

KNOWLEDGE AND ATTITUDES OF NURSES ABOUT PAIN MANAGEMENT
IN PATIENTS WITH CANCER

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ABSTRACT

RESEARCH SUBJECT: Knowledge and Attitudes of Nurses about Pain
Management in Patients with Cancer

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According to the American Cancer Society more than 1.3 million Americans are diagnosed with cancer each year, and as high as 73% of the hospitalized patients with cancer experience pain. Nurses are in a unique position to be able to assist the patient with management of their pain; however, knowledge about pain management principles and attitudes about pain management and/or patients in pain are variables inherent to each nurse. The purpose of this partial replication of the McMillan et al. (2000) study is to assess the nurses' knowledge and attitudes about pain management and patients in pain. The conceptual framework is based upon the attitude theorist Rokeach (1970) who described the relationships among knowledge, attitude, and behavior. The sample will consist of 85 nurses working on a medical-surgical unit. Knowledge will be measured by The Pain Management Knowledge Test (PMKT), while attitude will be measured by the following two instruments: The Nurses' Attitude Survey and The Pain Survey. Findings will provide information about knowledge deficits nurses may have regarding pain medication management and how pain management can be adversely affected by attitudes of nurses.

Chapter I

Introduction

Pain as defined by the International Association for the Study of Pain (2009) is “an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage” (para. 34). Pain, often the symptom of cancer that causes one to seek medical attention, negatively impacts quality of life. According to Negley and Luna (2006), even though 90% of pain can be controlled by treatment now available, pain is experienced by up to 90% of patients with advanced cancer. Nearly 1.5 million Americans will be diagnosed with cancer in 2009 (American Cancer Society, 2009). The incidence of cancer has not declined, but the survival after diagnosis has improved overall (American Cancer Society). Therefore, the management of pain poses a significant health issue. While many in the healthcare team, including physicians, patients, and nurses, play a role in pain management, nurses are in the position of assessing and managing that pain; therefore, nurses may significantly influence pain management (McMillan, Tittle, Hagan, Laughlin, and Tabler, 2000).

Multiple studies of knowledge and of attitudes toward pain management among physicians and nurses have demonstrated that lack of knowledge. Pud (2004) cited studies of particular importance such as McCaffery and Ferrell, 1997; Sapir, Catane, Strauss-Liviatan, and Cherny, 1999; McCaffery, Ferrell, and Pasero, 2000; Erkes, Parker,

Carr, and Mayo, 2001; Simpson, Kautzman, and Dodd, 2002. Additionally, Pud further noted studies of insufficient training in pain assessment, such as Sapir et al., 1999; Howell, Butler, Vincent, Watt-Watson, and Stearns, 2000; Simpson et al., 2002; which poses yet another barrier to effective pain management. Furthermore, attitudes of health care professionals were found to influence clinical practice; thereby, interfering with achievement of pain control (Simpson et al., 2002). Addressing nurses' knowledge deficits and attitudes which are barriers to effective pain management are essential to quality patient care. Nursing curriculum is in need of more pain management education. Additionally, quality educational programs also need to be incorporated in the workplace to ensure current standards and clinical guidelines, as well as evidence-based practice is being followed.

Pain that occurs in cancer can be acute or chronic. It can be related to a tumor, treatment, to both or to neither. According the National Comprehensive Cancer Network (NCCN) (2009), the two pathophysiological mechanisms of pain are nociceptive and neuropathic (p. MS 2). In any case, pain is the one symptom that patients fear most. Appropriate pain management is essential to promote positive patient outcomes such as interacting with family, continuing with daily activities, and overall enjoyment of life.

Pain guidelines have been established by the NCCN (2009). Also, according the United States Department of Veterans Affairs (2007), the World Health Organization (WHO) ladder is another established guideline for analgesia progression. "The Joint Commission on Hospital Accreditation (JCAHO) has called for better pain assessment and treatment, calling pain the "5th vital sign" (National Pain Foundation, 2009, para.3).

Treatment options available for cancer pain management are: non-pharmacological methods, such as distraction and positioning; medications varying from over the counter to opioids; and radiation treatment to reduce tumor size. Pharmacologic treatment is not always simple; however, managing multiple analgesics can be done. Nurses' opioid phobia is just one example of a barrier to effective pain management.

Educational programs have been effective in improving pain management in patients with cancer (McMillan, Tittle, Hagan and Small, 2005). While educational interventions do not always lead to optimal pain management and patient care, educational offerings should be considered an essential element in all nursing schools curricula as well as in the workplace. To ensure better patient outcomes in regards to pain, several national guidelines have been developed. Guidelines were established by the NCCN. The Joint Commission of Healthcare Organizations included pain as "the 5th vital sign" (National Pain Foundation, 2009, para. 3). The WHO progressive analgesia ladder provides practitioners with guidelines as well (US Department of Veterans Affairs, 2007). Educational interventions for nurses have been considered the key to pain management. Further study was needed to support outcomes of nursing pain management educational opportunities.

Background and Significance

Cancer has been described in Biblical times. Cancer knows no boundaries as it affects young, old, rich, poor, men, women, and every race and ethnicity. It kills, but most feared is the pain that patients may have to endure. According to Szalavitz and Foley (2006), as recent as the 1970s little was known about how the brain processed pain. Doctors' and nurses' attitudes about pain were also primitive. For example, it was better

practice to leave a person in pain than to cause that person to become an addict. The first pain service in an American cancer center was formally opened at Memorial Sloan-Kettering in 1981. Patients had to wait for nurses to bring their medication. This center advocated for patient-controlled administration and allowed patients to keep medication at the bedside until a narcotics agent informed them the practice was illegal. Out of this, however, was born the PCA pump which legally allowed patients to self-administer narcotics at the bedside and is widely used today.

Cancer pain continues to be undertreated today. Nurses do play a key part in pain management because they assess the patient and then administer the medication. According to Rustoen, Gaardsrud, Leegaard, and Wahl (2009), one Finnish study by Simonsen-Rehn, Savimaki, and Benko (2000), interviewed cancer patients about their experiences of care related to pain and found that patients wanted pain to be relieved by medication, but they also emphasized the importance of contact and communication with the nurses. Respect was seen as an important aspect of pain-related care.

Nurses' knowledge and attitudes about patients in pain and pain management have been studied by many researchers (McMillan et al., 2000; Bauwens, Distelmans, Storme, and Kaufman, 2001; Lasch, Greenhill, Wilkes, Carr, Lee, and Blanchard, 2002; Rushton, Eggett, and Sutherland, 2003; Xue, Schulman-Green, Czaplinski, Harris, and McCorkle, 2007). Unfortunately, pain still continues to be inadequately treated. McMillan et al.'s, (2000) study was based on attitude theorist Rokeach which theoretically explained the relationship of motivation to change behavior. Many nurses still lack knowledge and understanding of the appropriate pain management techniques,

both pharmacological and nonpharmacological. Additionally, nurses also still possess attitudes that serve as barriers to appropriate pain management.

The growing number of new cancer cases and the continued reports of unrelieved pain points to a gap in nurses' knowledge and attitudes about effective interventions to alleviate that pain. Education must be aimed at facilitating competent patient care. Knowledge and attitudes were found to be improved following McMillan et al. (2000) study using a supportive educational intervention aimed at improving knowledge and exposing attitudes that were barriers to an effective pain management regime. Bauwens et al. (2001) study applied a three day course on pain management and improvement was shown on 3-month follow-up. Wilkes, Lasch, Lee, Greenhill, and Giuseppina (2003) study also showed improvement in knowledge scores following an educational intervention. It is essential for nurses who work with cancer patients who are experiencing pain, or any patient experiencing pain for that matter, to attend educational programs to improve pain management and overall patient care, thus improving patient outcomes and quality of life.

In order to improve pain management and ultimately patient care, it is important to have a thorough understanding of nurses' knowledge and attitudes. Individuals are unique and are influenced by many factors. McMillan et al. (2000) study focused on nurses' knowledge and attitudes about patients in pain and pain management. Knowledge and attitudes have been found to be essential for development of proficient pain management. As found in other research, McMillan et al. (2005) study demonstrated deficiencies in nurses' knowledge and attitudes overall. Further study on nurses' knowledge and attitudes about pain and patients in pain, can contribute to the

knowledge base and assist nurses who work with cancer patients to understand the importance of continuing education in regard to pain management.

Statement of Problem

It is reported that up to 73% of patients who are hospitalized with cancer experience pain (McMillan et al., 2000). Nurses are the healthcare team member that most directly affects pain management because nurses assess and manage that pain.

Purpose of the Study

The purpose of this study was to assess the nurses' knowledge and attitudes about pain management and patients in pain. This was a partial replication of McMillan et al. (2000) study.

Research Questions

1. What specific areas of knowledge deficit among nurses contribute to inadequate pain management practices for patients with cancer?
2. What attitudes held by nurses interfere with appropriate pain management for patients with cancer?

Theoretical Framework

Attitude theorist Rokeach (1971) will guide this study. Behaviors, values, and attitudes change only when inconsistency is exposed. The relationships examined in this study include the concepts of nursing knowledge and attitudes about pain and patients in pain. This conceptual framework will efficiently guide this study to examine relationships that may provide information for professional nursing practice as it relates to pain management.

Definition of Terms

Nurses' Attitudes: Conceptual.

McMillan et al. (2000) referred to a variety of nursing attitudes that would interfere with appropriate pain management. Among them are lack of complete pain relief as a goal, lack of belief that patients should be kept in a pain-free state, belief that pain should be experienced before medicating with an analgesic, fear of addiction, fear of overmedication resulting in respiratory depression, gender bias, and age bias.

Nurses' Attitudes: Operational.

The Nurses' Attitude Survey (McMillan et al., 2000) will measure attitudes about pain, use of narcotics, who is in control, and the use of non-pharmacologic pain relief methods using only the 25 attitude items that were in the original tool, the Nurses' Knowledge and Attitude Survey. A total score is obtained by summing each item score with a higher score reflecting a more positive attitude. Additionally, the Pain Survey will assess attitudes including age and gender bias using case vignettes with three questions for each of the four vignettes with an additional six questions. Scores are summed with a higher score representing a more positive attitude.

Nurses' Knowledge: Conceptual.

