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PAIN MANAGEMENT: KNOWLEDGE AND ATTITUDES OF SENIOR NURSING
STUDENTS AND PRACTICING REGISTERED NURSES

by

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Bachelor of Science, Medcenter One, 1992
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A Dissertation

Submitted to the Graduate Faculty

of the

University of North Dakota

in partial fulfillment of the requirements

for the degree of

Doctor of Education

Grand Forks, North Dakota

August

2009

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This dissertation meets the standards for appearance, conforms to the style and format requirements of the Graduate School of the University of North Dakota, and is hereby approved.

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ABSTRACT

Despite scientific advances in pain management, inadequate pain relief in hospitalized patients continues to be an on-going phenomenon. Although nurses do not prescribe medication for pain, the decision to administer pharmacological or other interventions for pain relief is part of nursing practice. Nurses play a critical role in the relief of patients' pain.

Some authors have argued that nurses are not well prepared in pain management because of deficiencies in nursing curricula. Over the past ten years, however a significant amount of information about pain management including assessment and intervention for relief has been incorporated into basic programs of study in nursing. Studies have described how clinical environments can induce feelings of reduced self-efficacy and low personal control leading nurses to act in ways which are contrary to their knowledge but are congruent with practices prevalent in the clinical environment.

The purpose of the study was to investigate and to compare the knowledge and attitudes of senior nursing students and practicing registered nurses regarding pain management. This descriptive study utilized a convenience sample of registered nurses (n=121) and senior nursing students (n=100) who completed knowledge and attitude tools and a demographic data form. The study was conducted in two private universities and two teaching hospitals in the Midwest.

The scores indicate poor performance by both groups, however the practicing nurses' mean score of 74.0% while not reaching the expected 80% level was higher than the student nurses' mean score of 69.5%. On the attitude measurement tool the practicing nurses' mean scores in each category were not significantly different from the student nurses' mean scores.

Results indicated no evidence of association between education level or age with the knowledge and attitudes of practicing nurses regarding pain management. Experience was not shown to affect attitudes; however there was a slight positive relationship between years of experience and knowledge regarding pain management. The practicing nurse had statistically significant greater knowledge about pain management than did the senior nursing student; nevertheless, there was no significant difference in attitude toward pain management between the two groups.

Findings of this study indicate the nursing profession has work to do to fulfill its promise to society to provide safe compassionate care. A structured approach to improving the quality of pain management is required. Education, affective and cognitive, is an essential part of this approach.

CHAPTER I
INTRODUCTION TO RESEARCH PROBLEM

Introduction

Nurses are charged with a spectrum of duties. Their responsibilities include holistic care of patients, patient and family satisfaction, promotion of health, prevention of complications, avoidance of crisis, execution of technical tasks, cost containment, and assurance that the healthcare delivery environment functions smoothly and efficiently. An area of compromise may be the efficient and effective management of pain if pain is perceived primarily as a passing inconvenience or nuisance or as an inevitable accompaniment of the human condition. Pain is not only an accessory, but also may be a determinant of health status.

According to Bocchino (1992), “actual physical damage can result from unresolved pain, and ineffective pain management can inhibit recovery, prolong hospitalization, and contribute to increased health care costs” (p. 167). Pain management has become such an important topic in health care that the Joint Commission for Accreditation of Healthcare Organizations (JCAHO) established pain management standards in the year 2000. Concurrent with the increased recognition of the importance of pain management, a decreased emphasis has occurred on the cause of pain in favor of managing the experience of pain (D’Arcy, 2007).

Hospitalized patients continue to experience unnecessary pain despite the current national emphasis on a patient's right to appropriate pain management and health care providers' increased awareness of the detrimental effects of pain that is inadequately treated and managed. Management is complicated by the frequent co-existence of chronic and acute pain.

Chronic pain may be defined as pain lasting longer than six months or longer; whereas acute pain is considered a recent onset or less than six months duration. Acute pain will subside when healing occurs if there is no residual damage (Smeltzer, Bare, Hinkle, & Cheever, 2008). In addition chronic pain can contribute to the pathology of conditions not typically associated with pain, for example, hypertension (Dodd et al., 2001; Wilson et al., 2002). Detrimental effects of acute pain include an adverse effect on the immune function and the potential for the development of a chronic pain condition (Arnstein, 2003; Page, 2005). These potential sequelae are difficult to treat and may have a negative impact on quality of life (D'Arcy, 2007). Apfelbaum, Chenm, Mehtam, and Tongm (2003) reported that 73 million surgical procedures are performed annually in the United States, and 75% of patients reported pain after surgery. Of those patients, 86% reported pain levels that were extreme, severe, or moderate. With the many types of medications, techniques, and modalities available to treat pain, it is difficult to understand why the treatment of acute pain is problematic and remains undertreated (Bonica, 1978; Marks & Sachar, 1973; Pasero & McCaffery, 2004; World Health Organization, 1986).

As noted in the preceding paragraph inadequate pain relief has been documented in the literature for more than three decades. Unrelieved pain not only impairs quality of life, but it has a significant financial impact by contributing to higher patient morbidity

with longer hospital stays, more readmissions, and increased number of visits to health care providers (Ersek & Poe, 2004).

Because nursing is integral to successful pain management, it is crucial that nurses understand and implement appropriate interventions for relief of pain. To achieve such understanding, nurses must continue to educate themselves about pain management because techniques and medications change over time (Beyea & Slattery, 2006).

Several studies have indicated that patients do not receive adequate pain management (Anderson et al., 2000; Brennan & Cousins, 2004; Chung & Lui, 2003; Dihle, Bjolseth, & Helseth, 2006; Dix et al., 2002; Dolin et al, 2002; Holzheimer, McMillan, & Weitzner, 1999; Institute of Medicine, 2001; Joint Commission of Accreditation of Healthcare Organizations, 2004; Richards & Hubbert, 2007; Schafheutle, 2001; Wells, 2000). Adequate assessment in conjunction with opioid titration based on patient response can provide maximum pain relief without adversely affecting respiratory status. Rarely does a physiological basis exist for withholding opioids from a patient who is experiencing pain. The fear of causing respiratory depression in such patients through opioid administration is rooted in myth and not in science (Berry, Covington, Dahl, Katz, & Miaskowski, 2003; Brennan, Carr, & Cousins, 2007; Joranson, & Gilson, 1998). Despite the lack of documented evidence that would substantiate this fear, it is not unusual to hear nurses say that they can lose their licenses to practice for causing a patient's respiratory depression by frequent administration of opioids (Considine, 2005; Ferrell et al., 2001; Meisel & Meisel, 2007).

According to Chapman and Syrjala (2001), the challenge of quantifying a patient's pain remains. Nonetheless, work to improve pain reporting and measurement

has not waned in the scientific or clinical community. Various organizations, including the Agency for Health Care Policy and Research at the National Institutes of Health, have developed pain management guidelines. Documentation of pain is a standard practice in hospitals and other clinical settings.

Pain is the most subjective of all medical symptoms and produces a multitude of emotional and behavioral responses (Parrott, 2002). Maio et al. (2002) identified the need for uniform, valid pain scales, which would be practical in a hospital setting. The simplest and perhaps the most useful measurement of the intensity of pain is the Numerical Rating Scale (NRS), a scale of 1 (minimal pain that comes and goes) to 10 (worst pain imaginable, present all the time). This 1 to 10 rating scale works well for acute pain from injury or surgery (Jensen & Karoly, 1992). Pain rating is highly individualized; therefore, it is difficult to compare one patient's rating of a 7 on a scale of 1-10 to another patient's rating of a 4 on a scale of 1-10. Some patients (e.g., children, older patients, visually or cognitively impaired patients) may find it difficult to use the NRS scale. In those circumstances, the simple descriptive pain intensity scale may be used for older patients and older children. This tool has been effective using the following descriptive words: no pain, mild pain, moderate pain, severe pain, very severe pain, and worst pain possible (McCaffery & Pasero, 1999). The pain affect FACES scale is used for young children and for patients with cognitive impairment, who may have difficulty understanding descriptive and numeric scales. The FACES pain rating scale has six faces that depict expressions that range from contented to obvious distress. The patient is asked to point to the face that mostly resembles the intensity of his or her pain (Wong et al., 2001).

The American Pain Society (2003) has identified a number of principles that aid in effective pain management. One of the most important principles is to trust the patient's report of pain. The American Pain Society refers to pain as "the fifth vital sign" (Lynch, 2001) to increase awareness among health care professionals that pain assessment should be included with the documentation of traditional vital signs (blood pressure, temperature, pulse, respirations).

While the NRS and other pain assessment tools have been developed to assist in the assessment of the patient's perception of pain, many nurses continue to underestimate patients' levels of pain (McCaffery, Ferrell, & Pasero, 2000). It would seem part of the problem is inadequate and/or inconsistent assessment of pain. McCaffery and Pasero (1999) explained the importance of including pain rating assessment with the taking of other vital signs (temperature, pulse, respirations, blood pressure) to emphasize to health care professionals of the importance of effective pain management. Inadequate assessment and management of pain continue to be linked to the state of nurses' knowledge and attitudes (Goodrich, 2006; McCaffery & Ferrell, 1996; Plaisance & Logan, 2006). Tanabe and Buschmann (2000) described gaps in the knowledge of emergency room nurses and a need to improve their understanding of drug addiction and drug tolerance. Lasch, Greenhill, Wilkes, Carr, Lee, and Blanchard (2002) explained that nurses may not be well prepared in pain management as a result of deficiencies in nursing curricula. Salantera and Lauri (2000) explained that nursing students' beliefs about pain management may influence their objectivity with children if children's behaviors are not consistent with an acute care model of pain expression, such as grimacing and crying. Lasch et al. (2002) further noted that nursing students are susceptible to opinions of their

faculty and clinical nurses in regard to use of opioids and in the labeling of patients as drug-seeking. The authors concluded that faculty needs to narrow the gaps in students' knowledge related to pain management. Nursing students may not realize how complicated pain management is and be ignorant about the science of pain management. A fundamental lack of knowledge at the undergraduate level may negatively impact nurses' future learning about the importance of pain management (Chiu, Trinca, Lim, & Tuazon, 2003). Educating future nurses about best practices in pain management can positively impact pain management.

The nurse is often the first to learn that a patient is experiencing pain and plays a pivotal role in decisions about pain assessment and management. Nurses must understand patients' experiences of pain and be adequately prepared to offer options for effective pain management. Understanding current attitudes and knowing what information practicing nurses need to support them in the delivery of excellent patient care is important to the quality of care provided in clinical settings. It is necessary for nursing administration to support regular continuing education in regard to analgesic pharmacology and pain management skill development (DePalma, 2003). King (2004) stated that nurses confirmed that they a) have a limited understanding of pharmacology, b) are dissatisfied with their educational experience, and c) have feelings of anxiety due to inadequate pain knowledge. Nurses acknowledged that they need pharmacological knowledge to strengthen their practice of patient assessment and drug administration.

Strategies to increase knowledge about pain, pain assessment, and pain management in general are needed to ensure that a patient's pain is effectively addressed. Many studies have contributed to the body of knowledge about pain and pain

management. However, the information from these studies must be disseminated to nurses and be translated into evidence-based practice. Readily available sources for such information include the Cochrane Review and Agency for Health Care Research and Quality publications and website. Nurses must remain current about the pharmacokinetics and pharmacodynamics of analgesics and about new technologies to administer pain medications. Continuing education can be provided through conferences, journal articles, and online programs. Studies are needed to evaluate the effect that educational interventions have on nurses' knowledge about pain and their ability to manage pain effectively (Gunnarsdottir, Donovan, & Ward, 2003). According to Wallace (1997), only a few studies have concentrated on evaluating the effectiveness of pain education, with most focusing on the practice of nurses in terms of pain assessment and documentation. Adriaansen, Vanachterberg, and Borm (2005) stated that reliance of nurses on observed practice and rituals resulted in ineffective pain management and unnecessary suffering of the patient.

The nurses' clinical environments may influence the development and use of their educational knowledge in pain management. Wilson (2007) described how a clinical environment can induce feelings of reduced self-efficacy and low personal control, leading nurses to reduce tension by refusing to endorse their knowledge. This emotional response can result in reduced pain management. Innis, Bikaunieks, Petryshen, Zettermeyer, and Ciccarelli (2004) examined the impact of pain education for nurses on patient satisfaction. The authors indicated that nurses' pain knowledge scores increased and documentation of pain scores improved, but the patients in the study did not express lower levels of pain control. The results reflected ineffective pain control with the patient

believing the nursing staff was doing all that they could do to relieve their pain. Bostrom, Sanh, Lundberg, and Fridlund (2004) support this evidence by stating that as interventions fail to address the problem, patients lose confidence in health care providers' ability to relieve their pain.

Current literature addresses the need for a more collaborative effort between education and practice in nursing and nursing education (D'Arcy, 2007; Goodrich, 2006; Plaisance, & Logan, 2006). Although it is clear that educational programs have contributed to an increase in knowledge scores of pain management, it is important to establish what effect the working environment has had on development of the knowledge and attitudes of practicing nurses.

Statement of the Problem

When developing curricula, nurse educators emphasize development of both knowledge and attitudes essential to effective pain control. Nevertheless, inadequate pain control continues to be experienced by patients with adverse effects that threaten their well-being and prolong their recovery. It is unknown whether the educational base in pain management is inadequate or whether the practice environment causes the erosion of essential knowledge and skills for effecting pain control. The conceptual framework for the study is cognitive dissonance theory. According to Meyer and Xu (2005), students may experience dissonance between the academic ideal and the clinical reality of nursing practice. Students approach the clinical arena with high expectations only to discover that the practice environment is not conducive to the preservation of academic ideals.

Purpose of the Study

The purpose of this study was to compare senior baccalaureate nursing students' knowledge and attitudes regarding pain management to practicing nurses' knowledge and attitudes regarding pain management.

The following research questions were used to guide the study:

A. Status in Profession: Student, Registered Nurse

1. What was the pain management knowledge of senior nursing students?
2. What were pain management attitudes of senior nursing students?
3. What was the pain management knowledge of registered nurses?
4. What were the pain management attitudes of registered nurses?
5. Were there differences between pain management knowledge and attitudes of registered nurses and pain management knowledge and attitudes of senior student nurses?

B. Age, Experience, and Educational Level of Registered Nurses

6. Are there differences between knowledge and attitudes of pain management of registered nurses by age in four categories (21-30, 31-40, 41-50, 51 and older)?
7. Was there a relationship between years of experience as a nurse and knowledge and attitudes relevant to pain management?
8. Was there a difference between nurses with a bachelor degree or less and knowledge and attitudes of pain management of nurses with more than a bachelor degree in knowledge and attitudes of pain management?

Significance of the Study

Health care providers during the last three decades have experienced a gradual shift from basing pain control and pain management on physical causes of pain to using patient report of pain as the focus of pain relief interventions. Although bedside nurses are not responsible for the prescription of pain medicine, the decision to administer or withhold pain medication is within the nurse's realm of practice. Pre-existing attitudes or knowledge deficits about pain management influence the nurses' approach to pain management and, consequently, can affect the level of pain experienced by a patient in the hospital (Dihle et al., 2006; Manias et al., 2002; Schafheutle et al., 2001).

According to Adriaansen et al. (2005), nurses have the ability to reflect on their own professional practice; therefore, they are capable of evaluating whether their attitudes and actions are congruent with professional standards and the needs of their patients. The results of this study may provide data for nurses and nurse educators to reconsider not only in their approaches to pain management but also in the factors that influence their approaches. A heightened awareness of current pain management techniques may shape their interventions to decrease the discomfort of hospitalized patients.

