.58	Very Low	253	144	0.57	Very Low
205	203	0.81	High	254	160	0.63	Low
206	169	0.67	Low	255	240	0.95	Very High
207	172	0.68	Low	256	241	0.96	Very High
208	218	0.87	High	257	176	0.70	Moderate
209	85	0.34	Very Low	258	84	0.33	Very Low
210	68	0.27	Very Low	259	89	0.35	Very Low
211	62	0.25	Very Low	260	165	0.65	Low
212	83	0.33	Very Low	261	153	0.61	Low
213	77	0.31	Very Low	262	158	0.63	Low
214	58	0.23	Very Low	263	157	0.62	Low
215	91	0.36	Very Low	264	239	0.95	Very High
216	61	0.24	Very Low	265	216	0.86	High
217	225	0.89	High	266	172	0.68	Low
218	92	0.37	Very Low	232	144	0.57	Very Low
219	93	0.37	Very Low	233	160	0.63	Low
220	233	0.92	Very High	234	240	0.95	Very High
221	196	0.78	Moderate	235	241	0.96	Very High
222	196	0.78	Moderate	236	176	0.70	Moderate
223	198	0.79	Moderate	237	84	0.33	Very Low
224	170	0.67	Low	238	89	0.35	Very Low
225	151	0.60	Low	239	165	0.65	Low
226	232	0.92	Very High	240	153	0.61	Low
227	193	0.77	Moderate	241	158	0.63	Low
228	174	0.69	Low	242	157	0.62	Low
229	139	0.55	Very Low	243	239	0.95	Very High
230	160	0.63	Low	244	216	0.86	High
231	110	0.44	Very Low	245	172	0.68	Low

Appendix G (Continued)

Case No.	Total score	Pain management practices (%)	Pain management practices level	Case No.	Total score	Pain management practices (%)	Pain management practices level
246	189	0.75	Moderate				
247	202	0.80	High				
248	172	0.68	Low				
249	163	0.65	Low				
250	68	0.27	Very Low				
251	181	0.72	Moderate				
252	201	0.80	High				
253	110	0.44	Very Low				
254	241	0.96	Very High				
255	182	0.72	Moderate				
256	240	0.95	Very High				
257	163	0.65	Low				
258	152	0.60	Low				
259	146	0.58	Very Low				
260	172	0.68	Low				
261	173	0.69	Low				
262	218	0.87	High				
263	221	0.88	High				
264	56	0.22	Very Low				
265	58	0.23	Very Low				
266	58	0.23	Very Low				
246	189	0.75	Moderate				
247	202	0.80	High				
248	172	0.68	Low				
249	163	0.65	Low				
250	68	0.27	Very Low				
251	181	0.72	Moderate				
252	201	0.80	High				
253	110	0.44	Very Low				
254	241	0.96	Very High				
255	182	0.72	Moderate				
256	240	0.95	Very High				
257	163	0.65	Low				
258	152	0.60	Low				
259	146	0.58	Very Low				
260	172	0.68	Low				
261	173	0.69	Low				
262	218	0.87	High				
263	221	0.88	High				
264	56	0.22	Very Low				
265	58	0.23	Very Low				
266	58	0.23	Very Low				