According to McMillan et al. (2000), nurses' knowledge is knowledge deficit which includes "incorrectly answered questions about the incidence of psychological dependence, drug scheduling for steady-state analgesia, tolerance, and the impact of anxiety or depression on pain" (p. 1416). "A lack of knowledge about pain management

was the most frequently cited barrier to good pain management in a national survey” (McMillan et al., 2000, p. 1416).

Nurses' Knowledge: Operational.

Nurses' knowledge will be assessed by the Pain Management Knowledge Test (McMillan et al., 2000). Nurses' knowledge of pain management will be assessed by 31 multiple choice questions with correct answers summed for a total score and then converted to a percentage score.

Limitations

Generalization is limited due to small sample size and the sample selection from only two VA Hospitals in the Midwest.

Assumptions

This exploratory descriptive replication will be grounded by the following assumptions:

1. Nurses have knowledge deficits related to pain management.
2. Nurses hold attitudes that negatively impact pain management, thus ultimately patient care.
3. Behavior can be influenced by knowledge, attitudes, and values.
4. Most cancer pain is preventable with improved nursing education.
5. Participants will answer questions promptly and honestly.

Summary

The incidence of hospitalized cancer patients experiencing pain is affecting the lives of millions in the U.S. daily even though clinical guidelines have been published.

Nurses are the central person in the healthcare team to be able to assess and manage pain; however, nurses' knowledge and attitudes toward pain and patients in pain can serve as a barrier. Information about nurses' knowledge and attitudes can help to alter behaviors to improve outcomes for cancer patients in pain. The purpose of this study was to describe nurses' knowledge and attitudes about pain and patients in pain. This study will be a partial replication of McMillan et al. (2000) study. Attitude theorist Rokeach (1971) will provide the conceptual framework.

Chapter II

Review of Literature

The American Cancer Society estimates that more than 1.3 million Americans are diagnosed with cancer each year and a significant proportion will experience pain with estimates of pain in hospitalized patients as high as 73% (McMillan et al., 2000). This exploratory descriptive study is a partial replication of McMillan et al. (2000) study. The purpose is to assess nurses' knowledge and attitudes about pain management and patients in pain. Information about knowledge deficits and attitudes that act as barriers can help to tailor interventions and education to improve outcomes for cancer patients experiencing pain.

Organization of Literature

The literature review covers selected studies associated with the knowledge and attitudes of nurses regarding pain and pain management of patients with cancer. Qualitative studies will help to understand these nursing knowledge deficits and attitudinal barriers to effective pain control in patients who experience cancer-related pain. Recent literature was a focus to capture current evidence in practice. The supportive literature reviewed is divided into three sections:

1. Theoretical framework: Rokeach (1970), Beliefs, Attitudes, and Values:
Theory of Organization and Change.

2. Knowledge of nurses about pain management
3. Nurses' attitudes towards patients in pain

Theoretical framework

Rokeach's (1968) work as an attitude theorist focuses on beliefs, attitudes, and values. The definition of value is important to understand Rokeach. As defined by Rokeach (1968), "I consider a value to be a type of belief, centrally located within one's belief system, about how one ought or ought not to behave, or about some end-state existence worth or not worth obtaining" (p. 124). Rokeach further believed that attitudes are more specific than values, but values provide the basis for attitudes. It is interesting to note that Rokeach's first published study was sponsored by Abraham Maslow. According to Rokeach (1971), the research effort since 1966 at Michigan State focused on a systematic investigation of the effects of experimentally induced feelings of self-dissatisfaction on long-range changes in values, attitudes, and behaviors. Use of the theoretical approach differed from other approaches used in experimental social psychology in the following three major ways:

1. Understanding that in order to create cognitive or attitude change, inconsistency is necessary. In contemporary methods, the inconsistency is created by either inducing a person to engaging in behavior or to expose him to information about attitudes or values that are incompatible with his own; however, under this theory, the person would be made consciously aware of the inconsistency within his own value-belief system.
2. Contemporary social psychology focuses on the concept of attitude on theories of attitude change; however, this theory focuses on the concept of

value and on a theory of value change. Therefore, the assumption is that values are more fundamental than attitudes and moreover, that values are the basis of attitudes and behavior.

3. The measurement of dissonance differs from contemporary where at least two elements has some dissonant in relation to one another. Under this theory, two elements, normally referred to as cognitions, do not vary from one situation to another, but are invariant across all situations. In other words, if the two are satisfied with each other, they are consonant and satisfied with their self; however, if the two are dissatisfied, they are dissonant and that leads the person to become dissatisfied with their self (Rokeach, 1971).

In one experiment, Rokeach (1970) studied different sects of religions, and the nonbelievers, trying to ascertain their value systems. In order to conduct this research, Rokeach utilized the Rokeach Value Survey. This instrument was a simple two-part scale that consists of 18 goals or terminal values such as “comfortable life” and “world at peace” in which the interviewee was asked to rank in order of importance the 18 goals. Additional to this, 18 means, such as “honest” and “courageous,” would be the best means to meet the goals. The results did find that different religions ranked goals and means differently, as did the nonbelievers. Rokeach believed that values were enduring beliefs that relate to life goals and the way people attain those goals. This was the purpose of this experiment.

Other experiments used The Rokeach Value Survey as well. “The major findings of Experiment 1 were (a) that induced states of self-dissatisfaction concerning one’s values and attitudes led to highly significant changes in values and attitudes that were

evident three-five months after the experimental treatment. Moreover, (b) measures of self-satisfaction-dissatisfaction, obtained at the end of the experimental session, predicted the value changes that were to be observed three weeks and three-five months afterward” (Rokeach, 1971, p. 455). Other such experiments had similar results.

Knowledge of Nurses about Pain Management

The inadequate treatment of pain can interfere with daily activities, quality of life, and reduce individual freedom. The purpose of Hollen, Hollen, and Stolte’s (2000) study was to identify knowledge strengths and weaknesses and misperceptions about cancer pain management between two groups of registered nurses in different settings. While no theoretical framework was cited for this study, the concepts of knowledge, attitudes, pain, and pain management were explored.

The population consisted of 140 registered nurses (RNs) who worked on one of seven adult hospital oncology units and 11 hospices within an urban county in a southcentral state. Inclusion required that they work at least 20 hours per week exclusively within a hospice or hospital oncology for at least the preceding 6 months and at least 80% of his/her professional practice was involved with patient or family care. Sixty-four (46%) of the surveys were returned. Thirty (53%) were hospice nurses while 34 (41%) were hospital nurses (Hollen et al., 2000).

Two measurement tools used were: The North Carolina Cancer Pain Initiative (NCCPI) survey and a five-item investigator-developed survey to collect the following data: age, work setting, clock hours of pain education in past two years, personal experience with cancer, and work requirement for annual review of pain guidelines (Hollen et al., 2000).

The NCCPI was modified from the Wisconsin Pain Initiative survey. According to these authors, experts verified content, validity, clarity, format, and style of the survey. The NCCPI is comprised of 56 items and 27 demographic questions. The demographic questions were excluded from this survey for this study. The knowledge section was comprised of 31 items. Cronbach's alpha coefficient was used on this sample and reported at 0.71 on the total knowledge test. For attitudes, five Likert scale items measured liberalness (Hollen et al., 2000).

Demographics from the study revealed that of those nurses included in the sample, the mean age was 45 years (SD=10.54) among hospice nurse; however, hospital nurses had a mean age of 40 years (SD=9.32). Nurses older than 40 (n=37) scored better than nurses younger than 40 (n=27) in regards to knowledge, scheduling, and liberalness. In regards to pain medication education, mean scores for knowledge, opioid, scheduling, and liberalness increased as the nurse received more pain medication education hours (Hollen et al., 2000).

Data provided by the NCCPI demonstrated that hospice nurses were significantly more knowledgeable than those nurses who work in a hospital oncology unit. One noticeable difference identified was the fact that "oral" was the preferred route of administration. Hospice nurses correctly identified this at a rate 10 times greater than did hospital nurses. Opioid administration continued to be an area of concern for both groups of nurses (Hollen et al., 2000).

Hollen et al. (2000) revealed that hospice nurses scored significantly higher on the total knowledge test than did hospital nurses ($p=0.0001$). Regarding attitudes, hospices nurses had a significantly higher liberalness score as well ($p=0.0122$). The tenets of

ethical care must pervade all healthcare delivery systems, and the leaders within to facilitate the acquisition and application of appropriate pain management beliefs.

Effective cancer pain treatment remains a concern in Western countries even though recommendations and guidelines for treatment have been well-established. Nurses and physicians lack knowledge and hold attitudes that serve as barriers to effective pain relief. The purpose of Bauwens et al. (2001) study was to determine the knowledge and attitudes of Flemish nurses and physicians regarding cancer pain management. While no theoretical framework was cited for this study, the concepts of knowledge, attitudes, pain, and pain management were explored.

The population for this study was recruited by announcements in the journal *Palliative Zorg*. The sample obtained consisted of 197 healthcare workers that included 163 nurses, 7 physicians, 11 social workers, 3 psychologists, and 13 others who were working within the following fields: home care, hospital, hospice, nursing home, and unspecified/unemployed (Bauwens et al., 2001).

The measurement tool used was a questionnaire and a few demographic questions were also asked. The demographic questions described the sample. The questionnaire, which was a combination of previous instruments used with 11 new items added by the investigators, had been piloted and revised in an explorative study in 1995. The questionnaire consisted of 21 multiple choice questions that covered areas, such as attitudes about cancer pain, opioid therapy, attitude about patient involvement in treatment, and knowledge of symptom control and treatment possibilities (Bauwens et al., 2001).

Attitude scores on the pretest questionnaire in regards to causes and treatment demonstrated that only 43% correctly answered that 80% of cancer patients experience pain. Seventy-six percent agreed that the majority of patients were undertreated. Attitude about involvement of patient demonstrated that 48% thought the patient should have complete control over the pain treatment. Nurses' knowledge in regards to use of morphine demonstrated that very few knew that morphine and codeine should not be used in combination and only slightly more than half knew oral was the preferred route of administration for morphine. Knowledge symptom control questions were not answered well. On 173 participants, the post-test results showed significant improvement in attitude regarding opioid and knowledge of use of morphine and symptom treatment. The 3-month follow-up study response was poor, due in part to the fact the first two groups were not included; however, the results demonstrated the knowledge was the same or better (Bauwens et al., 2001).

The importance of education on pain management was again highlighted. The education within the nursing curricula of nursing schools still is not standardized, nor is there mandated continuing education requirements. Patients with cancer could die free from pain if nurses and other members of the healthcare team were properly educated on pain management.