Delimitations of the Study

This study was conducted with the following delimitations:

1. This study used a convenience sample of senior (prelicensure) nursing students in two baccalaureate nursing programs in North Dakota.
2. This study used a convenience sample of registered nurses practicing in two hospitals in one Midwestern city.

3. Responsibilities and experiences of registered nurses may vary between clinical areas.

Assumptions

The following were assumptions upon which this study was conducted:

1. The participants in this study responded honestly and to the best of their knowledge to the instruments used in the study.
2. The survey instruments accurately reflected nurses' attitude and knowledge toward pain management.

Definition of Terms

Definitions pertinent to pain developed by Maryland Board of Nursing (2002) were used as the basis for the following definitions written used in this study.

Pain: Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage. Pain is always subjective and is whatever the person says it is, existing whenever the person says it does. The clinician must accept the patient's report of pain (MDBON, 2002, p. 7). The MDBON is identical to the definition articulated by McCaffery and Pasero (1999). That is to say, pain is perceived discomfort, mild or severe, and its presence determined by the one experiencing it.

Acute pain: Acute pain is a normal, predictable physiologic response to an adverse clinical, thermal or mechanical stimulus. It is generally time-limited and responsive to opioid and non-opioid therapy. Acute pain responses may vary between patients and between pain episodes in an individual patient (MDBON, 2002, p. 7). Acute

pain is that type of pain which occurs with relative suddenness in response to injury or physiologic malfunction. The cause may be apparent or hidden.

Chronic Pain: Chronic pain is malignant or non-malignant pain that exists beyond its expected time frame for healing or where healing may not have occurred. It is persistent pain that is not amenable to routine pain control methods. Patients with chronic pain may have episodes of acute pain related to treatment, procedures, disease progression or reoccurrence (MDBON, 2002, p. 7). A person is said to experience chronic pain when the discomfort (mild or severe) persists for six months or more. Chronic pain tends to be more intractable than acute pain.

Pain Management: Pain management is the use of pharmacological and non-pharmacological interventions to control a patient's identified pain. Pain management extends beyond pain relief, encompassing the patient's quality of life, ability to work productively, to enjoy recreation, to function normally in the family and society, and to die with dignity (MDBON, 2002, p. 7). The management of pain is the utilization of one or more methods from a spectrum of interventions designed to alleviate the perceived discomfort and permit the patient to function at a level which he or she finds acceptable.

Opioid: Opioid is a natural (e.g., codeine or morphine) or synthetic (e.g., methadone or fentanyl) drug the pharmacologic effects of which are mediated by specific receptors in the nervous system (MDBON, 2002, p. 8). Opioids commonly administered to patients by participants in the study include oxycontin, morphine, dilaudid, and hydrocodone,

Non-Opioid: A non-opioid is any medication that provides pain relief (e.g., tramadol or acetaminophen) but is not an opioid and not a nonsteroid anti-inflammatory

drug (NSAID)” (MDBON, 2002, p. 8). Commonly prescribed non-opioids are Ultram, Neurontin, and Lyrica.

Pain Assessment: Pain assessment is the comprehensive evaluation of a patient’s pain including but not limited to location, intensity, and duration of the pain; aggravating and relieving factors; effects on activities of daily living, sleep pattern and psychosocial aspects of the patient’s life, and effectiveness of current management strategies. Pain assessment includes use of a standardized pain measurement tool (MDBON, 2002, p. 8). Pain assessment most commonly is the nurse’s judgment about the presence/absence and degree of pain based on data.

Pain Measurement Tool: Pain measurement tool is an instrument through which the intensity of the pain is designated by the patient. Pain measurement tools are standardized instruments with demonstrated reliability and validity (MDBON, 2002, p. 8). A pain measurement tool is any artifact used to determine presence and degree of pain.

Summary

Pain management continues to be an area in which there is much room for improvement. Despite the prestige of calls for enhancing the comprehensiveness and quality of pain alleviation, little progress has been made in providing comfort to those suffering from pain. Since nurses are in the pain management vanguard, it is important to further the understanding of their practices in this area. A review of the literature supports the significance of this study because it may identify areas which can be addressed in education that will better prepare nurses for effectively carrying out their responsibility for pain management.

CHAPTER II

REVIEW OF LITERATURE

Introduction

Pain management is an extremely complex issue. Despite much research on the management of pain and an increased emphasis on pain management in clinical practice, many patients do not receive appropriate interventions to combat their pain (Mann & Redwood, 2000). While many factors contribute to the current state of pain management, the knowledge and attitudes of those charged with relief of pain, as well as their level of training, age, and experience, namely nurses, play a significant and often overlooked role.

As background and support for this study, four areas were reviewed in the literature: a) cognitive dissonance theory, b) pain management, c) attitudes and knowledge of students in nursing, and d) attitudes and knowledge of practicing nurses. Major concepts from the relevant literature are summarized in this chapter.

Theoretical Framework

Cognitive Dissonance Theory

Within the discipline of psychology, theories have been formulated to explain the phenomenon by which behavior and knowledge clash. One such theory, cognitive dissonance theory, provided the framework for this study. This theory refers to the psychological phenomenon that is the discomfort felt at a discrepancy between what is already known or believed and new information or interpretation that arises

(Harmon-Jones & Mills, 1999). According to Festinger (1957), individuals tend to seek consistency among beliefs and opinions. Inconsistency between attitudes and behaviors causes dissonance and a reaction to eliminate dissonance. In the case of a discrepancy between attitudes and behavior, it is most likely that the attitude will change to accommodate the behavior. Dissonance occurs most often in situations in which an individual must choose between two incompatible beliefs or actions. Festinger's theory of cognitive dissonance has been an influential theory in social psychology. This theory has generated numerous studies, and a lot of information has been gained in relation to what determines attitudes and beliefs, the consequences of decisions, and other psychological processes (Harmon-Jones & Mills, 1999).

Practicing nurses can be placed in a situation where their actions and opinions are incompatible. Such a situation causes pressure on them to change their opinions in order to remove the dissonance. Wilson (2007) found that education programs contribute to an increase in knowledge, but the working environment influences the development of this knowledge. Wilson further commented that nurses may have a sound knowledge base, but this can be challenged by a state of tension brought about by the perception that they have no control over their situations. Nurses are prone to be confronted with demands that they cannot meet in the clinical environment. For example, nurses may not have the autonomy to make pain management decisions. This generates a state of increased cognitive dissonance on the part of the nurse and may result in non-relief or even an increase in the patient's pain. Meyer and Xu (2005) indicated that nursing students are vulnerable to disregarding academic ideals and choosing to adapt to the clinical world to

increase personal comfort. Students need to be prepared to be less naïve about dissonance and more able to manage interventions that decrease dissonance.

During the first year after graduation, approximately 60% of new registered nurses leave their first job. A variety of reasons (e.g., spousal relocation, availability of a more desired position) contribute to this high turnover rate, but a majority leave because of a stressful work environment. While many move to another position in nursing a considerable number leave nursing altogether either after this first job or after finding their second position to be equally unrewarding (Ervin, Bickes, & Schim, 2006; Goodin, 2003). Hodges, Keeley, and Troyan (2008) reported new nurses must have professional resilience for self-protection, risk taking, and moving forward with reflective knowledge of self. The first year of employment requires the ability to be resilient and thrive in an unpredictable health care environment. Cowin and Hengstberberger-Sims (2005) wrote that the practice environment of the new nurse can be a “tumultuous journey,” an “us and them” mentality; which generates an environment of dissonance (p. 60). In a study by Hamilton (2005), the attrition of new nurses from the health care field relates to the discursive dissonance of the education preparation and health organization expectations. New graduates are expected to be independent decision makers, critically thinkers within the constraints of their knowledge and clinical experience in caring for clients. Health care institutions situate new graduates as functional, efficient, organizational operatives providing a nursing service. Another important factor is the perception of nursing held by new graduates and what they find nursing to really be. New nurses tend to describe the practice environment as prescriptive, intellectually oppressive, and impeding the delivery of quality care (Duchscher, 2001). The majority of newly graduated nurses start their

professional role transition into the culture of healthcare in acute care, and the socialization process creates significant challenges (Duchscher & Myrick, 2008).

MacIntosh (2003) indicated that new graduates experience stress as they become working professionals. They do not seem prepared for the complex and challenging work environments that they encounter. MacIntosh explored experienced nurses' perceptions of how they became professional. The central problem for nurses was dissonance between expectations and experiences. The nurses addressed this through a three-stage process of reworking professional identity. MacIntosh wrote "the three stages—assuming adequacy, realizing practice, and developing a reputation—occur when nurses encounter discrepancies that stimulate feelings of dissonance and work to develop strategies to address those discrepancies and reduce the dissonance" (p. 730). Novice nurses are aware of professional expectations; however, they are likely to experience theory-practice dissonance relative to the rules and objectives learned in their educational establishment and the vastly different power relationships encountered in the workplace setting (Philpin, 1999).

The need to participate in emotionally disturbing situations may also lead to the development of cognitive dissonance (Festinger, 1957). For most people observing the pain of another is an emotionally disturbing situation. It can be exceedingly disturbing to the nurse charged with the care of the person with pain who feels at a loss as to how to relieve that pain. Individuals actively seek consistency of opinions, attitudes, knowledge, and values, and whenever such consistency is not present, dissonance exists. Cognitive dissonance and its sequelae have been identified in studies of nurses working in surgical and intensive care units (Cronqvist, Theorell, Burns, & Lutzen, 2001; Watkinson, 1998).

Allock and Standen (1999, 2001) found evidence of cognitive dissonance in their studies of views of student nurses on pain and suffering. The presence of cognitive dissonance results in a dichotomy between what nurses think at a personal level and what they think at a professional level. This dichotomy may also produce moral distress as a result of the difference between nurses' views of what is morally right and the professional stance (Corley, 2002; Kelly, 1998; Mackintosh, 2007; Scott, 2000; Redman & Fry, 2000). The motivation for change is the drive to reduce or eliminate the psychological discomfort caused by the inconsistency (Harmon-Jones & Mills, 1999).

Pain Management

Pharmacological Pain Management

Nurses have a key role in effective pain management. The nurse's accurate assessment, prompt intervention, and evaluation of pain relief measures are necessary for positive patient outcome (Ersek & Poe, 2004). However, acute and chronic pain continues to be poorly managed in many settings despite the introduction of pain management standards by the Joint Commission on Accreditation of Healthcare Organizations (2000). Alcenius (2004) indicated JCAHO updated pain assessment standards in 2004; however, health care organizations struggled with implementation of standards to support safe and effective care. The JCAHO 2004 (manual) standard includes the following: "When pain is identified, the patient is assessed and treated by the organizations or referred for treatment" (p. 8). Health care facilities are expected to revise their policies and procedures to support the satisfactory use of analgesics and other pain control therapies (Acello, 2000).

The literature on acute pain management reveals that a number of people continue to experience unacceptable levels of acute postoperative pain in the hospital settings (Brennan & Cousins, 2004; Carr, 2002; Dix et al., 2004; Dolin et al., 2002; Gillies et al., 1999; MacLellan, 2004; Roth, 2005; Yates et al., 1998). It is evident that appropriate management of patients' acute pain remains an elusive goal to attain despite the pharmacological advances in health care (Prowse, 2007).

Chronic pain also presents a perplexing problem. The proliferation of specialized chronic pain clinics in the western world is evidence of patients' need for assistance in the control of chronic pain (Unutzer, Ferrell, Lin, & Marom, 2004). Certain vulnerable populations are particularly at risk. The consequences of chronic pain in older people are well documented, but the issues of management are less well documented. Gibson (2002) indicated that it is time for clinicians to "grasp the nettle" and provide services tailored to meet the needs of the older adult as the numbers of the older people in pain are increasing and by 2020 will represent two thirds of the population in need of pain management.

The use of prescription opioids has increased substantially, and this increase seems to be related to the increase in the number of patients who frequent the specialized pain control clinics (Allock, Elkan, & Williams, 2007; Caudill-Slosberg, Schwartz, & Woloshin, 2004; Gilson, Ryan, Joranson, & Dahl, 2004; Miaskowski, 2008; Wiedemer, Harden, Arndt, & Gallagher, 2007). Opioids are extensively used in the management of all types of pain, and their use is underpinned by extensive research and an abundance of practical experience (McCleane & Smith, 2007). Opioids have been successfully used for the management of acute and cancer-related pain. However, concerns regarding side effects, tolerance, dependence, addiction, and hyperalgesia have limited the use of opioids

for the management of chronic non-malignant pain (Chang, Chen, & Mao, 2007). The field of medicine is experiencing increased pressure from regulatory agencies regarding the continuation, or even initial use, of opioids in patients with pain. Therefore, it is essential that pain clinicians provide rationale for engaging in this modality of treatment and provide ample documentation in this regard (Smith & Kirsh, 2007).

Non-Pharmacologic Pain Management

Health care professionals may overlook nonpharmacologic interventions for persistent pain. Nonpharmacologic interventions can be used alone or in combination with the appropriate pharmacologic treatments (Lehne, 2007). Nonpharmacologic interventions can be classified as either cognitive-behavioral interventions or physical therapeutic agents. Cognitive and behaviorally-based approaches include several ways to help patients understand more about their pain and take an active part in the assessment and control. Cognitive-behavioral approaches include preparatory information, simple relaxation, imagery, hypnosis, and biofeedback. Physical therapeutic agents and modalities include application of superficial heat or cold, massage, exercise, and electroanalgesia (Willick, Herring, & Press, 2001). The goals of interventions classified as cognitive-behavioral therapies are to change the perceptions of pain, alter pain behavior, and provide patients with a greater sense of control over pain. The goals of interventions classified as physical agents or modalities are to provide comfort, correct physical dysfunction, alter physiological responses, ameliorate activity restriction, and reduce fears associated with pain. Nonpharmacologic approaches are intended to supplement, not substitute for, pharmacologic treatments (Menefee & Katz, 2003).

Nonpharmacologic interventions are appropriate for the patient who a) finds such interventions appealing, b) expresses anxiety or fear, as long as the anxiety is not incapacitating or due to a medical or psychiatric condition, c) may benefit from avoiding or reducing drug therapy, d) is likely to experience and need to cope with a prolonged interval of postoperative pain; or e) has incomplete pain relief following appropriate pharmacologic interventions (Willick, Herring, & Press, 2001). Active patient involvement in these interventions assists in building self-reliance and control over pain. Studies have determined that patient education programs including the practice of self-management and coping strategies significantly improve overall pain management (Boothby, Thorn, Stroud, & Jensen, 1999; LeFort et al., 1998; Mazzuca et al., 1997; Tan, Jensen, Robinson-Whelen, Thornby, & Monga, 2001). Thus, patient education programs must include information about the nature of pain and how to use pain assessment instruments, medications, and nonpharmacologic pain management strategies (Gloth, 2001).

Inadequate Pain Management

Despite the availability of effective therapies and advances in pain management, inadequate pain relief continues to be identified as major concern in health care (MacLellan, 2004; Miaskowski; 2008). Inadequate pain relief can be attributed to many factors, including unwarranted patient fears and concerns about analgesia and the inability of nurses to adequately assess and manage pain (American Pain Society, 2003). Several studies have shown that inadequate pain management continues to result in patients having moderate to severe pain after surgery due to lack of regular assessment of pain intensity and follow-up of effects of analgesic therapy documentation (Apfelbaum,

Chenm, Mehtam, & Tongm, 2003; Bostrom, Ramberg, Davis, & Fridlund, 1997; Brown, 2004; Chuk, 1999; Dihl, Bjolseth, & Helseth, 2006; MacLellan, 2004; Schafheutle, Cantrill, & Noyce, 2001).