Appendix H
The complete ranking orders of pain management practices

Complete Ranking Orders of Pain Management Practices

Item No.	Rank Order	Ranking order of nurses' pain management practice	%
PMP1	32	I used observation to determine patients' pain	69
PMP2	20	I asked my patients to determine patients' pain	71
PMP3	22	I asked my patients to describe the intensity of pain using a scale	71
PMP4	13	I asked my patients to evaluate their pain	72
PMP5	1	I asked my patients to locate the area of pain	74
PMP6	11	I asked my patients about frequency of pain experience	73
PMP7	3	I asked my patients to describe the pain by own words	74
PMP8	9	I asked my patients about the most severe pain	73
PMP9	17	I asked my patients about the least severe pain	71
PMP10	21	I asked my patients about the average pain	71
PMP11	7	I asked my patients about the presence of any other symptoms	73
PMP12	2	I asked my patients about the intensity of pain before giving pain killers	74
PMP13	5	I asked my patients about the intensity of pain after giving pain drug	73
PMP14	10	I asked my patients about factors that increase the intensity of pain	73
PMP15	12	I asked my patients about factors that reduce the intensity of pain	73
PMP16	6	I asked my patients about the cause if their pain becomes worst	73
PMP17	27	I asked my patients about non-pharmacological method to reduce pain	69
PMP18	25	I asked my patients about the side effects of pain medication	70
PMP19	33	I gave prescribed pain medication to my patients on a fixed schedule	68
PMP20	24	I gave my patients a medication as necessary	70
PMP21	30	I explained the pain experience for my patients	69
PMP22	36	I taught my patients alternative methods to reduce pain	65
PMP23	31	I explained for my patients the side effects of pain medication	69
PMP24	34	I explained to my patients the drug addiction to reduce their fear	68
PMP25	29	I taught my patients the importance of pain evaluation	69
PMP26	26	I provided comfort after surgery to my patients	70
PMP27	14	I helped my patients to position comfortably after surgery	72
PMP28	4	I helped patients when they need help	73
PMP29	16	I helped my patients to have enough sleep	72
PMP30	35	I spent time with my patients to reduce their pain	68
PMP31	28	I taught my patients to perform distracted activities	69
PMP32	23	I helped my patients to ambulate such as sitting up	70
PMP33	15	I taught my patients to support their surgical wound	72
PMP34	19	I helped my patients to support pain area	71
PMP35	8	I took care of patients' wounds	73
PMP36	18	I provided alternative activities to alleviate the patients pain	71

Appendix I
Indicators loadings after individual item reliability

Loading for each Indicator after Individual Item Reliability

No	indicators	Loadings
1	**ATT01**	0.880
2	**ATT03**	0.877
3	**PMP33**	0.868
4	**PMP12**	0.865
5	**SE02**	0.863
6	**SE03**	0.861
7	**PMP05**	0.859
8	**PMP26**	0.858
9	**PMP08**	0.854
10	**PMP02**	0.854
11	**PMP29**	0.852
12	**PMP35**	0.850
13	**PMP13**	0.849
14	**PMP06**	0.849
15	**PMP03**	0.847
16	**PMP10**	0.847
17	**PMP09**	0.846
18	**PMP34**	0.845
19	**PMP11**	0.844
20	**SE06**	0.836
21	**PMP27**	0.829
22	**PMP14**	0.828
23	**PMP25**	0.825
24	**PMP28**	0.825
25	**PMP32**	0.824
26	**PMP16**	0.821
27	**SN02**	0.821
28	**SN01**	0.820
29	**SN04**	0.819
30	**SE01**	0.819
31	**SE04**	0.815
32	**PMP15**	0.808

Appendix I (Continued)

33	**PMP04**	0.802
34	**PRB05**	0.800
35	**PMP36**	0.784
36	**PMP07**	0.774
37	**SN03**	0.766
38	**PRB06**	0.765
39	**ATT14**	0.760
40	**PRB12**	0.760
41	**PMP17**	0.760
42	**PRB02**	0.760
43	**PMP30**	0.758
44	**PMP01**	0.749
45	**PMP31**	0.742
46	**PMP24**	0.742
47	**PRB11**	0.741
48	**PMP23**	0.733
49	**PRB01**	0.731
50	**PRB07**	0.731
51	**KNL06**	0.718
52	**PMP21**	0.718
53	**PMP22**	0.712
54	**KNL07**	0.712
55	**PRB14**	0.702
56	**KNL01**	0.699
57	**ATT15**	0.699
58	**PMP20**	0.692
59	**ATT16**	0.691
60	**SE05**	0.687
61	**KNL04**	0.684
62	**PRB08**	0.671
63	**ATT04**	0.662
64	**KNL03**	0.659
65	**ATT22**	0.656
66	**ATT11**	0.650
67	**PRB04**	0.642
68	**ATT10**	0.641
69	**PMP19**	0.628
70	**PRB16**	0.624
71	**PRB10**	0.622
72	**PRB09**	0.614
73	**ATT17**	0.611

