

Running head: PAIN MANAGEMENT

NURSES' PAIN MANAGEMENT KNOWLEDGE AND PATIENT OUTCOMES RELATED
TO PAIN

A RESEARCH PAPER SUBMITTED TO THE GRADUATE SCHOOL IN PARTIAL
FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE

MASTERS OF SCIENCE

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MAY 2009

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Abstract

RESEARCH PAPER: Nurses' Pain Management Knowledge and
Patient Outcomes Related to Pain

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DATE: May, 2009

Pain management continues to be a significant issue for both patients and nurses. Nurses have not implemented current pain standards into clinical practice. The purpose of this study is to examine the relationship between nurses' knowledge of pain management and the pain outcomes of postoperative orthopedic patients in a Midwestern community hospital. The sample consists of registered nurses (N = 32) and patients having surgery (N = 46). Data will be collected using The Toronto Pain Inventory to measure pain knowledge of nurses and The Patient Pain Interview. The conceptual model of this study is the Gate Control Theory. Findings will provide information about nurses' pain knowledge and patient outcomes for use in the development of an educational program to increase nurses' pain knowledge.

Nurses' Pain Management Knowledge and Patient Outcomes Related
to Pain

Chapter 1

Introduction

In the realm of nursing the issue of pain management is a high priority. However, managing pain is difficult and often frustrating due to the subjectivity of pain assessment and the variability of the subsequent treatment. Many institutions have implemented pain assessment and treatment protocols based on guidelines issued by the Joint Commission on Accreditation of Healthcare Organization and the American Pain Society. The implementation of these guidelines is a directive to increase nursing knowledge regarding pain management thereby improving patient outcomes.

Recent studies continue to demonstrate the inconsistency of pain management. Gunningberg and Idvall (2007) noted that patients continue to report significant pain following surgery despite increased nurse education related to pain management. This is consistent with findings of previous research.

Further research demonstrates the need for structured pain management education. A study focusing on continuing education noted that follow up education is useful to maintain the gains

of the original program. Guardini, Talamini, Francesca, Lirutti, and Palese (2008) discuss the results of a study measuring the effectiveness of a pain education program. Nurses participating in a pain management education program were tested following completion of the program. They were tested again 18 months later. Results of this study demonstrated that knowledge increased immediately following the educational program. However, the results at 18 months did not demonstrate consistent retention of knowledge. The authors recommend further educational interventions to prevent regression to previous practices.

Communication is fundamental to the assessment process. Pain assessment necessitates speaking to the individual patient to collect data that may also include underlying pain problems in addition to the postoperative pain (Mackintosh, 2007, p. 51). Pain assessment is enhanced through the use of pain assessment tools which focus the assessment process.

Despite the gains made in pain research and education there remains a deficit in the pain management provided to post operative patients. Integral to the deficit is the ability to accurately complete a pain assessment. Pain assessment is dependent upon patient participation for collection of the subjective data. Nurses and other healthcare providers have

previously focused on objective data collection and the collection of subjective data as the primary information source is unsettling. Learning to utilize subjective data is a daunting task for many nurses.

Background and Significance

In 1999 JCAHO (Joint Commission on Accreditation of Healthcare Organizations) issued a standard for pain assessment and treatment. Since this time healthcare organizations have been working toward incorporating the guidelines into the institutional policies with the intent of improving nursing care and patient satisfaction.

Understanding pain and its significance is an important part of caring for post-operative patients. Numerous studies have been completed that measure the pain knowledge of healthcare practitioners. Results of these studies have then been used to develop educational programs specific to pain and its treatment. Watt-Watson, Stevens, Garfinkel, Streiner, and Gallop (2001) published a study focusing on the relationship between nurses' pain knowledge and patient pain outcomes. This study found that nurses' knowledge did not correlate to analgesic administration or the pain ratings of the patient.

Another study focused on measuring nurses' knowledge and attitudes related to pain management. The authors noted that

the "most common barrier to successful pain management is the failure to assess (Innis, Bikaunieks, Petryshen, Zellermeier, & Ciccarelli, 2004, p. 322). The study utilized an evidence based educational intervention between measurement times one and two. Knowledge scores post intervention improved 11%. Although knowledge scores improved along with documentation of pain assessment patients continued to have unrelieved pain. However patient satisfaction scores improved following implementation of the educational program. Patient satisfaction may be connected to increased communication with the nurse.

Data collected through the various studies has been used to formulate educational training programs specific to pain. These programs also incorporate JCAHO guidelines and recommendations. The goal is to provide adequate assessment and treatment for each individual patient and improve patient satisfaction related to pain management.

Statement of Problem

Pain management continues to be a problem for both nurses and patients. Many nurses lack knowledge of pain and pain management. Patients do not understand that they have a right to adequate pain management.