Policies and guidelines regarding pain management were published as early as the 1980s; however, patients are still experiencing pain as a symptom, especially with a disease such as cancer. The purpose of the Rushton et al. (2003) study was to obtain baseline data about the knowledge and attitudes held by Utah registered nurses (RNs) in regards to cancer pain. The theoretical framework for this study was not cited; however,

the concepts of cancer pain and pain management, knowledge, and attitudes were explored.

The population consisted of 1500 registered nurses (RNs) from the Utah licensure listing. From this population, 303 nononcology nurses returned the survey. Additionally, a population of 100 RNs, who were members of the Intermountain Chapter of the Oncology Nursing Society, was cross-referenced with the first population to ensure they were not included in the study on both populations. Of the second population, 44 oncology nurses returned the survey (Rushton et al., 2003).

Two measurement tools used were: The Nurses' Knowledge and Attitude Survey Regarding Pain (NKASRP) and a demographic tool. The demographic tool described the sample. The NKASRP, a well-used test with established validity and reliability, was used to measure nurses' knowledge and attitudes. The NKASRP consisted of 37 test items that covered aspects of pain assessment or reassessment and pharmacologic and nonpharmacologic interventions (Rushton et al., 2003).

Demographics from the study revealed that oncology nurses, included in the sample, age range was from 26-65 years with a mean of 45 years and non-oncology ranged from 21-75 with a mean of 42 years. The years of licensure as an RN were nearly equal at 24 and 25, respectively. While education level ranged from high school diploma to doctorate, the oncology nurses were overall better educated with 48% having a baccalaureate, 23% a master's and 4% holding a doctoral degree as compared to the non-oncology nurses at 41%, 9%, and 1%, respectively (Rushton et al., 2003).

The NKASRP questionnaire is multiple choice and true/false questions in which all questions have a correct answer. After scoring all returned surveys, the oncology and

non-oncology RNs in Utah demonstrated a difference in knowledge level and pain management principles with oncology nurses generally scoring better. The pharmacological aspects of analgesia were a challenge for both groups (Rushton et al., 2003).

Nurses must understand pain management principles because they are the experts upon whom the family relies to receive proper information. Continuing education is crucial in this area as evidenced by not only this study, but many other studies that have similar findings.

Clinical practice guidelines have been developed by organizations such as the World Health Organization (WHO); however, the undertreatment of cancer pain still persists. The purpose of Wilkes et al. (2003) study was to assess whether a case-based education program would ultimately steer graduate nursing students to acquire and retain knowledge and attitudes regarding cancer pain. No theoretical framework was cited for this study; however, the concepts of cancer pain knowledge and attitudes were explored.

The population consisted of 120-130 graduate nursing students from three nursing schools in the New England area. A sample of 92 (71-77%) was obtained for the pre-test (Wilkes et al., 2003).

Two measurement tools used were a paper and pencil questionnaire developed and refined by the Cancer Education Module for the Management of Pain (CEMMP) multidisciplinary team and a demographic tool. The demographic tool described the sample. The paper and pencil questionnaire included 13 multiple choice pain knowledge questions. Scores were standardized by dividing correct answers by 13 and multiplying by 100 (Wilkes et al., 2003).

Demographics from the study revealed that of those nurses included in the sample, 90 (98%) were female. Age was assessed by less than 30 years (30%) and more than 30 years (70%). The sample was overwhelming white (90%) with the remaining 10% being represented by African American, Asian, Hispanics, and other ethnic groups. Fifty-four (59%) of the graduate nursing students were in their first year (Wilkes et al., 2003).

Knowledge scores on the paper and pencil pretest had positive outcomes on several items. For example, 95% answered correctly regarding optimal management and uncontrolled cancer pain was not normal. Adversely, difficulty was encountered with items such as neuropathic pain and use of equianalgesic chart, 25% and 29% respectively. The most improvement from pretest to post-test was shown on items regarding addiction (45% to 94%) and the ceiling dose of morphine (57% to 95%). Additionally, the results of this study indicated the overall pain knowledge score was significantly lower on the pretest than on the post-test; pain management knowledge was improved ($p=0.000$) for post-test as opposed to pretest results; and knowledge was also retained on follow-up at 6 months ($p=0.000$) and 24 months ($p=0.0024$). First year graduate students benefited equally as much from the program as did advanced nursing students (Wilkes et al., 2003).

Limitations included possible bias in that students who were more knowledgeable or had more interest in pain management returned the questionnaires at 6 and 24 months following the program as the return rate was low. Additionally, generalizability may be limited due to the characteristics and the single geographical location of the schools

utilized in this study. Once again, the importance of pain management education was documented. Nurses are in a position to relieve the suffering that uncontrolled or inadequately controlled cancer pain causes to patients and their families.

Cancer pain often remains undertreated in spite of the availability of effective interventions. The purpose of Vallerand, Riley-Doucet, Hasenau, and Templin's (2004) study was to demonstrate the effects of a two-tiered educational program, Power Over Pain (POP), for homecare nurses in regards to cancer pain management and opioid-related side effects. The framework for this study was Benner's (1982) Model of Skill Acquisition (Novice to Expert).

The population consisted of nurses who worked in one of 11 home healthcare agencies in a large Midwestern metropolitan area where oncology patients were being treated. The nurses were both licensed practical nurses (LPNs) and registered nurses (RNs). A sample of 202 was obtained; however, at the one month follow up only 157 returned leaving the sample at 157 (78%) (Vallerand et al., 2004).

Four measurement tools used were as follows: The Barrier Questionnaire (BQ), the Nurses' Knowledge and Attitude Survey (KAS), the Perception of Control over Pain (PC), and a demographic tool. The demographic tool described the sample. The BQ consisted of 17 items designed to assess the extent to which patients have concerns with reporting pain and using analgesics. Answers were from 0 (do not agree) to 5 (very much agree) (Vallerand et al., 2004).

The KAS consisted of 39 items and has been used extensively. Content of this tool was developed from standards of pain management developed by the American Pain Society and the World Health Organization (Vallerand et al., 2004).

The PC is comprised a single item. The statement, “I am in control of my patient’s pain” is measured by using a 7-point scale with 1 being agree and 7 being disagree (Vallerand et al., 2004).

The BQ and the KAS each used the test-retest reliability. Each had a resulting correlation that supported the instrument. The BQ and KAS internal consistency reliability was also evaluated using Cronbach’s alpha (Vallerand et al., 2004).

Demographics from the study revealed that of those nurses included in the sample, 6 (3%) were male. The mean age was 44.4 years (SD=8.29) with a range of 24-71 years. Thirty-nine percent of these nurses reported having over 20 years of experience. The sample (n=202) included 8 (4%) LPNs, 91 (46%) associate or diploma RNs, 88 (44%) bachelor of science in nursing RNs, and 12 (6%) masters prepared RNs (Vallerand et al., 2004).

Scores on the BQ were low in both the control and the intervention group. This means that there was little that could be done to reduce the perceived barriers. The KAS, with a potential range of 0-39, had a mean baseline score of 29.54 for the intervention group and 26.70 for the control group. This does leave some room for improvement; however, the years of experience may have contributed to the high mean score. The PC, range 1-7, had a mean baseline of 2.61 in the experimental condition and 3.40 in the control condition. The higher score indicates a lower perception of control; therefore, indicating that improvement is likely possible in this area (Vallerand et al., 2004).

The authors of this research study revealed implementation of POP interventions improved knowledge and attitudes, decreased perceived barriers to pain management, and improved the nurses’ perception of control over pain ($p<.05$) (Vallerand et al., 2004).

Furthermore, the BQ instrument was able to help determine barriers that were specific to nurses. Information from studies like this demonstrate the need for pain management education for nurses to be more effective and also to serve as an effective advocate for the patient. Barriers can also be decreased with education.

Even with well-established practice guidelines for pain management, there continues to be patients being undertreated for their pain. The purpose of Idell, Grant and Kirk's (2007) study was to improve nursing pain reassessment and documentation practices. The conceptual framework for this study was composed of the Conduct and Utilization of Research in Nursing (CURN) model. This study incorporated the use of research utilization models along with advanced practice nurses (APNs) to foster the use of clinical practice guidelines by staff nurses. Research utilization is simply a tool for identifying and implementing strategies and aligning them with well-known clinical guidelines, such as created by the National Comprehensive Cancer Network (NCCN) (Idell et al., 2007).

The population consisted of 55 oncology registered nurses (RNs) who worked on either the medical or surgical inpatient oncology units at the National Cancer Institute in the western United States. Fifty-three (96%) nurses enrolled; however, due to attrition, only 42 (76%) nurses completed the study (Idell et al., 2007).

Four measurement tools used were as follows: The Nurses' Knowledge and Attitude Survey Regarding Pain (NKASRP), the Pain Reassessment Data Tool (PRDT), the Pain Competency Evaluation (PCE), and a demographic tool. The demographic tool described the sample. The NKASRP, a well-used test with established validity and reliability, was used to measure nurses' knowledge and attitudes. The NKASRP

consisted of 39 test items that covered aspects of pain assessment or reassessment and pharmacologic and nonpharmacologic interventions. Of the 39 questions, four were devoted to reassessment; therefore, scores were reported as a total and separately for the reassessment questions (Idell et al., 2007).

The Pain Reassessment Data Tool (PRDT) is comprised of 11 questions that are used to audit charts for pain reassessment documentation. Five charts were selected for each nurse within a one-month time frame. The first 24 hours were excluded from reassessment to allow for stabilization. Scores were calculated as a percentage of reassessment (Idell et al., 2007).

The PCE consisted of one item on pain reassessment and was part of an annual performance evaluation used for all nurses. Pain was reassessed within one hour of intervention and assessment can be done in any of the following manners: direct observation, return demonstration, document review, patient feedback, program class completion, discussion with employee, and peer review. Scores range from 1 (did not meet) to 4 (exceeds expectations) (Idell et al., 2007). The NKASRP, the PRDT, and PCE each used the paired t tests. A p value of 0.05 was considered significant. (Idell et al., 2007).

Demographics from the study revealed that of those nurses included in the sample, 39 (93%) were female. The age range was from 20-60 years; however, 50% were 41-50 years of age. The prevalent ethnicity was Asian at 38% followed closely by Caucasian at 36%. While education level ranged from associate to baccalaureate, 48% were baccalaureate prepared and only 10% were diploma nurses (Idell et al., 2007).