Karaniskolas and Swarm (2000) conducted a study of outpatients who had undergone surgical procedures. They found that 40% of study participants continued to experience moderate to severe pain and that 25% had consulted a health care professional for pain relief. In addition, Whelan, Jin, and Meltzer (2004) found a high incidence of significant pain among 5,584 hospitalized patients with a wide variety of medical diagnoses. The research involved a collection of data over a three-year period (1997 to 2000). Of particular concern was the fact that 59% of patients in the study experienced pain (19% had moderate pain and 28% severe pain). Willson (2000) in his observational study systematically summarized a number of factors (other than lack of knowledge) that can lead to inadequate pain management for older people. Willson found that working shifts, organization of patient care, lack of time, matters relating to customary analgesic practice, and communication both with patients and with the multiprofessional team had an impact on nurses' pain management decisions. Despite impressive efforts to improve the quality of pain management in many clinical settings, numerous studies reported that pain alleviation is inconsistent and inadequate. The importance of nurses in pain management is currently underestimated and undervalued; therefore, nurses need to work closely with the multidisciplinary team to coordinate the pain management (Watt-Wattson et al., 2001). Nurses have a unique role in pain assessment and management in relation to other health professionals because the nurse spends the most time with patients (Musclow, Sawhney, & Watt-Watson, 2002). Other studies focused on the importance of nurses to

assist in implementing an effective pain management plan; this requires nurses to monitor the types of analgesics used, pain management regime selected, and the knowledge and attitudes of patients. Therefore, nurses must be knowledgeable about pain management and be able to educate patients and provide them with a formal pain assessment tool to describe their pain instead of relying on non-verbal behavior (Briggs, 2003; Gunningberg, & Idvall, 2007; Sloman, Rosen, Rom, & Yoram, 2005).

Pain assessment is a vital component of nursing care. However, several studies have found nurses to be lacking knowledge about pain and pain management (Mackrodt & White, 2001; Sloman, Ahern, Wright, & Brown, 2001) as well as lacking in skills of pain assessment particularly with patients who are cognitively impaired (Bergh & Sjostrom, 1999; Bouvette, Fothergill-Bourbonnais, & Perreault, 2002; Feldt, Ryden, & Miles, 1998). Consequently, a patient's report of pain is the most reliable indicator of the existence and intensity of pain (Pasero, 2002). The Joint Commission on Health Care Organizations (JCAHO, 2000), mandated the use of self-report pain rating scales in health care facilities which they accredit. This standard reinforced the importance of asking patients about their pain. Review of pain assessment practice is one focus of the JCAHO's facility accreditation surveys.

A number of pain assessment tools have been developed to assist in the assessment of a patient's pain for effectiveness of pain relief measures (McCaffery, Ferrell, & Pasero, 2000). Pasero and McCaffery (2003) indicated that nurses' lack of accountability for assessing pain and teaching a pain rating scale has contributed to inadequate pain relief. Lynch (2001) indicated that pain assessment includes using a selected pain rating scale or tool, and follow-up assessments are needed to further assess

for changes in the intensity, quality, and location of the pain including any unwarranted side effects of the pain management interventions. Gordon, Pellino, Miaskowski, Adams, Paice, and Laferriere (2002) revealed improvement in pain assessment, but no improvement in pain relief. The study was a 10-year (1992 to 2001) review of quality improvement data from 20 studies in eight hospitals in the United States. The analysis of data led to a consensus of findings after the evaluation of several quality indicators such as a) the documentation of pain intensity assessment (using a numeric or descriptive scale), b) the frequency of pain assessment, c) the appropriateness of treatment, d) the regularity of analgesic administration, d) the prevention and control of pain to facilitate function and improve the quality of patients' lives, e) and patient teaching about pain management. The study also demonstrated that the documentation of pain ratings increased over time, but the intensity of pain and the interference of pain with function and quality of patients' lives remained high.

In their study Layman-Young, Horton, and Davidhizar (2006) found that nurses had a positive attitude about the use of pain management tools. This suggests that nurses are definitely aware of the importance of using pain assessment tools to assess pain intensity, but at times are negligent at monitoring the effectiveness of treatments. Dihle, Bjolseth, and Helseth (2006) noted a discrepancy between what nurses reported was their approach to pain management and what Dihle and his co-researchers observed to be the nurses' approach. Based on their observation they concluded that nurses were unsystematic and deficient in assessment of pain.

Other studies focused on patients' perceptions of the effectiveness of management of their postoperative pain. In this category of studies the investigators used the Strategic

Clinical Quality Indicators Postoperative Pain Management (SCQIPP) instrument. In this instrument patients were asked to rate on a scale of 0 to 10 on how well their pain was managed. The mean score on the SCQIPP in all of these studies was less than 4 (Gunningberg & Idvall, 2007; Idvall, Hamrin, Sjostrom, & Unosson, 2002; Idvall, Berg, Unosson, & Brudin, 2005; Idvall, & Berg, 2008). Authors of these studies were consistent in concluding that pain management (pain assessment and pain alleviation) was a low priority for nurses.

Several studies have indicated that pain is definitely a subjective experience; however, pain rating scales such as the Visual Analogue Scale (VAS), Numerical Rating Scale (NRS), and the Verbal Descriptor scale (VDS) have been found valid and reliable when used appropriately (Bourbonnais, Perrault, & Bouvette, 2004; Carr, 2002; Coll, Ameen, & Mead, 2004; Fuchs-Lacelle, & Hadjistavropoulos, 2004; Jensen, 2003; Manias, 2003). Most pain assessment scales may measure pain relief and/or pain intensity accurately.

Empirical studies clearly indicate that pain assessment scales in hospital contexts have excluded the older adult who had difficulty in using them due to visual and hearing impairments, and/or cognitive impairments (Gloth, 2001; MacIntyre, Upton, & Ludbrook, 2003; Murdoch, & Larson, 2004; Peters, Patijin, & Lame, 2007). The interaction of vision and hearing loss, along with the fact that older people have been less exposed to questionnaires and other assessment instruments during education and working life, may also have contributed to their lack of representation in the reported studies (Herr, Spratt, & Richardson, 2004).

Regardless of which pain assessment tool is used, the nurse and patient must work toward shared goals. Furthermore, the pain rating tools need to be applied with accuracy to have successful pain management (Brown, 2004). Despite all this attention, some patients still do not have their pain adequately assessed and managed. This is not just a medical and legal issue; it is also an ethical issue. Patients have the right to have their pain managed as part of the basic dignity and respect that is due to every human person (Brennan, Carr, & Cousins, 2007; Ferrell et al., 2001).

Knowledge and Attitudes of Student Nurses Toward Pain Management

Earlier literature suggests that inadequate pain relief may result from the nurses' acknowledgment that a main source of pain management information was pre-licensure education (Cason, Jones, Brock, Maese, & Milligan, 1999; Clark, French, Bilodeau, Capasso, Edwards, & Empolito, 1996). Many nurses in those studies rated their knowledge as fairly adequate; their mean scores on knowledge and attitude scales did not reflect knowledge of current pain management practices. Few studies specific to students' knowledge about pain management have been conducted within schools of nursing. Nevertheless, inadequate knowledge of pain management has been noted in some studies. Lofmark, Gustavsson, and Wikblad (2003) found that two-thirds of sample of 32 nursing students were unable to complete a systematic pain assessment. Intensity of pain was the most frequently identified dimension, and approximately one half of the students re-evaluated the effect of suggested pain-relief interventions. Overall, the researchers determined that the students lacked satisfactory knowledge of pain assessment. In addition, Lofmark, Gustavsson, and Wikblad (2003) indicated that students need the guidance of the instructor to learn the role of the nurse in pain management and the

application of pain management skills in the clinical setting. The instructor needs to use the nursing process as an education tool and as a method to solve problems, make decisions, and promote efficient nursing care in pain assessment (Attree & Murphy, 1999). Clinical assessments must also take into account the attitudes of the student. Furthermore, the assessment of the clinical competence of student nurses must be conducted by nurse educators who are accountable and who themselves have accurate assessment skills with pain management (Chambers, 1998; Hill, 1998; Nicklin & Kenworthy, 2000; Redfern, Norman, Calman, Watson, & Murrells, 2002).

Chuk (2002) surveyed 198 senior nursing students from degree and diploma programs in Hong Kong to determine their accuracy in assessment of pain. The design of the survey incorporated two clinical vignettes with two patients in each vignette. One patient who complained of pain was portrayed as smiling and the other patient in each vignette was portrayed as grimacing. Nursing students in the study assessed the degree of pain for each patient. The majority of the student participants (59.2%) used observable (grimacing) signs of pain rather than the patient's reports of pain in determining level of pain. Plaisance and Logan (2006) conducted a similar study using the Nurses' Knowledge and Attitudes Survey Regarding Pain (NKASRP). The survey was completed by 313 clinical nursing students in associate and baccalaureate degree programs in Louisiana. The results showed that 77% of respondents correctly documented the pain rating of 8 (on a 0-10 scale) by a smiling patient. However, only 21% of the 77% said that they would increase the smiling patient's dose of morphine based on the report of pain. A higher number (88%) of participants accurately documented the grimacing patient's reported pain rating of 8 (on a 0-10 scale). Nevertheless, only 31% of the study participants indicated that

they would increase the dose of morphine for the grimacing patient. The researchers concluded that these findings indicated a need for improvement in nursing education on pain management.

Similar findings were noted in a longitudinal study involving 217 nursing students in the United Kingdom. Entry-level students exhibited an unrealistic fear of patients' risk of addiction when an analgesia was prescribed (Allcock & Toft, 2003). While students had a more realistic view of the risk of addiction by the end of their foundation program, more than half of those surveyed continued to have an exaggerated fear of the risk of addiction at the end of the foundation program. After a palliative care module was integrated into the nursing curriculum of another program in the United Kingdom, students demonstrated significantly more knowledge of pain management (Arber, 2001).

Owens (2000) conducted a study using a descriptive cross-sectional method and surveyed 126 baccalaureate nursing students. The study was a comparison of beginning students' and completing students' knowledge and revealed that completing students who had received pain management education demonstrated scores in pain management significantly higher than the scores of beginning students in pain management. Students demonstrated less knowledge about pharmacology items indicating a possible deficit in this aspect of pain management education. Insufficient knowledge of pharmacology was also noted in a study involving final year nursing students in Australia and the Philippines. A total of 150 students in three schools of nursing were surveyed to assess their knowledge of pain mechanisms and basic treatment principles (Chui, Trinca, Lim, & Tuazon, 2003). The mean score for all students surveyed was 38.6%. Scores ranged from 0% to 70% (95% confidence interval, mean 36% to 41%) and results of the study

indicated that the students had insufficient knowledge about basic pain mechanisms, complex regional pain, and management of chronic, non-cancer pain. Most students believed that their undergraduate pain education was minimal.

McCaffery and Ferrell (1996) compared 85 non-nursing college students' decisions about pain assessment and use of analgesia with those of practicing nurses. The authors had anticipated that the students would not have strong beliefs about pain management and also that they would demonstrate positive attitudes toward pain management. However, they found that college students had several misconceptions about pain management. Students when given a patient scenario with a patient in pain were less likely to increase an analgesic dosage than were practicing nurses responding to the same scenario. The investigators concluded that students may enter schools of nursing with well-entrenched misconceptions about pain management. In addition, McCaffery and Robinson (2002) conducted a study that measured pain knowledge and attitudes among nursing students and nurses who held a baccalaureate of science in nursing (BSN) or a Master of Science in Nursing. Students scored an average of 62% items correct on a 15-item instrument similar to the NKASRP (Ferrell & McCaffery, 1998). Nurses with the BSN scored an average of 75% correct, and those with the Master of Science in Nursing scored an average of 83% items correct on the survey. The findings suggested that nurses with greater professional development and education were more knowledgeable about pain management.

Nursing education does not appear to be preparing nurses to manage children's pain effectively in the clinical area. A number of studies have demonstrated that nurses continue to have an educational deficit in this area (Twycross, 2002). Children are often

unable to communicate that they are in pain. It is imperative, therefore, that nurses be equipped to assess a child's pain. Salantera and Lauri (2000) explored nursing students' knowledge and views of taking care of children in pain. This study was conducted in Finland with 73 students (86% return rate) who were graduating from the "child nurse specializing program." The questionnaire used in this study, Purpose-Designed Likert-Type Instrument, included 82 questions about knowledge and views of taking care of children in pain. Topics covered included pain assessment, non-drug methods of pain relief; and analgesic drugs. The results revealed that the students lacked knowledge about pain medications, pain assessment and pain alleviation methods, and many of the students lacked confidence about their ability to manage patient pain. While the students in the study were found to have mainly positive views and attitudes towards taking care of children in pain, they lacked knowledge about the pharmacological management of pain (mean score=54%). Half of the students demonstrated limited knowledge about anti-inflammatory analgesic drugs, and the mean scores for the questions regarding opiates and regional anesthetics were 33 %. The mean score for the questions relating to non-drug methods was 68%. No data were given regarding the mean scores in relation to pain assessment. In addition, one third of the study respondents in this study believed that they had been given basic knowledge, and 34% felt that their education had been superficial. This study suggested that student nurses are not being equipped to manage pain in clinical practice and that they have educational deficits in a number of areas.

A significant body of research exists to support the effectiveness of cognitive-behavioral strategies in the treatment of acute pain in children (DeMore & Cohen, 2005; Palermo & Drotar, 1999). Cognitive-behavioral techniques are nursing interventions that

modify the experience of pain. Although pharmacologic interventions are standard in the care of most acute pain, the incorporation of cognitive-behavioral interventions is important to maximize patient outcomes (MacLaren, Cohen, Larkin, & Shelton, 2008). Polkki, Vehvilainen-Julkunen, and Pietila (2001) indicated that despite the abundance of literature on appropriate techniques, cognitive-behavioral pain management continues to be underused in standard patient care. Therefore, it appears that the cognitive-behavioral pain management is lacking in the nursing curriculum. Ferrell, Virani, Grant, Vallerand, and McCaffery (2000) reviewed 50 nursing textbooks commonly used in an undergraduate program. Of the 45,683 pages reviewed, 249 pages contained content about pain management, and only 61 pages contained information about cognitive-behavioral and physical interventions. (Current textbooks (n= 6) reviewed by the author had substantially more content about pain management indicating improvement in available resources.) Titler and Rakel (2001) related the lack of training on non-pharmacological techniques for children had an effect on nurses' knowledge of pain management. Salantera, Lauri, Salmi, and Helenius (1999) surveyed nurses working on pediatric wards and found a lack of familiarity with appropriate non-pharmacological techniques according to the child's developmental age. Twenty-one percent of 265 nurses responded correctly to less than 50% of the survey items relating to knowledge of non-pharmacological interventions for pain in children. Only 50% of nurses participating in the study reported using any cognitive-behavioral or physical technique (e.g., distraction, massage) for children in pain.

The findings of MacLaren et al. (2008) supported the importance of didactic training to increase knowledge of non-pharmacological pain management. Their study

included junior-level baccalaureate nursing students (n=50) who enrolled in a pediatric nursing class. The students were assigned to either a training group or a control group in the clinical setting. Pre-training and post-training knowledge and attitudes toward pain management were assessed using the Knowledge and Attitudes of Pain Management Questionnaire (KAPMQ) and a vignette (case scenario) of a child in pain. A role-play scenario was the intervention used to improve students' ability to implement cognitive-behavioral pain management strategies. Following the intervention, both groups were assessed as to their ability to implement cognitive-behavioral pain management strategies. Students in the training group demonstrated an increased understanding of cognitive-behavioral pain management strategies more than did students in the control group. Unfortunately, the training program did not improve or influence students' attitudes toward cognitive-behavioral pain management for children. The findings of this study are in contrast to the findings of another study that did find favorable changes in attitude after the integration of an education module (Lash, Wilkes, Lee, & Blanchard, 2000).