Appendix I (Continued)

74	**ATT21**	0.601
75	**PRB13**	0.588
76	**PRB15**	0.582
77	**PMP18**	0.574
78	**ATT20**	0.563
79	**ATT13**	0.556
80	**KNL08**	0.525
81	**KNL05**	0.518
82	**ATT05**	0.516
83	**KNL09**	0.515
84	**ATT09**	0.513
85	**ATT19**	0.479
86	**PRB03**	0.424
87	**ATT06**	0.413
88	**ATT18**	0.412
89	**ATT12**	0.409

Appendix J
Indicators loadings after convergent validity

Loadings for each Indicators after Convergent Validity

No	**indicators**	**Loadings**
1	**ATT03**	0.880
2	**ATT04**	0.877
3	**ATT10**	0.868
4	**ATT11**	0.865
5	**ATT14**	0.863
6	**ATT15**	0.861
7	**ATT16**	0.859
8	**ATT22**	0.858
9	**KNL01**	0.854
10	**KNL03**	0.854
11	**KNL04**	0.852
12	**KNL06**	0.850
13	**KNL07**	0.849
14	**PMP01**	0.849
15	**PMP02**	0.847
16	**PMP03**	0.847
17	**PMP04**	0.846
18	**PMP05**	0.845
19	**PMP06**	0.844
20	**PMP07**	0.836
21	**PMP08**	0.829
22	**PMP09**	0.828
23	**PMP10**	0.825
24	**PMP11**	0.825
25	**PMP12**	0.824
26	**PMP13**	0.821
27	**PMP14**	0.821
28	**PMP15**	0.820
29	**PMP16**	0.819
30	**PMP17**	0.819
31	**PMP18**	0.815
32	**PMP19**	0.808
33	**PMP20**	0.802

Appendix J (Continued)

34	**PMP21**	0.800
35	**PMP22**	0.784
36	**PMP23**	0.774
37	**PMP24**	0.773
38	**PMP25**	0.765
39	**PMP26**	0.760
40	**PMP27**	0.760
41	**PMP28**	0.760
42	**PMP29**	0.760
43	**PMP30**	0.758
44	**PMP31**	0.749
45	**PMP32**	0.742
46	**PMP33**	0.742
47	**PMP34**	0.741
48	**PMP35**	0.739
49	**PMP36**	0.733
50	**PRB01**	0.731
51	**PRB02**	0.719
52	**PRB04**	0.718
53	**PRB05**	0.717
54	**PRB06**	0.712
55	**PRB07**	0.707
56	**PRB08**	0.707
57	**PRB09**	0.699
58	**PRB10**	0.698
59	**PRB11**	0.691
60	**PRB12**	0.685
61	**PRB13**	0.684
62	**PRB14**	0.667
63	**PRB16**	0.660
64	**SE01**	0.656
65	**SE02**	0.656
66	**SE03**	0.651
67	**SE04**	0.650
68	**SE05**	0.641
69	**SE06**	0.628
70	**SN01**	0.624
71	**SN02**	0.622
72	**SN03**	0.601
73	**SN04**	0.582