Idell et al. (2007) research study revealed successful improvement in the practice

of pain management and pain reassessment. There was a statistically significant increase in PCE scores ($p=0.000$), in NKASRP scores ($p=0.001$), and an improved percent reassessment charting ($p=0.004$) post intervention. Under APN leadership, using research utilization models can bring about desired practice changes. Utilizing pain reassessment practices with clinical pain guideline recommendations promotes better pain management by better reassessment documentation.

Cancer-related pain not only greatly impacts one's daily life; it is also one of the most feared consequences of the disease. The purpose of Yildirim, Cicek, & Uyar's (2008) study was to examine Turkish oncology nurses knowledge and attitudes in regards to cancer pain management. The theoretical framework for this study is not cited; however, the concepts of cancer pain and pain management, knowledge, and attitudes were explored.

The population consisted of 80 registered nurses (RNs) who worked in oncology and hematology units in one of two university hospitals in Izmir, Turkey. Twelve nurses refused to participate or failed to return the questionnaire which left a sample of 68 RNs (Yildirim et al., 2008).

Two measurement tools used were The Nurses' Knowledge and Attitude Survey Regarding Pain (NKASRP) and a demographic tool. The demographic tool described the sample. The NKASRP, a well-used test with established validity and reliability, was used to measure nurses' knowledge and attitudes. The NKASRP consisted of 39 test items that covered aspects of pain assessment or reassessment and pharmacologic and nonpharmacologic interventions (Yildirim et al., 2008).

The NKASRP had to be translated from English to Turkish. This was done by a

team of four bilingual persons. It was then translated back into English by a translator. Cronbach alpha for the Turkish version was 0.74 (Yildirim et al., 2008).

Demographics from the study revealed that of those nurses included in the sample, 58.8% were unmarried, 57.4% were between the ages of 21 and 30, and 48.5% had 1 to 5 years of experience in oncology. There was a reporting error in either the table or in the writing in regards to whether 55.9% were educated at the associate or baccalaureate level (Yildirim et al., 2008).

Knowledge scores on the NKASRP ranged from 2 (5.13%) to 22 (56.4%) with the average being 13.81 (35.41%). Knowledge was high in regards to cultural considerations, around the clock scheduling, and patient is most accurate judge of patient's pain; however, deficits existed in areas of over-reporting of pain, likelihood of addiction, and recommended route of opioid administration for prolonged pain. Further analysis of knowledge scores found positive correlation between pain knowledge and years of oncology nursing experience ($r=0.263$; $p<.05$), but not other significant differences were found in regards to background characteristics (Yildirim et al., 2008).

This study would indicate the knowledge level among these particular Turkish oncology nurses to be less than optimal, especially when compared to earlier research using the same instrument. Findings supported that pain and pain management needs to be incorporated in the nursing curriculum and continuing education programs may need to be developed.

Nurses' Attitudes Toward Pain Management & Patients in Pain

Numerous studies suggested that nurses lack adequate knowledge of pain management, and the relationship between knowledge and practice in regards to these

deficiencies could not be fully explained. Further information is needed regarding expectancies, attitudes, and intentions to change, and the relationship of these factors to change in pain management practice. The purpose of Dalton, Carlton, Mann, Blau, Bernard, and Youngblood's (1998) study was to examine the relationship among nurses' pain management attitudes and pain management practices. A secondary purpose was to begin to explore the theoretical underpinnings that may influence this relationship. The framework utilized for this study was adult learning theory and change theory.

The population was obtained from registered nurses (RNs) who worked in 15 hospice or home health settings. A sample of 30 was obtained; however, one failed to complete the program which ultimately left the sample size of 29 (97%) (Dalton et al., 1998).

Five measurement tools used were The Pain Assessment Questionnaire (PAQ), the Survey of Expectations (SOE), the Cancer Pain Knowledge Inventory (CPKI), the Activity Survey, and a demographic tool. The demographic tool described the sample. The PAQ, originally developed as a survey instrument, consisted of 23 items, 10 of which are open-ended and 13 are forced-choice questions. The questions delve areas of pain assessment skills, pain management practices, and personal attitudes toward pain (Dalton et al., 1998).

The SOE consisted of six items and was developed by the investigators. Content and face validity were determined by three persons with expertise in the theoretical and analytical goals of the study. The purpose of this instrument was to assess subjects' expectations for change in practice (Dalton et al., 1998).

The CPKI was developed to measure nurses' knowledge and attitudes. Analgesics, dosing, and scheduling were the areas where nurses' knowledge and attitudes were explored. This information is not reported in this study, but is reported in an earlier study (Dalton et al., 1998).

The Activity Survey was developed by the investigators in order to measure nurses' intention and expectation to do specific pain management activities. This was done six months after completion of the program. This survey also measured perception of caregiver values and the value of practice behaviors to peers and patients (role modeling) (Dalton et al., 1998).

Demographics from the study revealed that of those nurses included in the sample, all (100%) were female. The age range was between 31 to 57 years. Twenty-seven (93%) nurses were white and two (7%) black (Dalton et al., 1998).

On the PAQ, categories of responses were identified for scoring. Specific questions measured factors mediating attitudes, such as personal feelings about pain. Research questions were embedded in specific nurses' responses to the questionnaires. Three multiple-item questions demonstrated alphas of 0.83 or greater which verified strong internal consistency among the items found in each question (Dalton et al., 1998). The SOE items, scored from 0 (not important) to 5 (very important), are added (range 6-30) to give an indicator of level of expectation. The change score was calculated by subtracting the pre-program score from the post-program score. Positive scores indicated an increase in importance. While improvement was seen, there was no statistical significance found (Dalton et al., 1998). The Activity Survey revealed statistical significance ($P=0.05$) in regards to the relationships among beliefs and treatment of pain,

number of activities performed, intention and expectancy to provide patient care and educational activities (Dalton et al., 1998).

This research study revealed patterns of attitudes, beliefs, expectancies, and intentions emerged through analysis which would indicate the value of further study. Participation in an educational program appears to influence nurses to believe that patients should be pain free. Analysis of change in attitude and behavior also required further testing of problem-solving skills in ways that would enhance understanding of the practice of pain management (e.g., peer attitudes that affect nurse performance).

Despite well established guidelines for pain management, attitudes and deficits in knowledge regarding opioids may partially explain poor pain management in patients with cancer. The purpose of Wells, Dryden, Guild, Levack, Farrer, & Mowat's (2001) study was to examine knowledge and attitudes of nursing and medical staff on a surgical unit regarding the use of opioids for cancer pain management both before and after working with a newly established Hospital Palliative Care Team. While no theoretical framework was cited for this study, the concepts of knowledge, attitudes, pain, and pain management were explored.

The population consisted of 158 nurses and doctors who worked in the surgical unit in a large Scottish teaching hospital where oncology patients were being treated. A sample of 145 participated in the baseline; however, the final sample at follow-up was 101 (Wells et al., 2001).

Two measurement tools used were as follows: Questionnaire 1 consisted of 25 questions, such as personal details, professional details, and demographics; and

Questionnaire 2 consisted of 27 Knowledge and Attitude Scale (KAS) developed by Elliott et al. (1995) (Wells et al., 2001).

Both questionnaires were completed in the presence of one of the researchers if possible; however, if not possible, internal mail was used to return the questionnaires. One year later, the original sample was contacted and asked to complete the questionnaires as a follow-up (Wells et al., 2001).

Demographics from the study revealed that of those in the baseline sample included 103 out of 117 (88%) nurses and 32 out of 41 (78%) doctors. In the follow-up sample, 79 (77%) nurses participated while 22 (69%) doctors participated. The doctors and nurses were combined when looking at sex and age. In the baseline sample, the 75% were female and that increased to 78% in the follow-up. The age range was 23 to 58 with the mean being 35 at baseline and 34 at follow-up (Wells et al., 2001).

Doctors tended to score better in regards to knowledge than did nurses. This occurred both initially and at the one year follow-up. Even though educational offerings were available throughout the year, very few staff members were able to attend. The attendance (n=19) as compared to those who did not attend (n=82) educational offering was too small to show significance; however, it was noted that among the 19, doctors in attendance was very low. The gains in knowledge and attitude were, therefore, interpreted to be due to the influence of the Palliative Care Team. Knowledge gains were demonstrated in the following areas: narcotics for pain relief are given at any time during the course of their disease (P=0.023); narcotic doses sufficient to relieve cancer pain inevitably decrease respiration to the point that it shortens the patient's life (P=0.01); and patients who take narcotics early in their disease will have nothing to control their pain

later ($P=0.009$). Raising awareness of issues relating to opioid use may help to improve both knowledge and attitudes, but clearly deficits still exist.

This research study revealed that if nurses are fearful of opioids, due to misconceptions, they may be more likely to undermedicate their patients. Likewise, physicians may also underprescribe; thus, the patient continues to suffer in pain. While it may be challenging to allow staff to attend continuing education offerings, it is imperative that management find a way to ensure that staff is current in pain management principles and practices.

Cancer pain remains undertreated but why such attitudes persist and how they may be addressed by medical and nursing curricula have not been determined. The purpose of Lasch et al. (2002) study was to determine beliefs and attitudes toward pain and cancer pain management held by medical and nursing students and faculty who participated in the Cancer Education Module for the Management of Pain (CEMMP) in order to address why such knowledge deficits and attitudes persist and how they can be addressed in medical and nursing curricula. The theoretical framework for this study was symbolic interactionism.

The population consisted of students, faculty, and administrators who were attending or working at any of the three nursing schools and two medical schools, including the residency program, involved in this study. The sample included interviewees and focus groups, also known as informants. The total sample size was 72 (Lasch et al, 2002).

Data analysis was accomplished by the use of Folio Views ®, a computer program. Interview, both individual and in focus groups, and observation were the tools

utilized. Utilization of Folio Views ® enabled researchers to code data at different levels, including demographic information as well as thematic trends (Lasch et al, 2002).

Demographics from the study, while age and ethnicity were obtained, only revealed year in school or professional background. The sample was further studied by education or professional background, interviewee or focus group: Undergraduate medical student 22 (30%), Undergraduate nursing student 22 (30%), Residents (fellows) 11 (15%), Graduate nursing students 4 (6%), Medical faculty and administrators 9 (13%), Nursing faculty and administrators 4 (6%), and Residency directors 1 (1%) (Lasch et al, 2002).