Research suggests that if initial undergraduate education is inadequate, nurses may be unable to adequately use cumulative nursing experience for the enhancement of knowledge and attitudes (Chiu et al., 2003; Davis & McVicar, 2000). Greenberger, Reches, and Riba (2006) determined educational level was the strongest predictor of knowledge and attitudes among nursing students and professional nurses. Their study was conducted in Israel by the Nursing Division of the Health Ministry which is responsible for national policy regarding nursing practice and professional development. The research sample (n=1,149) consisted of first and fourth year baccalaureate students and

all nurses beginning and completing specialty certification courses in 2003. According to the authors, this study was the first study in Israel to examine the relationship between educational level and attitudes of nursing students and nurses as they progress through the formal educational continuum. The positive relationship that emerged in this study between experience with treating clients with pain and knowledge and attitude levels has not been a consistent finding in the literature. Greenberger et al. explained that employers and colleagues can be excellent role models and contribute positively to enhancing nurses' pain management ability in the work environment.

Studies that focused on the lack of knowledge and misconceptions of pain among undergraduate nursing students indicated the importance of allowing adequate time in the curriculum to develop a strong knowledge base in pharmacology. Other findings included the importance of clinical experiences (e.g., perioperative) that enhance understanding of pain and promote effective pain management interventions (Bullock & Manias, 2002; Howell, Bulter, Vincent, Watt-Wattson, & Steams, 2000; Lash, Greenhill, Wilkes, Carr, Lee, & Blanchard, 2002; Sigsby, 2001). Several studies reviewed indicated that schools of nursing have not adequately educated nurses to understand basic concepts of pain, pain assessment, and clinical decision making in pain management (Ferrell et al., 1993; Ferrell, Fothergill-Bourbonnais, & Wilson-Barnett, 1992; McDonald, 1993; Sofaer, 1998; Whedon, & Rollins, 1995;). In addition, nursing education programs must improve their curriculum with pain assessment and effective pain management skills to contribute to the goal of pain relief (Puls-McColl, Holden, & Bushmann, 2001).

Knowledge and Attitudes of Practicing Nurses Toward Pain Management

The critical component in effective pain management for nurses is the possession of adequate knowledge and appropriate attitudes in assessing pain (Berry & Dahl, 2000; Chung & Lui, 2003; DeRond, DeWit, & VanDam, 2001; McCaffery & Pasero, 1999). Despite a plethora of literature that indicates the importance of pain management and the essential role of the nurse in adequate pain management a significant number of nurses lack the knowledge and skills needed for pain management interventions and have misconceptions of pain behaviors and pain relief methods (Carr, 2000; Coulling, 2005; Tanabe & Bushmann, 2000). Nursing and medicine are practice-based professions; therefore, learning opportunities in the clinical environment are as important in pain management as didactic instruction.

Nurses' knowledge and competency in pain management are influenced not only by the quality of their education, but also by the culture of the clinical environment and the workplace socialization process (Clark et al., 1996; Dalton et al., 1996; Manias, Botti & Bucknall, 2002; Twycross, 2002). Despite the fact that "pain is whatever the experiencing person says it is, existing whenever he says it does" (McCaffery, 1968, p. 95), nurses base their judgments of the patient's pain experience more on attitudes and beliefs brought to the bedside than on the report of pain (Hunter, 2000; McCaffery & Pasero, 1999; Manias et al., 2005). According to Acute Pain Management Guideline Panel (1992) and American Pain Society (1992), clinicians must accept patients' self report which is the most reliable indicator of the existence and intensity of pain. Once the presence of pain is acknowledged, the World Health Organization (WHO) Pain Relief Ladder (2009) or a similar tool can be used to guide pharmacological interventions.

Nurses' primary sources of information with pain assessment, pain rating scales, and pain management have been in their basic educational preparation in nursing, new employee hospital orientation, peers in the practice setting, and continuing educational programs (Cason, Jones, Brock, Maese, & Milligan, 1999). Clark et al. (1996) examined the relationship between nurses' characteristics (clinical experience, area of practice, age) including knowledge, attitudes and pain management practices. The study included 120 registered nurses (53% return rate) from nine clinical areas in a large university teaching hospital in the northeastern United States. The nurses answered an average of 62% of the questions correctly. Clark et al. investigated how satisfied nurses were with their education regarding a number of pain management areas, the difference between acute and chronic pain, and pharmacological and non-pharmacological interventions for pain. They found that nurses were least satisfied with their education in the areas of non-pharmacological interventions. Furthermore, other studies have determined that education has not been a consistent solution to effective pain assessment and pain management. Erkes, Parker, Carr, and Mayo (2001) conducted a similar study using the NKASRP instrument that they administered two times first as a pretest and then as a posttest after an education program. The sample consisted of 30 registered nurses working in a medical-surgical/intensive care unit in a large metropolitan hospital in southeastern United States with an even distribution of associate and bachelor degree nurses in the sample. The results of the study showed no significant relationship between the type of nursing degree and score on the survey instrument. However, the more the years of experience the greater the tendency to score higher in knowledge and attitudes about pain management after the educational intervention was conducted. Erkes et al. concluded that

practicing nurses need ongoing and current pain management education; therefore, they need up-to-date pain management strategies to provide the best possible treatment.

Lovesky, Bird, Restuccia, Mangolds, and Dickson (2003) in a study of caregivers of patients with extremity fractures found that only 11% of patients who reported pain were given analgesia. Following an educational program that addressed the management of pain, efficacy of analgesia use, and transport time in relation to analgesia administration, analgesic administration rose to 31%. Bucknall, Manias, and Botti (2001) found that pain management performance by nurses in postoperative settings failed to reduce pain. The authors emphasized the importance of nurses following national health guidelines for nursing practice, but the nurses must address contextual influences that interfere with providing optimal pain management. Furthermore, health care facilities need to incorporate these principles of pain guidelines into their philosophy and care practices to improve patient outcomes with postoperative pain. Lord (2004) and Malek and Olivieri (1996) suggested auditing charts and using benchmarks to reduce pain scores and requiring evaluation of pain management skill on performance appraisals (Alonso-Serra & Wesley, 2003; Callahan, 1997; Maio et al., 1999).

This literature review suggests pain education programs in practice settings can improve pain management knowledge of nurses and positively affect attitudes and beliefs regarding interventions for relief of pain. (Cason, Jones, Brock, Maese, & Milligan, 1999; Howell, Butler, Vincent, Watt-Wattson, & Stearns, 2000; Wright & Bell, 2001). Results of the study by Coyne et al. (1999) confirmed the importance of the need for continuing education in pain management. This study focused on the differences on pain management knowledge among licensed practical nurses (LPNs), associate degree nurses

(ADNs), bachelor of nurses (BSNs), and master of science nurses (MSNs). Coyne et al. analyzed questionnaires administered to 232 nurses from three hospitals in Mississippi. The researchers found that overall pain management knowledge scores ranged from 24% to 92% with differences between practice sites and differences between level of licensure (registered nurses and practical nurses). Mean scores were 72% for LPNs and 75% for RNs. These low mean scores suggest less than adequate knowledge of pain assessment and management strategies. A reoccurring theme in the literature is to implement practice guidelines and continuing education in the clinical setting to empower nurses to improve their knowledge of pain management.

The management of postoperative pain has been a concern for many decades despite enormous technological advances, extensive research, and existence of effective pain relief strategies. Several studies have indicated unrelieved postoperative pain, inadequate pain assessment, poor communication among members of the health care team and their patients, negative attitudes toward the use of opioids, and misconceptions about pain were the factors that accounted for unsatisfactory treatment (Carr, 2002; 2008; Chung & Lui, 2003; Drayer, Henderson, & Reidenberg, 1999; Kim, Schwartz-Barcott, Tracy, Fortin, & Sjostrom, 2005; Mackintosh & Bowles, 2000; Richards & Hubbert, 2007). Huang, Cunningham, Laurito, and Chen (2001) and Chung and Lui (2003) found that most surgical patients receive some form of pain assessment and pain management; however, the results of their studies indicated that 50% to 75% of patients did not achieve adequate pain relief postoperatively. Also, severe unrelieved postoperative pain is a common reason for delayed discharge (MacLellan, 2004; Klopper, Anderson, Minnkinen, Ohlsson, & Sjostrom, 2006) and higher health care costs (Huang et

al., 2001) and can delay recovery with unexpected postoperative complications (MacLellan, 2004).

The following literature review presents some examples of attitudes and beliefs of caregivers; therefore these factors hinder effective pain assessment and pain management causing pain control to be an ongoing problem. In addition, patients and health professionals bring their own cultural attitudes to the communication and interpretation of the patient's pain experience (Bedard, Purden, Sauve-Larose, Certosini, & Schein, 2006; Dihle, Bjolseth, & Helseth, 2006; Fothergill-Bourbonnais, Perreault, & Bouvette, 2004; Huang et al., 2001; Klopper et al., 2006; Lovering, 2006; MacLellan, 2004; McKinlay & Cowan, 2003; Russell, Kilburn, Conn, Libbus, & Ashbaugh, 2003; Schafheutle et al., 2001; Willson, 2000).

Many studies found that patients refused their ordered analgesics because they believed that pain relief predisposed them to addiction, and the side effects of injections and oral pain meds were worse than the endured pain (Bedard et al., 2006; Brown, Bowman & Eason, 1999; Huang et al., 2001; Klopper et al., 2006; Manias, Botti, & Bucknall, 2002). Brown, Bowman, and Eason, (1999) study indicated that more than half (56.9%) of the registered nurses (n=128) in their North Carolina study believed that more than 10% of patients over-report the amount of pain that they are having. A significant finding was 70% (n=182) of this sample was unaware that the likelihood of opioid addiction is less than 1% when used to treat pain. The NKASRP was used to evaluate the knowledge and attitudes regarding pain management of 260 practicing nurses. Manias et al. (2006) found 60% of participants in their study were passive recipients of pain relief, that is, they waited to be asked about pain before requesting an

analgesic. Consequently, the participants had poor pain management that led to increased fear and anxiety. These authors further suggested that orders of a physician for pain medication as needed encouraged increased passivity as the patients did not want to bother the nurse. Furthermore, Bedard et al. (2006) found that after the implementation of evidence-based drug orders, pain scores decreased but patients' fears concerning addiction and side-effects remained.

Many factors in the clinical setting can influence attitudes about patients' pain. Therefore, nurses need to be cognizant of these barriers in order to improve pain management (Loveman & Gale, 2000). Schafheutle et al. (2001) surveyed 180 nurses in 14 United Kingdom hospitals and interviewed six nurses. The researchers investigated the perceived barriers to effective pain management. Schafheutle et al. had 39.3% responses indicating that the lack of time, staff shortages, and increased workload were significant factors that contributed to inadequate pain management in the clinical practice area. Schafheutle et al. concluded that nurses have subconscious barriers to adequate pain relief in relation to their subjective judgment statements about patients' pain. Manias et al. (2002) concurred with Schafheutle et al. (2001). Findings of another study (Dihle et al., 2006) indicated that nurses were more concerned with other tasks than they were concerned with providing pain relief. In a larger study, Manias et al. (2005) found that nurses underestimated patients' pain and believed that pain should be expected postoperative and patients should not expect complete relief. Also, the nurses were overwhelmed with other issues on the ward and lost sight of their patients' pain needs.

Summary

Pain relief is considered a basic human right and is incorporated into the Pain Care Bill of Rights (American Pain Foundation, 2001). Also, the American Bar Association (2000) declared pain relief a basic right. Review of the literature identified these main points:

1. The need to reduce physical discomfort to improve quality of life.
2. The need for pharmacological and non-pharmacological interventions to reduce pain and improve functioning.
3. The critical role of the nurse in pain management.
4. The inadequate knowledge of and inappropriate attitudes of many nurses toward pain management.
5. The over-reliance of pain rating scales and focusing on pain intensity alone in clinical practice is a weakness in existing studies.
6. The necessary but limited role of formal education in preparing nurses competent in pain management.
7. The critical importance of experiential learning, continuing education, and clinical culture in pain management.

Bell and Duffy (2009) indicated that in the face of all the empirical research conducted the problem of pain assessment and pain management remains.

The need for competent pain management has been clearly demonstrated. A review of nursing curricula provides evidence of the inclusion of pain management content in basic educational programs. Research is needed to better understand the disconnect between information and behavior in the practice of pain management. The

present study attempts to shed light on this area by comparing knowledge and attitudes of practicing nurses regarding pain management with knowledge and attitudes of senior nursing students regarding pain management.

CHAPTER III

METHODOLOGY

Purpose of the Study

The primary purpose of this study was to compare knowledge and attitudes of senior nursing students regarding pain management to the knowledge and attitudes of practicing nurses regarding pain management. The aim was to better understand if a) educational endeavors are effective or b) the practice environment erodes basic knowledge/attitudes in this area. The study was conducted in two private universities and two teaching hospitals in the Midwest. The study was approved by University of North Dakota Institutional Review Board (Appendix D), the institutional review boards of the two hospitals, and the institutional review boards of the two private educational institutions. This chapter describes the participants in the study, the instruments used, the data collection method, and the data analyses.

Research Participants

This study was a convenience sample of 100 senior nursing students and 121 registered nurses practicing in a hospital setting. Participating pre-licensure senior nursing students were in one of two four-year educational institutions. One institution was a small private university, and the other was a small private single-purpose college. Students who were eligible to participate anticipated completing requirements for a baccalaureate degree with a major in nursing during the academic year in which the study

was conducted. Permission was obtained from the nursing department chair and the teacher of the class in which the data were collected prior to seeking participation of the senior nursing students. All potential participants were informed that completing the survey instrument would be voluntary, and responses would be anonymous with data reported only in the aggregate. Students were further assured that neither participation nor non-participation in the study would have any bearing on their grades in the course or their status in the nursing program. Participation of invited students was 100%; however, two surveys could not be used in data analysis because they were incomplete.

Registered nurses in two community hospitals were asked to participate. Participation was invited through posting a notice on bulletin boards with approximately 200 nurses on Med-Surgical, Medical/Oncology and Obstetrics/Gynecology units; however, two surveys could not be used in data analysis because they were incomplete. The response rate to the invitation was 60%. Nurses invited to participate were professional nurses who had met educational and licensure requirements to practice as a registered nurse. Permission of hospital supervisors were obtained prior to seeking participation of the practicing nurses. All potential participants were informed that completing the survey instrument would be voluntary and their responses would remain anonymous with data reported only in the aggregate. Practicing nurses were assured that neither participation nor non-participation would affect their employment status in any way.

Survey Instruments

The Nurses' Knowledge and Attitudes Survey Regarding Pain (NKASRP) was used to evaluate the knowledge and attitudes regarding pain management of senior

nursing students and of practicing professional nurses. This instrument was developed to simultaneously assess nurses' knowledge and attitudes regarding pain management. Ferrell and McCaffery (2005) suggested not distinguishing between items as measuring either knowledge or attitudes. The authors originally developed this tool in 1987, and it has been used in several settings over the years to assess nurses' knowledge and attitudes regarding pain. The tool was revised in summer/fall of 2005 and tested in pain education courses (Ferrell & McCaffery, 2005). Minor revisions occurred in April 2008. Copies of the instrument and of the permission to duplicate and use the instrument are provided in Appendix A.