Appendix K
Indicators loadings after discriminant validity

Loadings for each Indicators after Discriminant Validity

No	**indicators**	**Loadings**
1	**ATT03**	0.881
2	**ATT14**	0.877
3	**PMP33**	0.868
4	**PMP12**	0.865
5	**SE02**	0.863
6	**SE03**	0.861
7	**PMP05**	0.860
8	**PMP26**	0.859
9	**PMP08**	0.854
10	**PMP02**	0.854
11	**PMP29**	0.853
12	**PMP35**	0.851
13	**PMP13**	0.849
14	**PMP06**	0.849
15	**PMP03**	0.847
16	**PMP10**	0.847
17	**PMP09**	0.847
18	**PMP11**	0.845
19	**PMP34**	0.845
20	**SE06**	0.836
21	**PMP27**	0.829
22	**PMP14**	0.829
23	**PMP25**	0.829
24	**PMP28**	0.825
25	**PMP16**	0.825
26	**PMP32**	0.824
27	**SN02**	0.821
28	**SN01**	0.821
29	**SN04**	0.820
30	**SE01**	0.819
31	**PRB05**	0.819
32	**PMP15**	0.819
33	**SE04**	0.816

Appendix K (Continued)

34	**PMP04**	0.802
35	**PMP36**	0.800
36	**PMP07**	0.790
37	**PRB06**	0.784
38	**SN03**	0.773
39	**PRB12**	0.765
40	**PRB02**	0.764
41	**ATT15**	0.762
42	**PMP17**	0.760
43	**PMP01**	0.759
44	**KNL06**	0.759
45	**PMP30**	0.759
46	**PMP31**	0.758
47	**KNL01**	0.754
48	**PRB01**	0.754
49	**PMP24**	0.748
50	**PRB11**	0.747
51	**PRB07**	0.743
52	**PMP23**	0.741
53	**PMP21**	0.730
54	**KNL07**	0.726
55	**KNL04**	0.721
56	**PMP22**	0.718
57	**PRB14**	0.705
58	**PMP20**	0.698
59	**SE05**	0.691
60	**PRB08**	0.688
61	**PRB04**	0.657
62	**PMP19**	0.640
63	**KNL03**	0.638
64	**PRB16**	0.609
65	**PRB10**	0.607
66	**PRB09**	0.601
67	**PRB13**	0.584
68	**PMP18**	0.581

Appendix L
Cross-loadings measure based on Chin (1998)

Cross Loadings

	Attitude	Self-Efficacy	Knowledge	Subjective Norms	Patient Related Barriers	Pain Management Practices
ATT03	**0.807**	0.582	0.571	0.544	-0.435	0.625
ATT14	**0.890**	0.606	0.548	0.599	-0.566	0.745
ATT15	**0.824**	0.591	0.561	0.504	-0.513	0.628
SE01	0.549	**0.820**	0.576	0.614	-0.583	0.651
SE02	0.622	**0.868**	0.633	0.630	-0.614	0.705
SE03	0.658	**0.865**	0.640	0.543	-0.611	0.685
SE04	0.562	**0.819**	0.586	0.489	-0.523	0.601
SE05	0.394	**0.691**	0.467	0.459	-0.488	0.536
SE06	0.644	**0.845**	0.597	0.565	-0.588	0.691
KNL01	0.672	0.623	**0.754**	0.608	-0.558	0.637
KNL03	0.253	0.337	**0.638**	0.299	-0.351	0.331
KNL04	0.465	0.464	**0.721**	0.493	-0.486	0.508
KNL06	0.483	0.593	**0.759**	0.457	-0.523	0.556
KNL07	0.401	0.483	**0.726**	0.407	-0.406	0.447
SN01	0.542	0.522	0.525	**0.821**	-0.569	0.569
SN02	0.655	0.637	0.562	**0.824**	-0.615	0.664
SN03	0.411	0.444	0.485	**0.783**	-0.500	0.507

Appendix L (Continued)