The computer program Folio Views ® was used to store, code, and analyze the qualitative data. Thematic coding scheme underwent a total of 11 iterations as the research team coded the preliminary data. Interrater and intrarater reliability scores of the coded data were found to be in the excellent range ($k=0.750$ and $k=0.871$, respectively) (Lasch et al, 2002). The themes identified were prioritization of pain, informant's knowledge of pain, and meaning(s) of pain. Several subthemes were also identified.

This research study revealed that with an aging population, the end-of-life issues are increasing. With this increase, quality-of-life issues, such as pain control, are a growing concern. Faculty and students will likely bring their misconceptions and biases about the meaning of pain and addiction into their interaction with patients unless they receive education. In order for pain and palliative care education to become standard and integral to medical and nursing curricula, educators and society will have to develop new concepts of the moral in medicine, overcome their own lack of knowledge, and deem dying and the alleviation of suffering to be as important as the prolongation of life.

Hospitalized patients with cancer continue to be the target of repeated studies in regards to uncontrolled pain even though pain management guidelines and regimens have been well-established. The purpose is to determine changes in knowledge and attitudes of pain resource nurses (PRNs) after completing an intensive course on pain management. The purpose of McMillan et al. (2005) study was to determine changes in knowledge and attitudes of pain resource nurses (PRNs) after completing an intensive course on pain management. While no theoretical framework was cited for this study, the concepts of knowledge, attitudes, pain, and pain management were explored.

The population consisted of nurses who worked on one of four units in one large Veterans Administration (VA) hospital in the southeastern United States where oncology patients were being treated. These nurses were registered nurses (RNs). The sample was obtained by identification by their unit manager and also invited to self-identify. Nurses were chosen based upon education also including education related to pain management, nurse manager recommendation, and interest (McMillan et al., 2005). Nurses who worked with the pain program were excluded. The sample consisted of 18 RNs. (McMillan et al., 2000).

Four measurement tools used were as follows: The Pain Management Principles Knowledge Test (PMPKT), the Nurses' Attitude Survey (NAS), the Pain Survey, and a demographic tool. The demographic tool described the sample. These tools were also used in the McMillan et al. (2000) study. The PMPKT, which was developed by the investigators, was used to measure nurses' knowledge. The PMPKT consisted of 31 multiple choice questions that covered areas such as physiology, goals and principles of

pain management, addiction, and tolerance. The more questions answered correctly will result in a higher score (McMillan et al., 2005).

The NAS consisted of 25-items and was developed from the Nurses' Knowledge and Attitude Survey. Assessment of attitudes about pain, use of narcotics, use of nonpharmacological methods of pain control, and who is in control is the purpose of this tool. A higher score correlates to a more positive attitude (McMillan et al., 2005).

The Pain Survey is comprised of four case vignettes and assesses nurses' attitudes including age and gender bias and relevance of behavior and mood toward patients receiving narcotics. Nurses are asked to rate pain, select a dose, and identify concerns after each presentation. There are six additional multiple choice questions relating to gender bias. A high score relates to a positive attitude that would least likely reflect bias in pain management because of age, gender or patient behavior (McMillan et al., 2005).

The PMPKT, NAS, and Pain Survey each used the test-retest reliability. Each had a resulting correlation that supported the instrument. The NAS revised tool internal consistency reliability was also evaluated using Cronbach's alpha (McMillan et al., 2005).

Demographics from the study revealed that of those nurses included in the sample, 16 (89%), were female. The mean age was 43.1 years (SD=10.6). Nursing education level of the nurses included Diploma 5 (28%); Associate degree 3 (17%); and Baccalaureate degree 10 (56%). Highest degree earned moved one diploma nurse (22%) to the baccalaureate level (50%) and two baccalaureate level to the master's level (11%), though it should be noted that those were non-nursing degrees (McMillan et al., 2005).

Knowledge scores on the PMPKT on both the pre- and post-test showed 6-items at 100%. The areas of difficulty were in physiology and pharmacology. Attitude scores from the Pain Survey gave information on attitude in regards to patients in pain. Raw scores ranged from 0 to 18 with 0 being the most negative; however, percentages were also used for reporting this data. Sixteen to 18 (88%-100%), depending upon scenario, would record pain as the patient reported it. On the negative side, 16 (88%) would reduce the dose of opiate for a person who was laughing with visitors. The NAS scores from the McMillan et al. (2000) study had a mean of 71.8 and the nurses in this study had a pre-test mean of 66.6. Scores improved only three-points on post-test; therefore, the results on pain management were not encouraging (McMillan et al., 2005).

This research study revealed that even with a published set of pain guidelines, nurses continue to have a knowledge deficit and negative attitudes, both about the patient in pain and pain. The advanced course in pain management was successful in achieving the outcomes of changing the knowledge and attitudes of nurses who were to serve as PRNs. Due to shrinking budgets, role modeling expected behaviors may be one way to assist with the training budget.

Pain negatively impacts the patient with cancer. Knowledge deficits and attitudes, not only by nurses, but also by other members of the healthcare team, contribute to the under treatment of cancer pain. The purpose of Xue et al. (2007) study was to evaluate attitudes and knowledge of pain management of inpatient healthcare providers. Attitude theorist Rokeach provided the conceptual framework.

The population consisted of healthcare providers (registered nurses (RNs), pharmacists, and physicians) who worked on or were associated with the medical or

gynecologic oncology units of a large teaching hospital in an urban area in the northeastern United States. From this population, 96 healthcare providers returned the survey. The 96 healthcare providers included 50 RNs (24 gynecologic oncology & 26 medical oncology), 18 pharmacists, and 28 physicians (Xue et al., 2007).

Two measurement tools used were as follows: The Wisconsin Pain Initiative (WPI) and a demographic tool. The demographic tool described the sample. The WPI, a well-used test with established validity and reliability, was used to measure nurses' knowledge and attitudes. The WPI consisted of 36 test items that covered aspects of pain assessment, attitudes, and knowledge of pain management (Xue et al., 2007).

Demographics from the study revealed that medical oncology nurses included in the sample had a mean age of 36.1 years (SD=9.7), gynecologic oncology mean of 34.9 years (SD=9.6), pharmacists mean 31.3 years (SD=6.6), and physician mean 27.7 years (SD=2.3). The years in profession were 12.9, 10.3, 8.5, and 1.7, respectively. Educational levels were also evaluated. It is worth noting that the 14 (54%) medical oncology nurses were oncology certified as opposed to only 3 (13%) of the gynecologic oncology nurses holding certification (Xue et al., 2007).

The WPI is a closed answer format questionnaire. After scoring all returned surveys, data for the nurses was analyzed separately according to medical oncology or gynecologic oncology. The pharmacists and physicians worked both units; therefore, this data could not be separated for these groups. While this study did have limitations due in part to the small sample, the use of only one hospital in one geographical location, and the population of physicians were only represented by residents and interns, lessons can be gleaned. Analysis of the data when comparing groups did show significant difference

among groups. In post-hoc analysis, overall knowledge comparison post-hoc demonstrated significant difference among groups ($p=0.00007$) with medical oncology nurses and pharmacists scoring better than physicians and gynecologic oncology nurses. Additionally, analysis of the data in regards to patients who over report pain also showed significant difference ($p =0.00007$). Physicians are more likely to believe patients over report pain than are nurses or pharmacists.

If attitude theorist Rokeach is correct that attitude influences behavior, then physicians who believe patients are over reporting pain are probably under treating pain. Moreover, when analyzing the findings of this study, the importance of a team approach surfaces. The nurse has skills of assessment, the pharmacist possesses pharmacological expertise, and the physician is the clinician. Utilizing a team approach, the patient stands to benefit from the expertise of each and pain should be treated adequately.

Summary

The undertreatment of pain in patients with cancer continues to be a problem even though there are well-established clinical guidelines. The literature review provided evidence that nurses' have misconceptions, specific attitudes, and knowledge deficits that contribute to this problem. Rokeach's theory of making one conscious of dissonance in values would move one to change is supported. The literature review revealed that nursing attitudes and knowledge deficits could be corrected and maintained over time; thus, patient's treatment of pain could be improved.

Nurses, and other healthcare professionals, are concerned with competence. When competence is challenged making one aware of deficits in knowledge or attitudes that serve as a barrier to effective pain management techniques, Rokeach's theory can be

applied. McMillan et al. (2000) clearly identified the areas where knowledge was deficient as well as attitudes that served to block appropriate pain management techniques. The clear indication was a need for further education. McMillan et al. (2005) not only identified deficits in knowledge and attitudinal barriers, educational interventions were also incorporated. Clearly the outcome showed significant improvement in knowledge and attitude scores. Dissonance or dissatisfaction and the desire for satisfying values, if one believes in Rokeach, would move the professional to seek knowledge in order to feel competent.

Another facet of Rokeach is the influence of behavior. For instance, Xue et al. (2007) discussed how a physician who believes a patient over-reports pain would be more likely to undertreat that pain. Findings point to education being key to overcoming these barriers.

The literature review included use of nurses, physicians, pharmacists, other healthcare professionals, small group interviews, interview guides, and several general and self-reported questionnaires or surveys. Additionally, while many of the studies utilized the same or similar tools, there were still over 10 tools were utilized to examine knowledge and attitudes of those participating in the study. Study frameworks included those of Rokeach (1970), Benner's Model of Skill Acquisition, Conduct and Utilization of Research in Nursing Model, Symbolic Interactionist, Change Theory and Adult Learning Theory. This diverse collection of evidence pointed to knowledge deficits and attitudes affecting pain management practices. Patients with cancer who are experiencing pain depend on the healthcare profession to be knowledgeable and seek educational programs. The challenge lies in applying research so as to offer the most effective

interventions to expand knowledge in a time of tight budgets and yet improve outcomes for cancer patients so they will not have to endure unnecessary pain.

Chapter III

Methodology

Introduction

The pain that cancer patients experience is affecting the lives of millions worldwide. Literature has shown that education of healthcare professionals regarding pain management is an essential element in order to improve outcomes. Knowledge deficits and specific attitudes that act as barriers to appropriate pain management practices have been identified. This study is a partial replication of McMillan et al.'s (2000) study. The purpose of this exploratory, descriptive study is to assess the nurses' knowledge and attitudes about pain management and patients in pain based on attitude theorist Rokeach (1970). This chapter includes information about the population, sample, procedure, measurement, methodology, and design used to guide this study.