NKASRP is a self-administered inventory that contains 38 items. It includes 22 true/false items and 16 multiple choice items. The last two items have a two part statement to the patient care scenarios that required the participant to assess and subsequently reassess a patient. This resulted in a total of 40 responses. In the first scenario, a patient smiles and jokes with visitors one day after surgery; he subsequently rates his pain as 8 using a pain scale of 0-10. In the second scenario the patient rates his pain as 8, but although he is lying quietly in bed, he is grimacing. In both of these scenarios, the patients require additional pain medication. Respondents are asked to withhold or administer an analgesic depending on the assessment of the vital signs, behavior, and pain rating. The content of the instrument was based on American Pain Society and World Health Organization standards for pain management. Content validity was established by review of pain experts. Construct validity was established by contrasted-groups methods comparing scores of nurses at varying levels of expertise, such as students, new graduates, oncology nurses, graduate students, and senior pain

experts. The instrument was found to discriminate among these levels of expertise.

Ferrell and McCaffery (2005), developers of the tool, reported its test-retest reliability as greater than .80. They determined internal consistency to be good with coefficient alphas greater than .85 and item difficulty to be 0.73.

The second tool used was the Weinstein Pain Survey Questionnaire. Weinstein stated that the tool had “good” reliability and validity (personal communication, March 6, 2009). An exhaustive search of the literature did not reveal any published reliability or validity. This tool was designed to measure physicians’ reluctance to prescribe opioids, fear of precipitating patient addiction, and fear of sanctions for opioid prescription. While designed for medical practitioners, the questions are applicable to nurses and other care providers who make decisions about the administration of opioids. Items in the tool also assessed attitudes about pain management (Weinstein et al., 2000). Responses to this questionnaire served as points of comparison to the NKASRP responses. A copy of the instrument and a copy of the permission to duplicate and use the instrument are in Appendix B. No reliability has been established on this survey. In the present study the reliability for the instruments were as follows: knowledge test .427 and the attitude test .798.

A demographic questionnaire was used to collect data regarding each participant’s age, gender, and level of education. Practicing nurses were asked to state their highest degree obtained in nursing, years of experience, and current clinical area of practice.

Data Collection

A letter of introduction about the research was attached to each survey to provide all participants the same information and instructions (Appendix C). Informed consent

was assumed by the participant returning the completed survey. At the university the researcher attended a required lecture class and gave a description of the study and instructions on completing the survey. The survey was distributed to the students. The researcher remained in the classroom and collected the surveys when they were completed. Students were instructed to hand in the form at the same time as completed surveys were collected if they did not wish to complete the survey. At the single-purpose college, the surveys were distributed and collected by the instructor of the class using the process described above.

A readily accessible room suitable for several participants to complete surveys at the same time was provided at each hospital for the practicing nurses. Potential participants were notified of times when the researcher was available to collect data and participants came to the assigned room at their convenience. At one hospital data were collected over a single 12-hour period, and at the other hospital data were collected on 10 different days for 4 hour periods.

Data Analyses

The data were collated and analyzed using the Statistical Package for the Social Sciences (SPSS) software program. Statistical analysis included frequencies and percentages for descriptive information and a multivariate analysis of variance (MANOVA) to determine significant difference between senior nursing students and registered nurses on knowledge and attitudes of pain management. The Wilks' Lambda test statistic was used in the MANOVA statistical analysis to test whether these differences were significant. Analysis of variance (ANOVA) was used to analyze the data differences between groups after the MANOVA. Demographic data were analyzed and

reported with descriptive statistics using percentages and Pearson's correlation coefficients. Descriptive and inferential statistics included the means, standard deviations, and ANOVA to measure differences. The data were analyzed to determine relationships with the results of the 40 knowledge survey questions and 16 attitude questions including the demographics of senior nursing students and registered nurses.

CHAPTER IV

RESULTS OF THE DATA ANALYSES

The purpose of this study was to investigate the knowledge and attitudes of senior nursing students and practicing registered nurses regarding pain management. A comparison was also conducted between these two groups. In addition, registered nurses education level and years of age including years of experience were compared on knowledge and attitudes. Two students and two registered nurses were eliminated from the sample because of lack of responses on the questionnaires. The discussion of the findings and presentations are provided with respect to each of the research questions.

Demographic Information

Students who participated in the study ranged in age from 21 to over 40 years. Only one student was over 40 while the majority of students were in their 20s. Eight of the students were men and 90 were women.

Fifty of the participating registered nurses were 30 or younger, 19 were in their 30s, 15 were in their 40s and 35 were over 50 years of age. Four of the participating registered nurses had an associate degree and 20 were prepared at the diploma level. Five held a graduate degree while the highest level of education of 90 was the baccalaureate degree. The majority were staff nurses (n=107) while 12 held managerial positions. Ninety-four of the participants worked in medical-surgical areas. Forty-seven (41%) of the registered nurses had five years or less of experience in nursing, 15 (13%) had at least

five years of experience but less than 10 years of experience, 19 (16%) had at least 10 but less than 20 years of experience, 26 (23%) had at least 20 but less than 35 years of experience, and eight (7%) had over 35 years of experience. Total is 115 as data in this category was missing for some participants.

Research Question 1

What was the pain management knowledge of senior nursing students?

The pain management knowledge test was administered to senior nursing students (n=98). The pain management test consisted of 22 true and false questions and 18 multiple choice questions. For each test item, the percentage of nursing students who answered the test item correctly was calculated (Table 1). McCaffery and Pasero (1999) indicated that a score of 80% is the minimal acceptable score on the NKASRP questionnaire/survey. More than 80% of senior nursing students in the study answered test items 1-4, 7, 12-17, 20, 22, 24, 27, 29, 31, 32, 34, 37A, and 38A correctly. In Table 1 are displayed the survey questions, correct responses for the true/false items, and the percentage of student participants who answered each item correctly. This series of items constituted 53% of the survey and addressed the current state of knowledge about pain and general parameters of pain relief. Thus, senior students possess knowledge in this area. However, only 50% - 79% of senior nursing students answered test items 5, 10, 11, 19, 25, and 30 correctly. These responses are indicative of lack of knowledge about utilization of specific agents for relief of pain. Less than 50% of the nursing students correctly answered the remaining items (6, 8, 9, 18, 23, 26, 28, 35, 36, 37B, and 38B) that had to do with use, dosage, and side effects of specific

Table 1. Percentage of Nursing Students (n=98) With Correct Responses on Each Question.

Test Question	% Correct
1. Vital signs are always reliable indicators of the intensity of a patient's pain.	92.9
2. Because their nervous system is underdeveloped, children under two years of age have decreased pain sensitivity and limited memory of painful experiences.	97.0
3. Patients who can be distracted from pain usually do not have severe pain.	90.9
4. Patients may sleep in spite of severe pain.	81.8
5. Aspirin and other nonsteroidal anti-inflammatory agents are NOT effective analgesics for painful bone metastases.	52.5
6. Respiratory depression rarely occurs in patients who have been receiving stable doses of opioids over a period of months.	32.3
7. Combining analgesics that work by different mechanisms (e.g., combining an opioid with an NSAID) may result in better pain control with fewer side effects than using a single analgesic agent.	91.9
8. The usual duration of analgesia of 1-2 morphine IV is 4-5 hours.	37.4
9. Research shows that promethazine (Phenergan) and hydroxyzine (Vistaril) are reliable potentiators of opioid analgesics.	25.3
10. Opioids should not be used in patients with a history of substance abuse.	71.7
11. Morphine has a dose ceiling (i.e., a dose above which no greater pain relief can be obtained).	58.6
12. Elderly patients cannot tolerate opioids for pain relief.	96.0
13. Patients should be encouraged to endure as much pain as possible before using an opioid.	99.0

Table 1 (cont.)

Test Question	% Correct
14. Children less than 11 years old cannot reliably report pain so nurses should rely solely on parent's assessment of the child's pain intensity.	99.0
15. Patients spiritual beliefs may lead them to think pain and suffering are necessary.	97.0
16. After an initial dose of opioid analgesic is given, subsequent doses should be adjusted in accordance with the individual patient's response.	98.0
17. Giving patients sterile water by injection (placebo) is a useful test to determine if the pain is real.	85.9
18. Vicodin (hydrocodone 5 mg + acetaminophen 500 mg) PO is approximately equal to 5 – 10 mg of morphine PO.	45.5
19. If the source of the patient's pain is unknown, opioids should not be used during the pain evaluation period, as this could mask the ability to correctly diagnose the cause of pain.	61.6
20. Anticonvulsant drugs such as carbamazepine (Tegretol) produce optimal pain relief after a single dose.	85.9
21. Benzodiazepines are not effective pain relievers unless the pain is due to muscle spasm.	33.3
22. Narcotic/opioid addiction is defined as a chronic neurobiologic disease, characterized by behaviors that include one or more of the following: impaired control over drug use, compulsive use, continued use despite harm, and craving.	96.0
23. The recommended route of administration of opioid analgesics for patients with persistent cancer-related pain is:	27.3
24. The recommended route of administration of opioid analgesics for patients with brief, severe pain of sudden onset, such as trauma or postoperative pain is:	79.8
25. Which analgesic medication is considered the drug of choice for treatment of prolonged moderate to severe pain for cancer patients?	70.7

Table 1 (cont.)

Test Question	% Correct
26. Which IV dose of morphine administered over a 4 hour period would be equivalent to 30 mg of oral morphine given q 4 hours?	43.4
27. When should analgesics for post-operative pain be given?	91.9
28. A patient with persistent cancer pain has been receiving daily opioid analgesics for 2 months. Yesterday the patient was receiving morphine 200 mg/hour intravenously. Today he has been receiving 250 mg/hour intravenously. What is the likelihood of the patient developing clinically significant respiratory depression in the absence of new comorbidity?	22.2
29. What is the most likely reason a patient with pain would request increased doses of pain medication?	96.0
30. Which of the following is useful for treatment of cancer pain?	66.7
31. Who is the most accurate judge of the intensity of the patient's pain?	98.0
32. How would you describe the best approach for cultural considerations in caring for patients in pain?	90.9
33. How likely is it that patients who develop pain already have an alcohol and/or drug abuse problem?	43.4
34. What is the time to peak effect for morphine given IV?	80.8
35. What is the time to peak effect for morphine given orally?	42.4
36. Following abrupt discontinuation of an opioid, how is physical dependence manifested?	31.3
37A.Scenario 1A	91.9
37B.Scenario 1B	30.3
38A.Scenario 2A	98.0
38B.Scenario 2B	44.4

drugs. Only 43% correctly interpreted the probability that pain development is related to prior substance abuse (item 33).

The mean score for the students was 27.8 which is 69.5%, a lower than expected average. Students' overall understanding of pain and its relief is less than would be desired in persons about to begin the practice of professional nursing.

Research Question 2

What were pain management attitudes of senior nursing students?

The pain management attitudes survey was given to (98) senior nursing students. The pain management attitudes survey consisted of 16 statements, and nursing students indicated if they strongly agree, agree, neutral, disagree, or strongly disagree with each statement. For each statement, a nursing student was given 5 points for strongly agree, 4 points for agree, 3 points for neutral, 2 points for disagree, and 1 point for strongly disagree. A mean score was then calculated for each survey statement for all of the responses (Table 2). In judging whether a response was consistent with current pain management principles or inconsistent with current pain management principles, the response was compared to the response of medical and nursing personnel recognized (e.g., certification) for excellence in the field of pain management. A mean score approaching one indicates an attitude consistent with current pain management principles regarding survey items 1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13. A mean score approaching five indicates an attitude consistent with current pain management principles regarding survey items 2, 14, 15, and 16.

Mean scores for each item are displayed in Table 2. The mean of the participants' responses on the five items that focused on addiction (12-16) were in the range indicating

Table 2. Mean Likert Scores for Each Item of the Weinstein Pain Survey Questionnaire (Attitudes) for Nursing Students (n = 98).

Survey Question 5-Strongly Agree, 4-Agree, 3-Neutral, 2-Disagree, 1-Strongly Disagree	Mean Score
1. Chronic pain of unknown cause should not be treated with narcotics even if this is the only way to obtain pain relief.	2.00
2. It is appropriate to increase a dose of narcotics (per physician orders) above the usual range if the prognosis is less than one year.	3.14
3. If a chronic pain patient is active on the job, there is no possible justification for using narcotics for pain.	2.14
4. Narcotics should be restricted to treatment of severe intractable pain.	2.38
5. Persons who fit the "profile" of a likely drug abuser should never be treated with narcotics.	2.11
6. Prognosis should be the primary factor in deciding whether a patient should receive opioids.	2.20
7. Patients who complain of pain out of proportion to its cause are usually drug abusers.	1.96
8. Using narcotics to relieve the pain of benign conditions is ill-advised.	2.17
9. Even if patients have severe chronic pain, they should be treated with narcotics only when their illness has reached a terminal phase.	1.60
10. The presence of a physiologic basis for pain should be the primary factor when deciding to use opioids.	2.48
11. I would never use narcotics for a patient with chronic pain who is able to work.	1.96
12. Any patient who is given narcotics for pain relief is at significant risk for addiction.	2.57
13. I would be extremely concerned about possible addiction if a member of my family were given morphine for chronic pain.	2.04
14. I must exercise caution when giving potentially addictive medications to patients with chronic pain.	3.49
15. When narcotics are used to control chronic pain, addiction is a common outcome.	2.24
16. More than 5% of patients who receive narcotics for pain subsequently become addicts.	2.49

inconsistency with current pain management principles. Nevertheless, only two of these items (15 and 16) strongly demonstrated an attitude inconsistent with current pain management principles whereas the other three items demonstrated a weaker inclination toward an attitude inconsistent with current pain management principles. Education alone will not solve pain management problems unless health care settings initiate quality improvement programs, be committed to effective pain management as an institutional goal, and improve coordination of the process of assessing and treating pain.

Responses for items 1 and 3-11 indicated an attitude on the part of the participants that was consistent with current pain management principles. According to the experts a response to item 2 that is consistent with current pain management principles is “strongly agree (5).” Mean score of registered nurses’ responses (3.54) and mean score of students’ responses (3.14) fell short of the score indicating an attitude consistent with current pain management principles. This finding indicates a less-than-desired ability to adjust dosages according to patient need.

Research Question 3

What was the pain management knowledge of registered nurses?

The pain management knowledge test was given to (119) registered nurses. For each test item, the percentage of registered nurses who answered the test item correctly was calculated (Table 1). McCaffery and Pasero (1999) indicated that 80% is the minimal acceptable score on the NKASRP questionnaire/survey. The mean score for the nurses was 29.6 which is 74.0%, a lower than expected average. More than 80% of registered nurses in the study answered test items 1-4, 7, 8, 12-17, 20, 22, 24, 29, 31, 32, 37A, and 38A correctly. The number of items in this range answered corrected by the registered

nurses was the same as the number of items answered correctly by the senior student nurses in this range. However, the items varied slightly. Over 80% of the students answered correctly items 27 and 34 while less than that percentage of the registered nurses answered these two items correctly. Students displayed greater knowledge about the timing of analgesics for relief of post operative pain and were more knowledgeable about the peak effect of morphine. Registered nurses however were more knowledgeable about the duration of analgesia for morphine. Registered nurses were also more knowledgeable about the route of administration preferred for brief, severe pain. Items 5, 6, 10, 11, 19, 25-27, 30, 34, 35, and 38B were answered correctly by 50% -79% of the registered nurses. Registered nurse responses were substantially the same as responses of the student nurses. Items 9, 18, 21, 23, 28, 33, 36, and 37B were answered correctly by less than 50% of the registered nurses. This finding was also similar to the student nurses' responses. In summary, registered nurses correctly answered questions the content of which related to underlying principles of analgesic use and answered incorrectly questions that pertained to specific drugs used for pain relief. Of note is that very few of the registered nurses (21.7%) and very few of the student nurses (22.2%) demonstrated a competent understanding of pain relief in the patient with cancer. The deficiency was in the area of pharmacodynamics.