SN04	0.488	0.564	0.533	**0.821**	-0.556	0.570
PRB01	-0.467	-0.579	-0.524	-0.552	**0.754**	-0.609
PRB02	-0.499	-0.568	-0.554	-0.539	**0.764**	-0.603
PRB04	-0.432	-0.453	-0.406	-0.392	**0.657**	-0.463
PRB05	-0.577	-0.616	-0.573	-0.585	**0.819**	-0.650
PRB06	-0.649	-0.673	-0.598	-0.635	**0.790**	-0.694
PRB07	-0.433	-0.505	-0.479	-0.505	**0.743**	-0.514
PRB08	-0.422	-0.505	-0.455	-0.460	**0.688**	-0.439
PRB09	-0.239	-0.329	-0.354	-0.446	**0.601**	-0.398
PRB10	-0.191	-0.292	-0.336	-0.362	**0.607**	-0.290
PRB11	-0.401	-0.473	-0.443	-0.514	**0.747**	-0.525
PRB12	-0.490	-0.542	-0.487	-0.529	**0.773**	-0.558
PRB13	-0.260	-0.306	-0.344	-0.260	**0.584**	-0.368
PRB14	-0.346	-0.413	-0.426	-0.452	**0.705**	-0.474
PRB16	-0.288	-0.402	-0.417	-0.486	**0.609**	-0.436
PMP01	0.647	0.688	0.635	0.650	-0.581	**0.759**
PMP02	0.747	0.697	0.604	0.631	-0.604	**0.859**
PMP03	0.704	0.675	0.578	0.644	-0.610	**0.849**
PMP04	0.695	0.682	0.556	0.617	-0.584	**0.815**
PMP05	0.737	0.681	0.592	0.660	-0.618	**0.863**
PMP06	0.713	0.676	0.585	0.653	-0.608	**0.851**
PMP07	0.686	0.676	0.602	0.628	-0.563	**0.800**
PMP08	0.694	0.690	0.609	0.675	-0.632	**0.860**
PMP09	0.648	0.708	0.588	0.654	-0.637	**0.847**
PMP10	0.642	0.696	0.603	0.608	-0.581	**0.849**

Appendix L (Continued)

PMP11	0.678	0.662	0.599	0.598	-0.576	**0.847**
PMP12	0.726	0.686	0.617	0.626	-0.636	**0.878**
PMP13	0.710	0.659	0.579	0.604	-0.597	**0.853**
PMP14	0.666	0.625	0.547	0.590	-0.573	**0.837**
PMP15	0.611	0.584	0.563	0.546	-0.556	**0.819**
PMP16	0.643	0.639	0.582	0.575	-0.562	**0.825**
PMP17	0.575	0.601	0.557	0.449	-0.508	**0.760**
PMP18	0.374	0.410	0.433	0.329	-0.426	**0.581**
PMP19	0.429	0.509	0.483	0.407	-0.503	**0.639**
PMP20	0.524	0.545	0.503	0.454	-0.518	**0.698**
PMP21	0.510	0.561	0.516	0.486	-0.554	**0.730**
PMP22	0.554	0.602	0.510	0.542	-0.544	**0.717**
PMP23	0.556	0.598	0.539	0.528	-0.530	**0.741**
PMP24	0.549	0.606	0.537	0.562	-0.601	**0.748**
PMP25	0.619	0.664	0.562	0.569	-0.621	**0.829**
PMP26	0.686	0.667	0.635	0.592	-0.633	**0.862**
PMP27	0.695	0.646	0.596	0.573	-0.613	**0.845**
PMP28	0.722	0.642	0.579	0.625	-0.610	**0.829**
PMP29	0.688	0.629	0.603	0.609	-0.637	**0.854**
PMP30	0.551	0.588	0.595	0.470	-0.597	**0.759**
PMP31	0.586	0.614	0.555	0.547	-0.626	**0.758**
PMP32	0.676	0.646	0.608	0.571	-0.637	**0.825**
PMP33	0.712	0.676	0.632	0.638	-0.656	**0.881**
PMP34	0.659	0.638	0.601	0.576	-0.630	**0.847**
PMP35	0.695	0.671	0.587	0.625	-0.639	**0.854**
PMP36	0.602	0.619	0.553	0.542	-0.615	**0.802**