Research Questions

1. What specific areas of knowledge deficit among nurses contribute to inadequate pain management practices for patients with cancer?
2. What attitudes held by nurses interfere with appropriate pain management for patients with cancer?

Population, Sample and Setting

The population will include nurses from two Veterans Administration hospitals in the Midwest. Nurses will be recruited from the two medical-surgical units that admit approximately 200 patients with a diagnosis of cancer in a one year period. The anticipated sample is 35 nurses conveniently selected who meet inclusion criteria and who can meet the information needs of the study replication. Inclusion criteria will include licensed practical nurses or registered nurses working on the two medical-surgical units in the two facilities. Exclusion criteria would be nurses who are members of the pain resource team or who have previous experience in another facility as a pain resource nurse. Demographic data to be collected will include age, sex, educational level, assigned shift, and certification as an oncology nurse.

Protection of Human Subjects

The study will be submitted to the Ball State Institutional Review Board and the Veterans Administration Hospitals, which consists of two participating hospitals, for approval. In order to protect the human rights of the participating nurses, this study will be voluntary. All names will be anonymous and negative consequences will not occur due to participation or non-participation; moreover, administration at the hospitals would not be allowed to see the scores of individuals. The study will be presented by one of two trained research assistants (RAs). Consent of participation will be obtained prior to administration of the surveys. No risks have been identified with this study. The benefit of this study is to provide information about the nurses' knowledge level and attitudes

about pain and pain management that may interfere with delivering care to oncology patients who are in pain.

Procedure

After approval from the Ball State Institutional Review Board and the participating hospitals, a letter of introduction to the research project will be sent to each participating hospital's Associate Director of Patient Care Services explaining the purpose of the study, criteria for inclusion, and anticipated sample and instruments. A meeting will then be arranged to further explain in details of the study, how the study will be conducted, and to obtain approval. A list of all VA managers and nurses assigned to the two medical-surgical units (4 East and 8 North) will be provided once the approval of the Associate Director of Patient Care Services for each hospital is obtained. After approval, a meeting will be scheduled with the inpatient nurse managers from participating hospitals to introduce the research project and seek support. The meeting agenda will include explanation of the purpose of the study, instructions, time commitment required, and study instruments. The trained RAs will then approach nurses individually in the workplace during their shift and explain the study. Assurance of confidentiality in regards to individual scores will be given and consent obtained prior to administration of the three study tools. Data collection will occur over a two month period. Responses will be collated into a common file. Only the researcher and statistician will have access to the files.

Research Design

This study will use an exploratory descriptive design. The purpose of descriptive research is to describe concepts and identify relationships among variables (Burns &

Grove, 2005). A non-experimental design is appropriate because the intent of this study is to describe relationships among clearly defined, identified variables. This study will assess nurses' knowledge and attitudes and describe relationships between knowledge deficits and specific attitudes and pain management in patients with cancer. There will be no attempt to control or manipulate the study situation; furthermore, there will be no exploration of casual connection.

Instrumentation, reliability and validity

The Pain Management Knowledge Test (PMKT), developed by McMillan et al., measures nurses' knowledge in eight areas. Thirty-one multiple choice items raw score range from 0 to 31 is then calculated to a percentage score from 0 to 100. If all questions are answered correctly, the score would be 100%. According to McMillan et al. (2000), "validity was studied by comparing scores of 28 senior nursing students before and after a three-hour pain management course. The significant increase from pre- to posttest scores ($t=6.76$, $p<0.00$) supports the validity of the PMKT" (p. 1417). According to Burns and Grove (2005), the t test is commonly used to test for significant differences between two samples; however, it can only be used once to examine data from the two samples as multiple t tests increases the risk of a Type I error.

The Nurses' Attitude Survey, developed from the Nurses' Knowledge and Attitude Survey, contains knowledge and attitude items about pain and other areas that affect nurses' pain management; however, for the purpose of this study, only the 25 attitude items will be utilized. A higher score reflects a more positive attitude. Validity of the tool was accomplished by comparison of scores of nurses at various levels of expertise which included students, new graduates, oncology nurses, graduate students,

and senior pain experts. Reliability was studied by two methods. Test-retest reliability was evaluated by using a group of 60 staff nurses. The resulting correlation ($r=0.80$) was definitely acceptable (McMillan et al., 2000). According to Burns and Grove (2005), .80 is the lowest acceptable level for a well-developed instrument; however, .70 is considered acceptable for newly developed instruments. Additionally, estimates of reliability are specific to the sample being tested. In order to assure internal consistency, Cronbach's alpha will be determined with the study sample prior to any other statistical analysis.

The Pain Survey was developed from "literature review and items from other tools used by McCaffery and Ferrell" (as cited by McMillan et al., 2000, p. 1418). Nurses' attitudes regarding gender and age bias and other factors such as relevance of behavior and mood toward the patient receiving narcotics were examined. Validity and reliability testing using 26 senior nursing students surveys before and after a three-hour pain management session. Validity was supported ($t=2.01$, $p<0.05$). Additionally, post-test scores test-retest with a one-week delay also supported validity and stability of the instrument with a correlation coefficient ($r=0.73$, $p<0.00$) (McMillan et al., 2000).

Data Analysis

Descriptive statistics will be used to analyze study variables and to determine which areas of knowledge regarding pain management were deficient and likewise, which were adequate. Additionally, attitudes regarding pain and patients in pain which ultimately results in pain management practices will also be determined. Percentages, mean scores, and standard deviations will be calculated for each knowledge item. Attitude scores will be calculated in the same manner.

Summary

In this chapter, the methods and procedures to be used for this study are described. The specific variables examined will be nurses' knowledge and attitudes about pain management in patients with cancer. An exploratory descriptive study design will be used with the anticipated sample numbering minimum of 35 participants. Data will be collected via the Pain Management Knowledge Test, the Nurses' Attitude Survey, and the Pain Survey (McMillan et al., 2000). Data will be analyzed with descriptive statistics including means, standard deviations, frequencies, and percentages. This study will replicate a previous study by McMillan et al. (2000) and attempt to validate previous findings while providing further information which may lead to valuable interventions that may improve pain management in patients with cancer.

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RES 697 Literature Table

Source	Purpose/ Problem/Research Questions	Framework/Concepts	Sample	Design	Instrument(s)	Results/Implications
Hollen, C., Hollen, C., & Stolte, K. (2000)	According to the World Health Organization (WHO), an estimated one-third of patients in advanced stages of cancer experience pain. This pain can interfere with activities of daily living, quality of life, and exacerbate fear among patients with cancer. Furthermore, inadequate treatment of pain has serious ethical implications. The purpose of the study was to identify	Framework: Not cited. Concepts: Knowledge about pain management comparing hospice and hospital oncology nurses; attitudes about pain comparing hospice and hospital oncology nurses; attitudes about patients in pain comparing hospice and hospital oncology nurses.	A convenience sample of 140 RNs who worked a minimum of 20 hours per week exclusively within a hospice or hospital oncology unit for at least the preceding six months from 7 adult hospital oncology units and 11 hospices.	Comparative, descriptive	North Carolina Cancer Pain Initiative survey--modified from Wisconsin Pain Initiative survey--experts verified validity and reliability; however, for this study, internal consistency of the overall knowledge test was 0.71 and the attitudes subscale may lack sensitivity because of the small number of questions; Demographic	Only 64 of the original 140 surveys were returned. Hospice nurses returned 53% of the surveys while hospital oncology nurses returned only 41%. Hospice nurses scored significantly higher on the total knowledge test than did hospital nurses (p=0.0001). Regarding attitudes, hospice nurses had a significantly higher liberalness score as well (p=0.0122). The tenets of ethical care MUST pervade all healthcare delivery systems,

Source	Purpose/ Problem/Research Questions	Framework/Concepts	Sample	Design	Instrument(s)	Results/Implications
	knowledge strengths and weaknesses and misperceptions about cancer pain management between two groups of registered nurses in different settings.				survey developed by investigators.	and the leaders within, to facilitate the acquisition and application of appropriate pain management beliefs.
McMillan, S., Tittle, M., Hagan, S., Laughlin, J., & Tabler, R. (2000)	As high as 73% of the hospitalized patients with cancer experience pain. Nurses are central to the assessment and management of pain. The purpose was to assess the nurses' knowledge and attitudes about pain management and patients in pain.	Framework: Rokeach (Attitude Theorist) Concepts: Knowledge about pain management; attitudes about pain; attitudes about patients in pain	Convenience self-select sample of 85 nurses (RNs and LPNs) working on one of seven selected med-surg units in one of two large VA Hospitals in Florida.	Exploratory, descriptive	Pain Management Knowledge Test (PMKT) was developed by investigators--reliability was confirmed with a test-retest with one-week delay on a group of 28 students; Nurses'	The question of knowledge and attitudes about patients in pain and pain management of both RN and LPN showed no significant difference when a post-hoc comparison was done; therefore, the nurses were combined into a single group. As

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					<p>Attitude Survey was developed from Nurses' Knowledge and Attitude Survey with only 25 items used-- reliability was studied by test-retest and internal consistency reliability using Cronbach's alpha; Pain Survey-- reliability using test-retest; Demographic data</p>	<p>a group, the nurses essentially failed the knowledge test (X=61%). The most positive finding was 100% of the nurses felt that the lack-of pain expression does not mean lack of pain. Regarding attitudes of pain, approximately 22% of the nurses admitted that they would chart a lower pain rating if the patient was laughing with visitors; moreover, for older patients, 63% of the nurses would lower the pain rating. Attitudes about pain management held</p>

Source	Purpose/ Problem/Research Questions	Framework/Concepts	Sample	Design	Instrument(s)	Results/Implications
						<p>the most negative attitude about who should control the scheduling of analgesics. Nine out of every ten (90%) believe the healthcare provider, not the patient or family, should control the schedule.</p> <p>Even with a published set of pain guidelines, nurses continue to have a knowledge deficit and negative attitudes, both about the patient in pain and pain.</p>