Research Question 4

What were the pain management attitudes of registered nurses?

The pain management attitudes survey was administered to (119) registered nurses. The pain management attitudes survey consisted of 16 statements and each

Table 3. Percentage of Registered Nurses (n=119) With Correct Responses on Each Question.

Test Question	% Correct
1. Vital signs are always reliable indicators of the intensity of a patient's pain.	97.5
2. Because their nervous system is underdeveloped, children under two years of age have decreased pain sensitivity and limited memory of painful experiences.	84.2
3. Patients who can be distracted from pain usually do not have severe pain.	90.8
4. Patients may sleep in spite of severe pain.	90.8
5. Aspirin and other nonsteroidal anti-inflammatory agents are NOT effective analgesics for painful bone metastases.	62.5
6. Respiratory depression rarely occurs in patients who have been receiving stable doses of opioids over a period of months.	58.3
7. Combining analgesics that work by different mechanisms (e.g., combining an opioid with an NSAID) may result in better pain control with fewer side effects than using a single analgesic agent.	100.0
8. The usual duration of analgesia of 1-2 morphine IV is 4-5 hours.	86.7
9. Research shows that promethazine (Phenergan) and hydroxyzine (Vistaril) are reliable potentiators of opioid analgesics.	47.5
10. Opioids should not be used in patients with a history of substance abuse.	77.5
11. Morphine has a dose ceiling (i.e., a dose above which no greater pain relief can be obtained).	52.5
12. Elderly patients cannot tolerate opioids for pain relief.	95.8
13. Patients should be encouraged to endure as much pain as possible before using an opioid.	99.2
14. Children less than 11 years old cannot reliably report pain so nurses should rely solely on parent's assessment of the child's pain intensity.	99.2

Table 3 (cont.)

Test Question	% Correct
15. Patients spiritual beliefs may lead them to think pain and suffering are necessary.	95.8
16. After an initial dose of opioid analgesic is given, subsequent doses should be adjusted in accordance with the individual patient's response.	97.5
17. Giving patients sterile water by injection (placebo) is a useful test to determine if the pain is real.	90.0
18. Vicodin (hydrocodone 5 mg + acetaminophen 500 mg) PO is approximately equal to 5 – 10 mg of morphine PO.	30.8
19. If the source of the patient's pain is unknown, opioids should not be used during the pain evaluation period, as this could mask the ability to correctly diagnose the cause of pain.	62.5
20. Anticonvulsant drugs such as carbamazepine (Tegretol) produce optimal pain relief after a single dose.	97.5
21. Benzodiazepines are not effective pain relievers unless the pain is due to muscle spasm.	43.3
22. Narcotic/opioid addiction is defined as a chronic neurobiologic disease, characterized by behaviors that include one or more of the following: impaired control over drug use, compulsive use, continued use despite harm, and craving.	100.0
23. The recommended route of administration of opioid analgesics for patients with persistent cancer-related pain is:	47.5
24. The recommended route of administration of opioid analgesics for patients with brief, severe pain of sudden onset, such as trauma or postoperative pain is:	97.5
25. Which analgesic medication is considered the drug of choice for treatment of prolonged moderate to severe pain for cancer patients?	78.3

Table 3 (cont.)

Test Question	% Correct
26. Which IV dose of morphine administered over a 4 hour period would be equivalent to 30 mg of oral morphine given q 4 hours?	50.8
27. When should analgesics for post-operative pain be given?	70.8
28. A patient with persistent cancer pain has been receiving daily opioid analgesics for 2 months. Yesterday the patient was receiving morphine 200 mg/hour intravenously. Today he has been receiving 250 mg/hour intravenously. What is the likelihood of the patient developing clinically significant respiratory depression in the absence of new comorbidity?	21.7
29. What is the most likely reason a patient with pain would request increased doses of pain medication?	93.3
30. Which of the following is useful for treatment of cancer pain?	69.2
31. Who is the most accurate judge of the intensity of the patient's pain?	99.2
32. How would you describe the best approach for cultural considerations in caring for patients in pain?	91.7
33. How likely is it that patients who develop pain already have an alcohol and/or drug abuse problem?	45.0
34. What is the time to peak effect for morphine given IV?	75.8
35. What is the time to peak effect for morphine given orally?	58.3
36. Following abrupt discontinuation of an opioid, how is physical dependence manifested?	37.5
37A. Scenario 1A	83.3
37B. Scenario 1B	36.7
38A. Scenario 2A	93.3
38B. Scenario 2B	54.2

registered nurse indicated if he/she strongly agree, agree, neutral, disagree, or strongly disagree with each statement. For each statement, a registered nurse was given 5 points for strongly agree, 4 points for agree, 3 points for neutral, 2 points for disagree, and 1 point for strongly disagree. A mean score was calculated for each survey statement for all of the registered nurses' responses (Table 4). In judging whether a response indicated an attitude consistent or inconsistent with current pain management principles, the response was compared to the response of medical and nursing personnel recognized (e.g., certification) for excellence in the field of pain management. A mean score approaching one indicated an attitude consistent with current pain management principles regarding survey items 1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13. A mean score approaching five regarding survey items 2, 14, 15, and 16 indicated an attitude consistent with current pain management principles.

On each of the 16 items the mean score for the registered nurses was remarkably similar to the mean score for the students. Thus, there was no significant difference between the attitudes of the registered nurses and the attitudes of the senior nursing students. Attitudes towards possibility of addiction were similar in the student nurses and the registered nurses.

Research Question 5

Were there significant differences between pain management knowledge and attitudes of registered nurses and pain management knowledge and attitudes of senior nursing students?

A multivariate analysis of variance (MANOVA) was conducted to determine if significant differences existed between senior nursing students and registered nurses on

Table 4. Mean Likert Scores for Each Item of the Weinstein Pain Survey Questionnaire (Attitudes) for Registered Nurses (n =119).

Survey Question	Mean Score
5-Strongly Agree, 4-Agree, 3-Neutral, 2-Disagree, 1-Strongly Disagree	
1. Chronic pain of unknown cause should not be treated with narcotics even if this is the only way to obtain pain relief.	1.97
2. It is appropriate to increase a dose of narcotics (per physician orders) above the usual range if the prognosis is less than one year.	3.54
3. If a chronic pain patient is active on the job, there is no possible justification for using narcotics for pain.	2.08
4. Narcotics should be restricted to treatment of severe intractable pain.	2.18
5. Persons who fit the "profile" of a likely drug abuser should never be treated with narcotics.	2.12
6. Prognosis should be the primary factor in deciding whether a patient should receive opioids.	2.21
7. Patients who complain of pain out of proportion to its cause are usually drug abusers.	2.19
8. Using narcotics to relieve the pain of benign conditions is ill-advised.	2.30
9. Even if patients have severe chronic pain, they should be treated with narcotics only when their illness has reached a terminal phase.	1.71
10. The presence of a physiologic basis for pain should be the primary factor when deciding to use opioids.	2.72
11. I would never use narcotics for a patient with chronic pain who is able to work.	2.01
12. Any patient who is given narcotics for pain relief is at significant risk for addiction.	2.44
13. I would be extremely concerned about possible addiction if a member of my family were given morphine for chronic pain.	2.41
14. I must exercise caution when giving potentially addictive medications to patients with chronic pain.	3.18
15. When narcotics are used to control chronic pain, addiction is a common outcome.	2.76
16. More than 5% of patients who receive narcotics for pain subsequently become addicts.	2.58

pain management knowledge and attitudes. The Wilks' Lambda test statistic was used in the MANOVA statistical analysis to test whether these differences were significant. The results of the statistical test (Wilks' Lambda = .889, $F= 13.346$, $p < .001$) indicated at least one significant difference in pain management knowledge and attitude of senior nursing students and registered nurses. ANOVA analyses indicated one significant difference from the two dependent variables (Table 5). Registered nurses had significantly higher pain management knowledge test scores than senior nursing students. However, no significant difference was found between the pain management attitudes of senior nursing students and registered nurses (Table 5).

Table 5. ANOVA of Knowledge and Attitude Inventory Scores for Both Senior Nursing Students (n=98) and Registered Nurses (n=119).

Instrument	Nursing Students		Registered Nurses		F-ratio	p	Effect SIZE
	M	SD	M	SD			
Knowledge Test	27.83	3.06	29.61	3.36	16.31	< .001	.56
Attitude Survey	36.97	7.73	38.46	7.18	2.17	.143	

Research Question 6

Are there differences between knowledge and attitudes of pain management of registered nurses by age in four categories (21-30, 31-40, 41-50, 51 and older)?

A multivariate analysis of variance (MANOVA) was conducted to determine differences in the pain management knowledge and attitudes of the four age groups of registered nurses. The Wilks' Lambda test statistic was used in the MANOVA statistical analysis to test whether these differences were significant. The results of these statistical tests report (Wilks' Lambda = .916, $F = 1.713$, $p = .119$) indicated no significant

differences between the pain management knowledge and attitudes of registered nurses in the different age categories (Table 6).

Table 6. Means and Standard Deviations for Knowledge and Attitude Inventory Scores by Age (years) of Registered Nurses (n=119).

Age of Subjects Registered Nurses	Knowledge Mean	Attitude Mean
21-30 (n = 50)	28.66	39.08
31-40 (n = 19)	31.05	37.53
41-50 (n = 15)	29.07	38.47
Over 50 (n = 35)	30.40	38.09

Research Question 7

Was there a relationship between years of experience as a nurse and knowledge and attitudes relevant to pain management?

A Pearson correlation was calculated and an *F* test was conducted to determine if there were significant relationships between years of professional experience and pain management knowledge and attitudes. The results of this statistical analysis revealed that a significant, but relatively low, positive relationship between registered nurses' pain management knowledge and their years of experience ($r = .244, p < .01$). However, no significant relationship was found between registered nurses' pain management attitudes and their years of experience ($r = -.039, p = .682$).

Research Question 8

Was there a difference between nurses with a bachelor degree or less and knowledge and attitudes of pain management of nurses with more than a bachelor degree in knowledge and attitudes of pain management?

A multivariate analysis of variance (MANOVA) was conducted to determine if there was a difference in the pain management knowledge and attitudes of registered nurses with a bachelor degree or less and registered nurses with more than a bachelor's degree in nursing. The Wilks' Lambda test statistic was used in the MANOVA statistical analysis to test whether these differences were significant. The results of these statistical tests indicated (Wilks' Lambda = .960, $F = 2.427$, $p = .093$) that there were no statistically significant differences between the pain management knowledge and attitudes of registered nurses with a bachelor degree or less and registered nurses with more than a bachelor's degree in nursing (Table 7).

Table 7. MANOVA of Knowledge and Attitude Inventory Scores of Registered Nurses (n= 119) by Level of Degree.

Instrument	Less than Bachelor		More than Bachelor	
	M	SD	M	SD
Knowledge	30.91	2.97	29.29	3.38
Attitudes	38.26	6.07	38.51	7.45

Wilks' Lambda = .960, $F = 2.427$, $p = .093$

Summary

Results indicated that neither educational level nor age had an effect on the knowledge and attitudes of practicing nurses regarding pain management. Likewise,

experience was not shown to affect attitudes; however there was a slight positive relationship between years of experience and knowledge regarding pain management. The practicing nurse had significantly greater knowledge about pain management than did the senior nursing student; nevertheless, there was no significant difference in attitude toward pain management between the two groups.

It is not surprising that practicing nurses have greater knowledge than students of nursing. However, one might also expect that attitudes toward pain and pain relief would change over time. In this study, however, there was no significant difference between attitudes of the student nurses and the attitudes of the registered nurses. It appears that attitudes are more stable over time than is knowledge. This is an argument for teaching practices that enhances the affective domain of learning. In Chapter V further implications of the findings are explored.

CHAPTER V

CONCLUSIONS, LIMITATIONS, IMPLICATIONS FOR NURSING, RECOMMENDATIONS FOR FUTURE RESEARCH AND SUMMARY

The purpose of the study was to investigate and to compare the knowledge and attitudes of senior nursing students and practicing registered nurses regarding pain management. This study utilized a convenience sample of registered nurses and senior nursing students who completed knowledge and attitude tools, and a demographic data form. Over 95% of the registered nurse participants were female as were over 90% of the senior nursing students. These numbers are reasonably consistent with the overall proportion of males and females in the profession of nursing (Health Resources & Services Administration, 2004). This study's findings provide a basic framework of knowledge deficits and attitudes present among senior nursing students and among registered nurses regarding pain management. This chapter presents a discussion of the findings and limitations of the study; the implications for nursing practice, education, and administration; and recommendations for further research.

Conclusions

The study elicited information about knowledge of pain and pain management, particularly with regard to opioid analgesic administration. The knowledge of pharmacology that was tested related to analgesic types, dosages, and side effects. The study findings support concerns already identified in the literature that some nurses

possess an inadequate knowledge of pharmacology and inadequate pain management skills. Concerns about the likelihood of addiction continue to prevail among both student nurses and practicing nurses. This results in failure to treat pain appropriately despite the fact that inadequate pain management is viewed worldwide as poor medical practice, poor nursing practice, unethical and an abrogation of fundamental human rights (Fishman, 2007).

A reason often advanced for limiting administration of analgesic medication is the fear of litigation. This fear while pervasive has little foundation in fact. If anything, current legal standards tend to recognize a right to treatment for pain (Brennan, Carr, & Cousins, 2007).

The Ferrell and McCaffery (2008) NKASRP instrument was used to evaluate study participants' knowledge regarding pain management. McCaffery and Pasero (1999) indicated that 80% is the minimal acceptable score on the NKASRP questionnaire/survey. Most practice standards consider 80% or higher as an acceptable score on a test of general knowledge (Brown, Bowman, & Eason, 1999). In the present study, some nursing students and some registered nurses were unable to answer fundamental questions related to analgesic routes, actions, and side effects. The actual performance of students was 69.5%. For the registered nurses the actual performance was 74.0%. In the classroom setting a score of 74% would be considered "failing." Clancey et al. (2000) and Latter et al. (2000) indicated the importance of developing a knowledge base of pharmacology for students and facilitation of self-directed, life-long learning for practicing nurses. This is particularly important with respect to pharmacology because of the rapid advances in new drug development. Whatever the strength and depth of study of

pharmacology in the basic nursing program, this knowledge will be at best insufficient and at worst erroneous within a few years of the student's graduation. Further complicating the acquisition of the necessary knowledge of pharmacotherapeutics are the number of brand names of a given drug, the slight variations between the generations of a drug, and the frequency of off-label use in the management of pain.

Many participants in this study had insufficient knowledge in pain management. These findings are consistent with findings of other studies (Chui et al., 2003; Coulling, 2005; McCaffery & Robinson, 2002). In spite of increased emphasis on pharmacology in most baccalaureate nursing programs, the myth may persist that pharmacologic information and decisions are the responsibility of the physician's practice and that nurses merely carry out the physician's orders relative to pain relief. McCaffery and Robinson (2002) also reported that nurses complain of not getting cooperation from physicians whenever they request a higher dose of an opioid after a lower dose was deemed to be ineffective. In the present study more than 66% of registered nurse participants were practicing in a medical-surgical area. Nevertheless, 70% answered correctly the question as to whether or not analgesics should be given around the clock on a fixed schedule. McCaffery and Pasero (1999) stated that this drug administration regime is standard practice and should be known by any nurse working in a medical-surgical unit.