Source	Purpose/ Problem/Research Questions	Framework/Concepts	Sample	Design	Instrument(s)	Results/Implications
Bauwens, S., Distelmans, W., Storme, G., Kaufman, & L. (2001)	Effective cancer pain treatment remains a concern in Western countries even though recommendations and guidelines for treatment have been well-established. Nurses and physicians lack knowledge and hold attitudes that serve as barriers to effective pain relief. The purpose of this study was to determine the knowledge and attitudes of Flemish nurses and physicians regarding cancer	Framework: none cited Concepts: cancer pain knowledge; attitudes about pain	A convenience sample of 197 participants (included 163 nurses, 7 physicians, 11 social workers, 3 psychologist, 13 others) working within home care, hospital, hospice, nursing home and non-specified in Flanders.	Descriptive, pretest, post-test, and follow-up design.	Pain and Symptom Control questionnaire-consisted of 21 multiple choice items, 9 of which were taken from a questionnaire developed by Weismann (1990), 1 from Fife (1993) and 11 new items developed by investigators.	All 197 participants answered the questionnaire before attending the three-day course. Following the course 173 participants (89%) completed the questionnaire. The questionnaire was completed by only 76 (39%) of the participants at the 3 month follow-up; however, it should be noted that the first two groups were not offered this follow-up. Pretest results indicated knowledge deficits; however post-test results showed improvement in the

Source	Purpose/ Problem/Research Questions	Framework/Concepts	Sample	Design	Instrument(s)	Results/Implications
	pain management.					<p>areas of opioid therapy ($P < 0.01$), use of morphine ($P < 0.001$), and symptom control and treatment possibilities ($P < 0.001$) with the exception of curative possibilities. The 3-month follow-up scores were generally the same or better than the post-test scores which would indicate the material was being retained. The importance of education on pain management is again highlighted. The education within the nursing curricula of nursing</p>

Source	Purpose/ Problem/Research Questions	Framework/Concepts	Sample	Design	Instrument(s)	Results/Implications
						schools still is not standardized, nor is there mandated continuing education requirements. Patients with cancer could die free from pain if nurses and other members of the healthcare team were properly educated on pain management.
Rushton, P., Eggett, D., & Sutherland, C. (2003)	Policies and guidelines regarding pain management were published as early as the 1980s; however, patients are still experiencing pain as a symptom,	Framework: Not cited. Concepts: Knowledge about pain management comparing oncology and non-oncology nurses; attitudes about pain comparing oncology and	Two samples were used in this study. A random sample of 303 nurses from the RN licensure listing for the state of Utah was one	Comparative, descriptive	Nurses' Knowledge and Attitudes Survey Regarding Pain (NKASRP)--well used test with established validity and reliability. Internal	Limitations in this study were the small sample size of oncology RNs. Additionally, this study was done in one geographical location and while it may serve to identify the needs for supportive

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	especially with a disease such as cancer. The purpose of this study is to obtain baseline data about the knowledge and attitudes held by Utah registered nurses (RNs) in regards to cancer pain.	non-oncology nurses; attitudes about patients in pain comparing oncology and non-oncology nurses.	sample. The second sample was a purposive sample of 44 oncology nurses from the Intermountain Chapter of the Oncology Nursing Society.		consistency (alpha >0,70) with items reflecting knowledge/attitude domains, demographic tool developed by the study's principal investigators.	intervention, such as continuing education opportunities in Utah, that may not be generalizable. The comparison of oncology and non-oncology RNs in Utah demonstrated a difference in knowledge level and pain management principles with oncology nurses generally scoring better. Nurses must understand pain management principles because they are the experts upon whom the family relies to receive

Source	Purpose/ Problem/Research Questions	Framework/Concepts	Sample	Design	Instrument(s)	Results/Implications
						proper information. Continuing education is crucial in this area as evidenced by not only this study, but many other studies that have similar findings.
Wilkes, G., Lasch, K., Lee, J., Greenhill, A., & Giuseppina, C. (2003)	Clinical practice guidelines have been developed by organizations such as the World Health Organization (WHO); however, the undertreatment of cancer pain still persists. The purpose of this study is to assess whether a case-based	Framework: None cited. Concepts: Cancer pain knowledge; attitudes about pain	A convenience sample of 92 graduate nursing students from three nursing schools in the New England area.	A quasi-experimental pretest, post-test, and follow-up design.	Paper and pencil test developed and refined by the Cancer Education Module for the Management of Pain (CEMMP) multidisciplinary team. The internal reliability Cronbach alpha was 0.66; however, it must be noted that the data in this study has a	The results of this study indicated that overall pain knowledge score was significantly lower on the pretest than on the post-test, pain management knowledge was improved ($p=0.000$) for post-test as opposed to pretest results, and knowledge was also retained

Source	Purpose/ Problem/Research Questions	Framework/Concepts	Sample	Design	Instrument(s)	Results/Implications
	education program would ultimately steer graduate nursing students to acquire and retain knowledge and attitudes regarding cancer pain.				multidimensional structure.	on follow-up at 6 months (p=0.000) and 24 months (p=0.0024). First year graduate students benefited equally as much from the program as did advanced nursing students. Limitations included possible bias in that students who were more knowledgeable or had more interest in pain management returned the questionnaires at 6 and 24 months following the program as the return rate was low. Additionally, generalizability may

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						<p>be limited due to the characteristics and the single geographical location of the schools utilized in this study. Once again, the importance of pain management education is documented. Nurses are in a position to relieve the suffering that uncontrolled or inadequately controlled cancer pain causes to patients and their families.</p>

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Vallerand, A., Riley-Doucet, C., Hasenau, S., & Templin, T. (2004)	Cancer pain remains undertreated. The number of patients with cancer pain is being treated more frequently at home by family members. The need for the home care nurse to become experts in pain and pain management is essential due to the role of advocate and case manager. The purpose of the study was to demonstrate the effects of a two-tiered educational program, Power Over Pain (POP),	Framework: Benner's Model of Skill Acquisition (Novice to Expert). Concepts: Knowledge about pain; attitudes about pain; pain management; barriers to pain management; control over pain.	A convenience sample of 202 homecare nurses caring for cancer patients from 11 homecare agencies.	A clustered, randomized, experimental design.	Barriers Questionnaire (BQ)--modified existing questionnaire with reliability Cronbach alpha of 0.75; Nurses' Knowledge and Attitudes Survey Regarding Pain (KAS)--used extensively since 1987 with content validity being established by a group of pain experts--Test-retest reliability and internal consistency was a Cronbach alpha of 0.74; Perception of	The study was limited by the lack of direct measures for advanced intervention content; most measures were for basic skills. However, implementation of POP interventions improved knowledge and attitudes, decreased perceived barriers to pain management, and improved the nurses' perception of control over pain. (P<.05). Furthermore, the BQ instrument was able to help determine barriers that were specific to nurses.

Source	Purpose/ Problem/Research Questions	Framework/Concepts	Sample	Design	Instrument(s)	Results/Implications
	for homecare nurses in regards to cancer pain management and opioid-related side effects.				Control Over Pain (PC)--determined by a single item, "I am in control of my patient's pain;" Demographic questionnaires--developed by investigators.	Pain management education is necessary for nurses to be more effective and also to serve as an effective advocate for the patient. Barriers can also be decreased with education.
Idell, C., Grant, M., & Kirk, C. (2007)	Despite numerous clinical practice guidelines for pain, ineffective pain management still persists. Research shows that pain relief for patients is impeded by poor staff reassessment practices, and lack of documentation.	Framework: Conduct and Utilization of Research in Nursing (CURN) model was the conceptual framework, and the NCCN pain guidelines provided the plan for pain reassessment. Concepts: Pain reassessment practices; Nurses'	A convenience sample consisting of 42 oncology RNs from the inpatient staff of medical or surgical oncology units working at least 24 hours per week.	A pre and post intervention one-group design.	Nurses' Knowledge and Attitudes Survey Regarding Pain (NKASRP)--well used test with established validity and reliability, Pain Reassessment Data Tool--11 items selected from an existing	Analysis revealed successful improvement in the practice of pain management and pain reassessment. There was a statistically significant increase in PCE scores (p=0.000), in NKASRP scores (p=0.001), and an improved

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	The purpose of this study was to improve nursing pain reassessment practices by using a research utilization model and advanced practice nurses (APNs).	knowledge and attitudes regarding pain; research utilization modes; clinical pain guidelines.			documentation audit tool used at the institution for quality assurance studies on pain management, and Pain Competency Evaluation (PCE)-- consisted of one item on pain reassessment that was a part of an annual performance evaluation used at the institution for all nurses.	percent reassessment charting (p=0.004) post intervention. Under APN leadership, using research utilization models can bring about desired practice changes. Utilizing pain reassessment practices with clinical pain guideline recommendations promotes better pain management by better reassessment documentation.
Yildirim, Y., Cicek, F., & Uyar, M. (2008)	Cancer-related pain not only greatly impacts one's daily life, it is also one of the most feared	Framework: Not cited. Concepts: Knowledge about pain & pain management ; attitudes about pain;	Convenience sample of 68 oncology RNs working on oncology and hematology	Descriptive, qualitative	Nurses' Knowledge and Attitudes Survey Regarding Pain (NKASRP)--	Limitations in this study were the small sample size and the fact that the sample was taken from an oncology

Source	Purpose/ Problem/Research Questions	Framework/Concepts	Sample	Design	Instrument(s)	Results/Implications
	consequences of the disease. The purpose of this study was to examine Turkish oncology nurses knowledge and attitudes in regards to cancer pain management.	attitudes about patients in pain	units in two university hospitals in Izmir, Turkey		well used test with established validity and reliability.	unit; therefore, the results cannot be generalized to represent all Turkish oncology nurses nor can it be generalized to staff nurses in Turkey. Analysis of the data did reveal that out of the 39 questions answered, the mean score was 13.81 correct answers (35.41%). Further analysis of knowledge scores found positive correlation between pain knowledge and years of oncology nursing experience ($r=0.263$; $p<.05$), but not other significant differences were

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						<p>found in regards to background characteristics. This would indicate the knowledge level among these particular Turkish oncology nurses to be less than optimal, especially when compared to earlier research using the same instrument. Pain and pain management needs to be incorporated in the nursing curriculum and continuing education programs may need to be developed.</p>