Vignettes or scenarios have been used in many studies of registered nurses' and student nurses' decision-making (Chuk, 2002; Plaisance & Logan, 2006). The two patient scenarios used in this study focused on the participants' abilities to decide correctly about assessment data and interventions. In the first scenario which documented

a patient's rating on a pain scale, 91.9% of the students and 83.3% of the registered nurses indicated that they would have documented the patient's stated rating. In the second scenario, 98.0% of the students and 93.3% of the registered nurses indicated that they would document the pain rating expressed by the patient. Yet, only 30.3% of the students and 36.7% registered nurses in the first scenario and 44.4% of the students and 54.2% of the registered nurses in the second scenario indicated that they would administer the recommended dose of morphine on the basis of the assessment data. This response indicates a disconnect between assessment and intervention. In such cases the patient(s) receive less than the recommended dose of an analgesic. If the findings in this study and the findings in other similar studies are an indication of the current state of actual practice, it is unfortunate indeed for patients.

Findings of the current study are similar to the findings of Edwards et al. (2001) and the findings of Weinstein et al. (2000). Both of these studies measured attitudes toward pain management in populations similar to the population of the present study. In general, nursing students and practicing nurses had attitudes consistent with current pain management principles about pain and pain management but this is overshadowed by their concerns about potential side effects, especially addiction, of opioid analgesia. The attitude demonstrated by the research participants persists despite investigations over the past 20 years that consistently have shown that the probability of addiction following increasing dosages for pain relief, even over a long period of time, is less than 1% (McCaffery & Robinson, 2002).

Mean score in this study of attitudes toward addiction possibility indicated attitudes inconsistent with current pain management principles of students and of

practicing nurses. Also, the participants' scores showed attitudes inconsistent with current pain management principles toward increasing the dose of narcotic (per physician orders) above the usual range if the patient's prognosis is less than one year. Both students and practicing nurses were likely to give a narcotic to the patient who continued regular employment. This finding is consistent with the findings of Lasch et al. (2002) and Salantero and Lauri (2000) who found that nurses' individual biases about pain and addiction influenced pain management. In above cited studies an educational intervention improved the nurses' ability to manage pain. According to Hiscock and Kadawatage (1999), medical staff members need to reflect on their perception of pain management if any improvement in attitudes is to occur. Studies cited by Tanabe and Buschman (2000) showed that emergency department nurses' knowledge gaps in pharmacology contributed to their lack of understanding the differences between addiction and tolerance.

Pain management knowledge test scores of registered nurses in this study were slightly higher than the pain management knowledge test scores of senior nursing students in the study, but both were relatively low. However, no significant statistical difference was found between the pain management attitudes of senior nursing students and the pain management attitudes of registered nurses.

Watt-Wattson et al. (2001) indicated that nurses' knowledge related to pain-related practices was not significantly influenced by personal characteristics such as age and/or experience and/or degree. The results of the present study also did not indicate any significant difference between the pain management knowledge and attitudes of registered nurses in the different age categories.

In the past nurses with greater knowledge and experience often encountered conflict with both nursing and medical colleagues in attempting to improve pain management for their patients (Ferrell et al., 1993). This question was not addressed in the present study. There was a relatively low positive relationship between registered nurses' pain management knowledge and their years of experience. Clark et al. (1996) found that nurses learned the most about pain management from contact with other nurses and continuing experience in the clinical setting. However, the present study showed no significant relationship between registered nurses' pain management attitudes and their years of experience.

A study conducted by McCaffery and Robinson (2002) found that nurses with a masters degree in nursing were more knowledgeable about pain management than were nurses with a baccalaureate degree or less. Chiu (2003) found that pain management is important to undergraduate nursing students but their lack of knowledge about pharmacology negatively impacts their continued learning about pain when they begin their nursing practice. Chiu indicated further that new graduates may not understand the complexity of pain management. Since nurses with less than a master's degree provide most of the nursing care in acute care settings, it is imperative that education regarding pain management be increased in entry-level educational programs.

In this study there were no significant differences between the pain management knowledge and attitudes of registered nurses with a bachelor degree or less and registered nurses with more than a bachelor's degree in nursing. This supports the finding of Czurylo et al. (1999) that education alone may not be sufficient to change behavior; nursing practice changes are influenced by organizational and environmental factors.

Limitations

Since a convenience sample was used in the study, the results are not generalizable to other practice settings and other schools of nursing. Since the registered nurse participants volunteered (self-selected) for the study, they may not be representative of practicing nurses. For example, nurses who did not volunteer for the study may have had pain management skills and attitudes at variance with the skills and attitudes of nurses who participated in the study. In addition, the knowledge survey used two vignettes/scenarios of hypothetical patients in pain and nurses' inferences in a hypothetical setting. These particular vignettes may not be an accurate reflection of nursing practice of the participants. Another limitation of this study is the inability to extrapolate a clear correlation between test scores and actual clinical nursing practice.

Implications for Nursing

Unfortunately, pain is a common and potentially disabling condition. Costs of pain are evidenced at many levels--individual, family, and community. Effective pain management is an important nursing and physician responsibility. The findings of this study affirm the need for improving the pain management attitudes and knowledge of nurses.

The need for innovative and effective pain management education for nurses is well documented. It is imperative that all nurses be better educated and be encouraged to be reflective, evidenced-based practitioners (Institute of Medicine, 2003; Wilson, 2007). The simulation laboratory offers a creative setting in which to teach pain management techniques. The critical judgment and intervention choice ability of students can be

enhanced when patient safety is not a factor and students can be allowed to see the natural evolution of their nursing actions.

The safety and effectiveness of pain management practices, such as opioid range orders is dependant on the skill of nurses to interpret a patient's pain and to make clinical judgments. While many practicing nurses did not receive training in such techniques as analgesic titration in their educational programs, the habit of referring to sources of current information such as National Guideline Clearinghouse and the Cochrane Review needs to be developed during basic education and promoted through continuing education. Nurses need continuing education to practice pain assessment and opioid titration to acquire skill in pain management (Pasero, Manworren, & McCaffery, 2007). Every hospital quality-improvement program should monitor nurses' implementation of opioids titration order protocol. The measurable indicators include pain ratings and comfort-function goals, adverse effects, and complications (Pasero & McCaffery, 2003).

Pain management education should be an essential part of nursing curricula at the undergraduate level. Teaching strategies should be multidimensional that include both theoretical information and clinical experiences. Wilson (2007) explained the importance of nurses' preparation in the clinical setting to develop strategies to survive the system and prevent the state of cognitive dissonance with patients' unrelieved pain. Nursing faculty need to ensure that students have meaningful clinical experiences and role models who will reinforce essential pain management knowledge and practice (Plaisance & Logan, 2006). It is crucial that role models do not acculturate student nurses into a subculture that operates with a cognitive dissonance that leads to ineffective pain management (Brown, 2000).

Hospital administration and physicians must ensure adequate pain management to their patients and ensure safe administration. Thus, health care administrators must ensure positive patient outcomes. Also, they have the duty and responsibility to align a strategic plan designed to improve pain management practices within their organizations. By supporting nurses and physicians in continuing educational activities, administrators will enhance organizational pain management activities, improve patient outcomes, and increase patient satisfaction with pain management. U. S. Food and Drug Administration (2009) require drug companies to formulate risk evaluation and mitigation strategies for opioids; therefore, physicians will make more informed drug choices based on risks and benefits. Furthermore, this will assist nurses to appropriate information on safe administration and dosages and potential adverse effects of opioid therapy as well as expert contacts to call with questions and concerns in regards to the many different opioids that are presently being prescribed by physicians (D'Arcy, 2009).

Interdisciplinary endeavors in pain management would also benefit many patients. Each healthcare discipline has a unique skill and perspective to bring to the development of a treatment plan as well as to the formulation of research into this area which affects so many people. Interdisciplinary education must begin in programs preparing health professionals and continue in the practice setting (Institute of Medicine, 2003).

Recommendations for Future Research

A patient has the right to receive appropriate management of his/her pain (Rieman & Gordon, 2007). Nurses have the responsibility to appropriately manage pain. To meet this responsibility they must maintain and continually upgrade their knowledge of pain assessment and pain management (American Nurses Association [ANA], 2001). The

health care facilities in which nurses provide care have the responsibility to ensure nurses' competency in pain management (Joint Commission on Accreditation of Healthcare Organizations, 2001).

Results of this study indicate that there are serious challenges to adequate pain management. Although the vast majority of nurses and student nurses in this study would record the patients' pain, many would fail to relieve the pain with the correct dosage of narcotic. The nurses and students demonstrated better knowledge of pain assessment than of interventions for pain relief. The content of the theoretical input on pain and the number of learning hours for student nurses should be further reviewed in the curriculum of undergraduate study. The important concept of pain as a subjective experience should be emphasized. Moreover, continuing education for nurses on pain assessment and management including education about the pharmacology of analgesics should not be neglected. More research is needed regarding nurses' pharmacologic and nonpharmacologic pain management knowledge, pain management behavior, and outcomes of pain management in different settings. A belief in the primacy of comfort for optimal healing must prevail in healthcare. Direct caregivers as well as administration and medical personnel within delivery systems should facilitate the attainment, as well as application, of appropriate pain management practices (Hollen et al., 2000).

Future research is required to assess the impact of educational interventions with students and registered nurses on their knowledge of and attitudes toward pain management. Research studies in other geographical and treatment settings need to be done to ascertain whether or not the deficiencies documented in this and other studies are pervasive across settings. Research to identify differences between specialty areas would

also be useful. Comparison of the effectiveness of a curriculum that integrates pain management into several courses as opposed to emphasis in a single-course may identify best practices that would translate into a better prepared nursing workforce.

Summary

Pain remains a constant of the human conditions. Despite advances, pharmacological and other, in pain alleviation, the duration and intensity of pain continues to be a factor in the lives of far too many patients. The single most practical measure to improve the quality of pain management is improvement of the attitudes and skills of the nurses who are the people most directly responsible for the alleviation of pain. This improvement must have its roots in basic nursing education.

While necessary, the infusion of sound pain management techniques into nursing curricula is not sufficient. Continuing learning by practicing nurses is essential for safe, effective care of patient. Part of this learning is affective. Biases and stereotypes regarding addiction are a considerable barrier to satisfactory management. The needed learning is also cognitive. Advances are rapid in the field of pharmacotherapeutics. Nurses need to know well a wide array of drugs and their usage and side effects. Administrators of health care facilities need to make room in schedules and budgets for nurses to keep abreast of development in pain management.

Findings of this study indicate the nursing profession has work to do to meet the expectations of its promise to society to provide safe compassionate care. A structured approach to improving the quality of pain management is required. Education, affective and cognitive, is an essential part of this approach. And it must be remembered that education alone will not solve pain management problems unless health care settings

initiate quality improvement programs, be committed to effective pain management as an institutional goal, and improve coordination of the process of assessing and treating pain.

APPENDICES

Appendix A
Permission and Instrument



April 2008

Dear Colleague:

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

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

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

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

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

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

Sincerely,

Handwritten signature of Betty R. Ferrell in black ink.

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

Handwritten signature of Margo McCaffery in black ink.

Margo McCaffery, RN, MS, FAAN
Lecturer and Consultant

References:

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Knowledge and Attitudes Survey Regarding Pain
True/False – Circle the correct answer.

- T F 1. Vital signs are always reliable indicators of the intensity of a patient's pain.
- T F 2. Because their nervous system is underdeveloped, children under two years of age have decreased pain sensitivity and limited memory of painful experiences.
- T F 3. Patients who can be distracted from pain usually do not have severe pain.
- T F 4. Patients may sleep in spite of severe pain.
- T F 5. Aspirin and other nonsteroidal anti-inflammatory agents are NOT effective analgesics for painful bone metastases.
- T F 6. Respiratory depression rarely occurs in patients who have been receiving stable doses of opioids over a period of months.
- T F 7. Combining analgesics that work by different mechanisms (e.g., combining an opioid with an NSAID) may result in better pain control with fewer side effects than using a single analgesic agent.
- T F 8. The usual duration of analgesia of 1-2 mg morphine IV is 4-5 hours.
- T F 9. Research shows that promethazine (Phenergan) and hydroxyzine (Vistaril) are reliable potentiators of opioid analgesics.
- T F 10. Opioids should not be used in patients with a history of substance abuse.
- T F 11. Morphine has a dose ceiling (i.e., a dose above which no greater pain relief can be obtained).
- T F 12. Elderly patients cannot tolerate opioids for pain relief.
- T F 13. Patients should be encouraged to endure as much pain as possible before using an opioid.
- T F 14. Children less than 11 years old cannot reliably report pain so nurses should rely solely on the parent's assessment of the child's pain intensity.
- T F 15. Patients' spiritual beliefs may lead them to think pain and suffering are necessary.
- T F 16. After an initial dose of opioid analgesic is given, subsequent doses should be adjusted in accordance with the individual patient's response.
- T F 17. Giving patients sterile water by injection (placebo) is a useful test to determine if the pain is real.
- T F 18. Vicodin (hydrocodone 5 mg + acetaminophen 500 mg) PO is approximately equal to 5-10 mg of morphine PO.
- T F 19. If the source of the patient's pain is unknown, opioids should not be used during the pain evaluation period, as this could mask the ability to correctly diagnose the cause of pain.
- T F 20. Anticonvulsant drugs such as gabapentin (Neurontin) produce optimal pain relief after a single dose.
- T F 21. Benzodiazepines are not effective pain relievers unless the pain is due to muscle spasm.
- T F 22. Narcotic/opioid addiction is defined as a chronic neurobiologic disease, characterized by behaviors that include one or more of the following: impaired control over drug use, compulsive use, continued use despite harm, and craving.

Multiple Choice – Place a check by the correct answer.

23. The recommended route of administration of opioid analgesics for patients with persistent cancer-related pain is:
- a. intravenous
 - b. intramuscular
 - c. subcutaneous
 - d. oral
 - e. rectal
24. The recommended route of administration of opioid analgesics for patients with brief, severe pain of sudden onset such as trauma or postoperative pain is
- a. intravenous
 - b. intramuscular
 - c. subcutaneous
 - d. oral
 - e. rectal
25. Which of the following analgesic medications is considered the drug of choice for the treatment of prolonged moderate to severe pain for cancer patients?
- a. codeine
 - b. morphine
 - c. meperidine
 - d. tramadol
26. Which of the following IV doses of morphine administered over a 4 hour period would be equivalent to 30 mg of oral morphine given q 4 hours?
- a. Morphine 5 mg IV
 - b. Morphine 10 mg IV
 - c. Morphine 30 mg IV
 - d. Morphine 60 mg IV
27. Analgesics for post-operative pain should initially be given
- a. around the clock on a fixed schedule
 - b. only when the patient asks for the medication
 - c. only when the nurse determines that the patient has moderate or greater discomfort
28. A patient with persistent cancer pain has been receiving daily opioid analgesics for 2 months. Yesterday the patient was receiving morphine 200 mg/hour intravenously. Today he has been receiving 250 mg/hour intravenously. The likelihood of the patient developing clinically significant respiratory depression in the absence of new comorbidity is
- a. less than 1%
 - b. 1-10%
 - c. 11-20%
 - d. 21-40%
 - e. >41%
29. The most likely reason a patient with pain would request increased doses of pain medication is
- a. The patient is experiencing increased pain.
 - b. The patient is experiencing increased anxiety or depression.
 - c. The patient is requesting more staff attention.
 - d. The patient's requests are related to addiction.
30. Which of the following is useful for treatment of cancer pain?
- a. Ibuprofen (Motrin)
 - b. Hydromorphone (Dilaudid)
 - c. Gabapentin (Neurontin)
 - d. All of the above
31. The most accurate judge of the intensity of the patient's pain is
- a. the treating physician
 - b. the patient's primary nurse

- c. the patient
 - d. the pharmacist
 - e. the patient's spouse or family
32. Which of the following describes the best approach for cultural considerations in caring for patients in pain:
- a. There are no longer cultural influences in the U.S. due to the diversity of the population.
 - b. Cultural influences can be determined by an individual's ethnicity (e.g., Asians are stoic, Italians are expressive, etc).
 - c. Patients should be individually assessed to determine cultural influences.
 - d. Cultural influences can be determined by an individual's socioeconomic status (e.g., blue collar workers report more pain than white collar workers).
33. How likely is it that patients who develop pain already have an alcohol and/or drug abuse problem?
- <1% 5-15% 25-50% 75-100%
34. The time to peak effect for morphine given IV is
- a. 15 min.
 - b. 45 min.
 - c. 1 hour
 - d. 2 hours
35. The time to peak effect for morphine given orally is
- a. 5 min.
 - b. 30 min.
 - c. 1-2 hours
 - d. 3 hours
36. Following abrupt discontinuation of an opioid, physical dependence is manifested by the following:
- a. sweating, yawning, diarrhea and agitation with patients when the opioid is abruptly discontinued
 - b. Impaired control over drug use, compulsive use, and craving
 - c. The need for higher doses to achieve the same effect.
 - d. a and b

Case studies

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

Directions: Please select one answer for each question.