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Dalton, J., Carlson, J., Mann, J., Blau, W., Bernard, S., & Youngblood, R. (1998)	Numerous studies suggest that nurses lack adequate knowledge of pain management, and the relationship between knowledge and practice in regards to these deficiencies cannot be fully explained. Further information is needed regarding expectancies, attitudes, and intentions to change, and the relationship of these factors to change in pain management practice. The	Framework: Change theory and Adult Learning Theory. Concepts: Exploration of the relationship between pain management knowledge and attitudes of nurses and nursing practice.	A convenience sample of 29 RNs working in hospice or home health settings, and participating in an educational program one day per week for six weeks.	Quasi-experimental time-series design.	Pain Assessment Questionnaire (PAQ) consists of 13 forced-choice and 10 open-ended questions--three multiple-item questions demonstrated alphas of 0.83 or greater, verifying strong internal consistency; Survey of Expectations (SOE) is a six-item survey developed by the investigators-test-retest reliability revealed a	Nursing attitudes, beliefs, intentions, and expectations about pain and pain management appear to influence practice, both patient care and educational activities. Five weeks prior to the program, 22.8% of the nurses reported that they believe complaints of pain always are real; one year after the program 81% gave that response ($X^2(1)=10.29$ $p<0.001$) With the belief that patients should be pain free, and having higher intentions and expectations, nurses

Source	Purpose/ Problem/Research Questions	Framework/Concepts	Sample	Design	Instrument(s)	Results/Implications
	<p>purpose of this study was to examine the relationship among nurses' pain management attitudes and pain management practices. A secondary purpose was to begin to explore the theoretical underpinnings that may influence this relationship.</p>				<p>correlation of 0.73 ($p < 0.001$). Cancer Pain Knowledge Inventory (CPKI); Activity Survey was not subjected to tests of reliability-- content validity was determined by members of the expert pain management team.</p>	<p>performed more pain management activities ($p = 0.05$). Patterns of attitudes, beliefs, expectancies, and intentions emerged through analysis which would indicate the value of further study. Participation in an educational program appears to influence nurses to believe that patients should be pain free. Analysis of change in attitude and behavior also requires further testing of problem-solving skills in ways that will enhance understanding of the</p>

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						practice of pain management (e.g., peer attitudes that affect nurse performance).
Wells, M., Dryden, H., Guild, P., Levack, P., Farrer, K., & Mowat, P. (2001)	Despite well established guidelines for pain management, attitudes and deficits in knowledge regarding opioids may partially explain poor pain management in patients with cancer. The purpose of this study is to examine knowledge and attitudes of nursing and	Framework: None cited. Concepts: Cancer pain knowledge; attitudes about pain	Convenience sample of 145 participants (included 32 doctors and 103 nurses)	Longitudinal design	Two questionnaires were used as follows: Questionnaire 1 collected details regarding demographic, personal, and professional information; Questionnaire 2 developed by Elliott et al., (1995) assessed knowledge and attitudes.	While limitations in this study must be noted, it is also important to note that information regarding inappropriate pain management in regards to knowledge deficits and attitudes continues to validate previous work in this field. Doctors tended to score better in regards to knowledge than did nurses.

Source	Purpose/ Problem/Research Questions	Framework/Concepts	Sample	Design	Instrument(s)	Results/Implications
	<p>medical staff on a surgical unit regarding the use of opioids for cancer pain management both before and after working with a newly established Hospital Palliative Care Team.</p>					<p>This occurred both initially and at the one year follow-up. Even though educational offerings were available throughout the year, very few staff members were able to attend. The attendance (n=19) as compared to those who did not attend (n=82) educational offering is too small to show significance; however, it is noted that among the 19, doctors in attendance was very low. The gains in knowledge and attitude are therefore interpreted</p>

Source	Purpose/ Problem/Research Questions	Framework/Concepts	Sample	Design	Instrument(s)	Results/Implications
						<p>to be due to the influence of the Palliative Care Team. Knowledge gains were demonstrated in the following areas: narcotics for pain relief are given at any time during the course of their disease (P=0.023); narcotic doses sufficient to relieve cancer pain inevitably decrease respiration to the point that it shortens the patient's life (P=0.01); and patients who take narcotics early in their disease will have nothing to control their pain later (P=0.009).</p>

Source	Purpose/ Problem/Research Questions	Framework/Concepts	Sample	Design	Instrument(s)	Results/Implications
						<p>Raising awareness of issues relating to opioid use may help to improve both knowledge and attitudes, but clearly deficits still exist. If nurses are fearful of opioids, due to misconceptions, they may be more likely to undermedicate their patients. Likewise, physicians may also underprescribe; thus, the patient continues to suffer in pain. While it may be challenging to allow staff to attend continuing education offerings, it is imperative that management find a way to ensure that</p>

Source	Purpose/ Problem/Research Questions	Framework/Concepts	Sample	Design	Instrument(s)	Results/Implications
						staff is current in pain management principles and practices.
Lasch, K., Greenhill, A., Wilkes, G., Carr, D., Lee, M., & Blanchard, R., (2002)	Cancer pain remains undertreated but why such attitudes persist and how they may be addressed by medical and nursing curricula have not been determined. The purpose is to determine beliefs and attitudes toward pain and cancer pain management held by medical and	Framework: Symbolic interactionist Concepts: Prioritization of pain; Informants knowledge of pain; Meaning(s) of pain. There were several other subthemes of these concepts.	Purposive sample of 72 participants (included 22 undergraduate medical students, 21 undergraduate nursing students, 11 residents/fellows, 4 graduate nursing students, 9 medical faculty & administrators, 4 nursing faculty & administrators, and 1 residency director) from two medical	A descriptive, qualitative study using grounded theory methodology	In-depth interviews, Focus groups, & observational data of CEMMP (a project funded for 5 years by the National Cancer Institute to integrate cancer pain into medical and nursing school curricula) presentations and pain	The computer program, "Folio Views," was used to store, code, and analyze the qualitative data. Thematic coding scheme underwent a total of 11 iterations as the research team coded the preliminary data. Interrater and intrarater reliability scores of the coded data were found to be in the excellent range (k=0.750 and k=0.871, respectively).

Source	Purpose/ Problem/Research Questions	Framework/Concepts	Sample	Design	Instrument(s)	Results/Implications
	nursing students and faculty who participated in the Cancer Education Module for the Management of Pain (CEMMP) in order to address why such knowledge deficits and attitudes persist and how they can be addressed in medical and nursing curricula.		schools and three nursing schools.		management classes; all of which were tape recorded.	The themes identified were prioritization of pain, informants knowledge of pain, and meaning(s) of pain. Several subthemes were also identified. With an aging population, the end-of-life issues are increasing. With this increase, quality-of-life issues, such as pain control, are a growing concern. Faculty and students will likely bring their misconceptions and biases about the meaning of pain and addiction into their interaction with

Source	Purpose/ Problem/Research Questions	Framework/Concepts	Sample	Design	Instrument(s)	Results/Implications
						<p>patients unless they receive education. In order for pain and palliative care education to become standard and integral to medical and nursing curricula, educators and society will have to develop new concepts of the moral in medicine, overcome their own knowledge, lack of and deem dying and the alleviation of suffering to be as important as the prolongation of life.</p>

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McMillan, S., Tittle, M., Hagan, S., & Small, B. (2005)	Hospitalized patients with cancer continue to be the target of repeated studies in regards to uncontrolled pain even though pain management guidelines and regimens have been well-established. The purpose is to determine changes in knowledge and attitudes of pain resource nurses (PRNs) after completing an intensive course on pain management.	Framework: Not cited. Concepts: Knowledge about pain & pain management ; attitudes about pain; attitudes about patients in pain	A purposive sample consisting of 18 registered nurses (RNs) from the inpatient staff on four units excluding the inpatient pain program staff	Pre- and post-test design	Pain Management Principles Knowledge Test (PMPKT) was developed by investigators--reliability was confirmed with a test-retest with one-week delay on a group of 28 students; Nurses' Attitude Survey was developed from Nurses' Knowledge and Attitude Survey with only 25 items used--revised tool reliability was studied by test-	This study was limited by the small sample size, the higher education level of the RN, and the use of only one hospital in one geographical location. Even with those factors, knowledge scores did show significant improvement ($p < 0.001$), as did attitude scores ($p < 0.007$). The test scores on attitudes toward pain management were disappointing showing only a three-point gain from pre- to post-test scores. Perhaps the high pre-test scores can account

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					retest and internal consistency reliability using Cronbach's alpha (r=0.86); Pain Survey--reliability using test-retest; Demographic data	for part of this since the scores left little room for improvement due to the selection bias that was built into the study. The advanced course in pain management was successful in achieving the outcomes of changing the knowledge and attitudes of nurses who were to serve as PRNs. Due to shrinking budgets, role modeling expected behaviors may be one way to assist with the training budget.

Source	Purpose/ Problem/Research Questions	Framework/Concepts	Sample	Design	Instrument(s)	Results/Implications
Xue, Y., Schulman-Green, D., Czaplinski, C., Harris, D., & McCorkle, R. (2007)	Pain negatively impacts the patient with cancer. Knowledge deficits and attitudes, not only by nurses, but also by other members of the healthcare team, contribute to the undertreatment of cancer pain. The purpose of this study was to evaluate attitudes and knowledge of pain management of inpatient healthcare providers.	Framework: Rokeach (Attitude Theorist) Concepts: Knowledge about pain management; attitudes about pain; attitudes about patients in pain	A convenience sample of 96 healthcare providers (registered nurses, pharmacists, and physicians) from a large urban teaching hospital in the northeastern United States	Comparative, descriptive	Wisconsin Pain Initiative (WPI)-well used tool with established validity and reliability	While this study did have limitations due in part to the small sample, the use of only one hospital in one geographical location, and the population of physicians were only represented by residents and interns, lessons can be gleaned. Analysis of the data when comparing groups did show significant difference among groups. In post-hoc analysis, overall knowledge comparison post-hoc demonstrated significant difference among groups (p=0.00007)

Source	Purpose/ Problem/Research Questions	Framework/Concepts	Sample	Design	Instrument(s)	Results/Implications
						<p>with medical oncology nurses and pharmacists scoring better than physicians and gynecologic oncology nurses. Additionally, analysis of the data in regards to patients who overreport pain also showed significant difference ($p = 0.00007$).</p> <p>Physicians are more likely to believe patients over report pain than are nurses or pharmacists. If attitude theorist Rokeach is correct that attitude influences behavior, then physicians who believe patients are</p>

Source	Purpose/ Problem/Research Questions	Framework/Concepts	Sample	Design	Instrument(s)	Results/Implications
						<p>Over reporting pain are probably undertreating pain. Moreover, when analyzing the findings of this study, the importance of a team approach surfaces. The nurse has skills of assessment, the pharmacist possesses pharmacological expertise, and the physician is the clinician. Utilizing a team approach, the patient stands to benefit from the expertise of each and pain should be treated adequately.</p>