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

0 1 2 3 4 5 6 7 8 9 10

No pain/discomfort Worst

Pain/discomfort

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

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

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

0 1 2 3 4 5 6 7 8 9 10

No pain/discomfort Worst
Pain/discomfort

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

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

Answer Key
True/False – Circle the correct answer.

- F 1. Vital signs are always reliable indicators of the intensity of a patient's pain.
- F 2. Because their nervous system is underdeveloped, children under two years of age have decreased pain sensitivity and limited memory of painful experiences.
- F 3. Patients who can be distracted from pain usually do not have severe pain.
- T 4. Patients may sleep in spite of severe pain.
- F 5. Aspirin and other nonsteroidal anti-inflammatory agents are NOT effective analgesics for painful bone metastases.
- T 6. Respiratory depression rarely occurs in patients who have been receiving stable doses of opioids over a period of months.
- T 7. Combining analgesics that work by different mechanisms (e.g., combining an opioid with an NSAID) may result in better pain control with fewer side effects than using a single analgesic agent.
- F 8. The usual duration of analgesia of 1-2 mg morphine IV is 4-5 hours.
- F 9. Research shows that promethazine (Phenergan) and hydroxyzine (Vistaril) are reliable potentiators of opioid analgesics.
- F 10. Opioids should not be used in patients with a history of substance abuse.
- F 11. Morphine has a dose ceiling (i.e., a dose above which no greater pain relief can be obtained).
- F 12. Elderly patients cannot tolerate opioids for pain relief.
- F 13. Patients should be encouraged to endure as much pain as possible before using an opioid.
- F 14. Children less than 11 years old cannot reliably report pain so nurses should rely solely on the parent's assessment of the child's pain intensity.
- T 15. Patient's spiritual beliefs may lead them to think pain and suffering are necessary.
- T 16. After an initial dose of opioid analgesic is given, subsequent doses should be adjusted in accordance with the individual patient's response.
- F 17. Giving patients sterile water by injection (placebo) is a useful test to determine if the pain is real.
- T 18. Vicodin (hydrocodone 5 mg + acetaminophen 500 mg) PO is approximately equal to 5 - 10 mg of morphine PO.
- F 19. If the source of the patient's pain is unknown, opioids should not be used during the pain evaluation period, as this could mask the ability to correctly diagnose the cause of pain.
- F 20. Anticonvulsant drugs such as carbamazepine (Tegretol) produce optimal pain relief after a single dose.
- T 21. Benzodiazepines are not effective pain relievers unless the pain is due to muscle spasm.
- T 22. Narcotic/opioid addiction is defined as a chronic neurobiologic disease, characterized by behaviors that include one or more of the following: impaired control over drug use, compulsive use, continued use despite harm, and craving.

Answer Key

Knowledge and Attitudes Survey Regarding Pain Multiple Choice – Place a check by the correct answer.

23. The recommended route of administration of opioid analgesics for patients with persistent cancer-related pain is
- a. intravenous
 - b. intramuscular
 - c. subcutaneous
 - d. oral
 - e. rectal
24. The recommended route of administration of opioid analgesics for patients with brief, severe pain of sudden onset, such as trauma or postoperative pain is
- a. intravenous
 - b. intramuscular
 - c. subcutaneous
 - d. oral
 - e. rectal
25. Which of the following analgesic medications is considered the drug of choice for the treatment of prolonged moderate to severe pain for cancer patients?
- a. codeine
 - b. morphine
 - c. meperidine
 - d. tramadol
26. Which of the following IV doses of morphine administered over a 4 hour period would be equivalent to 30 mg of oral morphine given q 4 hours
- a. Morphine 5 mg IV
 - b. Morphine 10 mg IV
 - c. Morphine 30 mg IV
 - d. Morphine 60 mg IV
27. Analgesics for post-operative pain should initially be given
- a. around the clock on a fixed schedule
 - b. only when the patient asks for the medication
 - c. only when the nurse determines that the patient has moderate or greater discomfort
28. A patient with persistent cancer pain has been receiving daily opioid analgesics for 2 months. Yesterday the patient was receiving morphine 200 mg/hour intravenously. Today he has been receiving 250 mg/hour intravenously. The likelihood of the patient developing clinically significant respiratory depression in the absence of new comorbidity is
- a. less than 1%
 - b. 1-10%
 - c. 11-20%
 - d. 21-40%
 - e. > 41%
29. The most likely reason a patient with pain would request increased doses of pain medication is
- a. The patient is experiencing increased pain.
 - b. The patient is experiencing increased anxiety or depression.
 - c. The patient is requesting more staff attention.
 - d. The patient's requests are related to addiction.
30. Which of the following is useful for treatment of cancer pain?
- a. ibuprofen (Motrin)
 - b. Hydromorphone (Dilaudid)
 - c. Gabapentin (Neurontin)
 - d. All of the above

31. The most accurate judge of the intensity of the patient's pain is
- a. the treating physician
 - b. the patient's primary nurse
 - c. the patient
 - d. the pharmacist
 - e. the patient's spouse or family
32. Which of the following describes the best approach for cultural considerations in caring for patients in pain:
- a. There are no longer cultural influences in the U.S. due to the diversity of population.
 - b. Cultural influences can be determined by an individual's ethnicity (e.g., Asians are stoic, Italians are expressive, etc).
 - c. Patients should be individually assessed to determine cultural influences.
 - d. Cultural influences can be determined by an individual's socioeconomic status (e.g., blue collar workers report more pain than white collar workers).
33. How likely is it that patients who develop pain already have an alcohol and/or drug abuse problem?
 < 1% 5 - 15% 25 - 50% 75 - 100%
34. The time to peak effect for morphine given IV is
- a. 15 min.
 - b. 45 min.
 - c. 1 hour
 - d. 2 hours
35. The time to peak effect for morphine given orally is
- a. 5 min.
 - b. 30 min
 - c. 1 - 2 hours
 - d. 3 hours
36. Following abrupt discontinuation of an opioid, physical dependence is manifested by the following:
- a. sweating, yawning, diarrhea and agitation with patients when the opioid is abruptly discontinued
 - b. Impaired control over drug use, compulsive use, and craving
 - c. The need for higher doses to achieve the same effect.
 - d. a and b

Case Studies

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

Directions: Please select one answer for each question.

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

- A. On the patient's record you must mark his pain on the scale below. Circle the number that represents your assessment of Andrew's pain.

0 1 2 3 4 5 6 7 8 9 10

 No pain/discomfort Worst
 Pain/discomfort

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

3. Administer morphine 2 mg IV now.
 4. Administer morphine 3 mg IV now.
38. Patient B: Robert is 25 years old and this is his first day following abdominal surgery. As you enter his room, he is lying quietly in bed and grimaces as he turns in bed. Your assessment reveals the following information: BP = 120/80; HR = 80; R = 18; on a scale of 0 to 10 (0 = no pain/discomfort, 10 = worst pain/discomfort) he rates his pain as 8.
- A. On the patient's record you must mark his pain on the scale below. Circle the number that represents your assessment of Robert's pain:
0 1 2 3 4 5 6 7 8 9 10

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

Appendix B
Permission Letter



August 6, 2008

2000 CIRCLE OF HOPE
SALT LAKE CITY, UTAH 84143
OFFICE: 313.810.6100
FAX: 313.810.9900

Sherry Messmer, MSN, RN
University of Mary
7500 University Street
Bismarck, North Dakota 58504

Dear Ms. Messmer,

This letter is to inform you that I give permission to Sherry Messmer to use my survey tool, "Pain Survey Questionnaire". This survey tool was published in the article titled "Physician's Attitudes Toward Pain and the Use of Opioid Analgesics: Results of a Survey from the Texas Cancer Pain Initiative". This article was published in the May 2000 issue of Southern Medical Journal.

It is my understanding that you will credit the source, being the Pain Survey Questionnaire, and that you will share the results of your work with me.

Sincerely,

Sharon M. Weinstein, MD
Professor, Department of Anesthesiology
University of Utah School of Medicine
Director, Pain Medicine and Palliative Care
Huntsman Cancer Institute

SMW/ss

**NURSES' ATTITUDES TOWARD USE OF NARCOTIC/OPIOID ANALGESICS FOR PAIN
SURVEY**

DIRECTIONS: Read each statement carefully and place an X in the parentheses to the right of the statement that comes closest to indicate how you feel about the use of opioids. There are no correct or incorrect responses. Do not spend too much time on any one statement, but give the response that seems to describe how you feel.

Please respond to all items.

- (SA) Strongly Agree
- (A) Agree
- (N) Neutral
- (D) Disagree
- (SD) Strongly Disagree

1. Chronic pain of unknown cause should not be treated with narcotics even if this is the only way to obtain pain relief.	(SA)	(A)	(N)	(D)	(SD)
2. It is appropriate to increase a dose of narcotics (per physician orders) above the usual range if the prognosis is less than one year	(SA)	(A)	(N)	(D)	(SD)
3. If a chronic pain patient is active on the job, there is no possible justification for using narcotics for pain.	(SA)	(A)	(N)	(D)	(SD)
4. Narcotics should be restricted to treatment of severe intractable pain.	(SA)	(A)	(N)	(D)	(SD)
5. Persons who fit the "profile" of a likely drug abuser should never be treated with narcotics.	(SA)	(A)	(N)	(D)	(SD)
6. Prognosis should be the primary factor in deciding whether a patient should receive opioids.	(SA)	(A)	(N)	(D)	(SD)
7. Patients who complain of pain out of proportion to its cause are usually drug abusers.	(SA)	(A)	(N)	(D)	(SD)
8. Using narcotics to relieve the pain of benign conditions is ill-advised.	(SA)	(A)	(N)	(D)	(SD)
9. Even if patients have severe chronic pain, they should be treated with narcotics only when their illness has reached a terminal phase.	(SA)	(A)	(N)	(D)	(SD)
10. The presence of a physiologic basis for pain should be the primary factor when deciding to use opioids.	(SA)	(A)	(N)	(D)	(SD)
11. I would never use narcotics for a patient with chronic pain who is able to work.	(SA)	(A)	(N)	(D)	(SD)

12. Any patient who is given narcotics for pain relief is at significant risk for addiction.	(SA)	(A)	(N)	(D)	(SD)
13. I would be extremely concerned about possible addiction if a member of my family were given morphine for chronic pain.	(SA)	(A)	(N)	(D)	(SD)
14. I must exercise caution when giving potentially addictive medications to patients with chronic pain.	(SA)	(A)	(N)	(D)	(SD)
15. When narcotics are used to control chronic pain, addiction is a common outcome.	(SA)	(A)	(N)	(D)	(SD)
16. More than 5% of patients who receive narcotics for pain subsequently become addicts.	(SA)	(A)	(N)	(D)	(SD)

Adapted with permission

Weinstein, S. M., et al. (2000). Physicians' attitudes toward pain and the use of opioid analgesics: Results of a survey from the Texas cancer pain initiative. *Southern Medical Journal*, 93(5), 484-487.

Appendix C
Letter of Information and Informed Consent

**PAIN MANAGEMENT: KNOWLEDGE AND ATTITUDES OF SENIOR NURSING
STUDENTS AND PRACTICING REGISTERED NURSES**

I am Sherry Messmer, a doctoral student at the University of North Dakota. I have a strong interest and passion for pain management and have decided to focus my study on prelicensure, senior nursing students' and registered nurses' knowledge and attitudes regarding pain management. This study is being done to gather information that can be used by nurse educators to identify areas of pain management that need further emphasis in undergraduate education and continuing education.

I invite you to participate in this study by completing two brief questionnaires and sharing some information (e.g., age, experience, education) about yourself. It will take approximately 30 minutes to complete the questionnaires.

Your participation in this research study is voluntary and your responses are completely anonymous. By completing the surveys/questionnaires, you are indicating that you have read and understood this information and agree to take part in this research study.

I will distribute the questionnaires and ask that whether you choose to participate or not, you will return the questionnaires (completed or not) to the box on the table before you leave.

Before I distribute the questionnaires, I will answer any questions that you may have at this time.

If you would like to receive a summary of the results of the study, please write your email address on the sheet provided when you return the questionnaires. Your email address will be in no way connected to the information that you supply on the questionnaires.

If questions or concerns arise later, please contact me at (701) 258-5596 or email me at smessmer@umary.edu. You may also contact my advisor, Dr. Richard Landry at (701) 777-3582. If you have further concerns, please call the University of North Dakota, Research Development and Compliance office at (701) 777-4279.

Thank you for your time and interest.

Sincerely,

Sherry Messmer, MSN, RN
University of North Dakota

Appendix D
IRB Approval

UNIVERSITY OF  NORTH DAKOTA

INSTITUTIONAL REVIEW BOARD
c/o RESEARCH DEVELOPMENT AND COMPLIANCE
DIVISION OF RESEARCH
TWAMLEY HALL ROOM 106
264 CENTENNIAL DRIVE STOP 7114
GRAND FORKS ND 58202-7114
(701) 777-4279
FAX (701) 777-6908
www.und.edu/dept/rdc/reg/compliance

August 5, 2008

Shery Messmer
805 Oberhausen Drive
Bismarck, ND 58504

Dear Ms. Messmer:


We are pleased to inform you that your project titled "Pain Management: Senior Nursing Students' and Practicing Nurses' Knowledge and Attitudes" (IRB-200808-018) has been reviewed and approved by the University of North Dakota Institutional Review Board (IRB). The expiration date of this approval is November 1, 2009.

As principal investigator for a study involving human participants, you assume certain responsibilities to the University of North Dakota and the UND IRB. Specifically, any adverse events or departures from the protocol that occur must be reported to the IRB immediately. It is your obligation to inform the IRB in writing if you would like to change aspects of your approved project, prior to implementing such changes.

When your research, including data analysis, is completed, you must submit a Research Project Termination form to the IRB office so your file can be closed. A Termination form has been enclosed and is also available on the IRB website.

If you have any questions or concerns, please feel free to call Janet Eishaug, IRB Administrative Secretary, at (701) 777-4279 or e-mail janeteishaug@mail.und.edu.

Sincerely,


Kathy A. Stewart, Ed.D.
Chair, Institutional Review Board

KAS/jla

Enclosure

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