Purpose

The purpose of this study is to examine the relationship between nurses' knowledge of pain management and pain management related to pain and analgesic intake in orthopedic post-operative patients. This is a replication of Watt-Watson et al.'s, (2001) study.

Research Question

Is there a relationship between nurses' pain knowledge and patient outcomes of pain and analgesic use in orthopedic post operative patients?

Conceptual Model

Gate control theory holds the basic premise that the human body has multiple pathways to carry impulses and sensations to the brain and back to the affected area. Gate control theory was developed following attempts by previous researchers to build upon the tenets of Descartes pain theory. In 1965 Patrick Wall and Ronald Melzak proposed that brain processes were a part of the pain network with "feed forward and feedback transmission" (Melzack, 1993, p. 618). Gate theory emphasizes the use of multiple pathways triggering pain sensation. This theory then allowed for further development of pain management techniques that included medication, physical therapy, and alternative medicine such as acupuncture.

Conceptual Definitions

Pain: "physical suffering or distress due to injury, illness, etc" (dictionary.com, 2008).

Knowledge: the intellectual understanding of a fact. What is known to be true.

Attitude: the belief of what pain should be.

Operational Definitions

Pain: "whatever the experiencing person says it is, existing whenever he says it does" (McCaffery & Pasero, 1999, p. 17).

Knowledge: knowing the information with the ability to apply it in each individual circumstance.

Attitude: believing what the patient states the actual pain to be.

Limitations

This study is limited by the small number of both patient and nurse participants. This will limit the ability to generalize the results outside of this facility.

Summary

Pain is a complicated phenomenon with many factors affecting it. Factors complicating pain management include nurses' beliefs and knowledge, and the patient's belief that pain is part of the postoperative experience. Communication and

education are integral to the improvement of pain management. Communication, speaking and listening, with the patient develops a relationship and enhances the formation of a comprehensive pain assessment.

Education targeted toward improving nursing knowledge improves pain management. As nurses gain a better understanding of the pain process including patho-physiology and analgesic function patient pain outcomes will improve.

Chapter II

Literature Review

Introduction

The topic of pain assessment and pain management is an ongoing discussion among healthcare providers. Many healthcare providers find pain management to be extremely difficult due to the subjectivity of pain assessment. As the discussion of pain management continues guidelines have been published by the American Pain Society and the Joint Commission on Accreditation of Healthcare Organizations. These guidelines are being infused into nursing practice attempting to alter practice to increase pain knowledge and improve patient outcomes.

Pain management is often inadequate and patients' perceive that pain is not relieved after surgery. Pain management standards have been established, yet pain management practices by nurses may not follow standards. Pain management may improve using educational strategies designed to emphasize the variability of pain and the importance of patient involvement in managing post operative pain (Watt-Watson, Stevens, Garfinkel, Steiner & Gallop, 2001).

Purpose of the study

The purpose of this study is to examine the relationship between nurses' knowledge of pain management and pain management

related to pain and analgesic intake in orthopedic post-operative patients. This is a replication of Watt-Watson et al., (2001) study.

Research Question

Is there a relationship between nurses' pain knowledge and patient outcomes of pain and analgesic use in orthopedic post operative patients?

Conceptual Model

Gate control theory holds the basic premise that the human body has multiple pathways to carry impulses and sensations to the brain and back to the affected area.

Knowledge of Pain Management

The orthopedic department of a large metropolitan medical center identified the need to improve pain management of post surgical orthopedic patients. Neitzel, Miller, Shepherd, and Belgrade (1999) used a pre-test post-test design to test the effects of education and implementation of evidence-based practice pain management. The purpose of this study was to test the outcomes of evidence-based pain management information through the use of near care strategies to improve patient pain management, care provider behaviors, and fiscal outcomes (Neitzel et al., 39, 1999).

The model used was Principles of the Diffusion of Innovation (Rogers, 1983) and Detailing (Soumerai & Avorn, 1990). Principles of Diffusion of Innovation were used to communicate the innovation to the orthopedic unit. The innovation being evidence based pain management. Detailing of evidence-based pain management knowledge was implemented using one on one interaction between the expert clinician and the direct care provider (Neitzel et al., 1999).

The study took place in a 612 bed tertiary care, metropolitan medical center. The population was all patients cared for on the two orthopedic units with a total of 48 beds. The sample consisted of 120 patients with 3 patients excluded from the pretest group related to medical record retrieval problems. The patients in both the pretest group and post-test group were TKR and THR surgical patients. All subjects signed informed consents for study participation (Neitzel et al., 1999). Patients in the study received a pamphlet titled "What You Should Know about Your Pain" either pre-hospitalization or postoperatively.

The nurse population consisted of staff on two orthopedic units. Fifty nurses completed the pre-implementation survey and 28 completed the post-implementation survey for a 56% response

rate. Orthopedic nurses attended 8 hours of multidisciplinary pain management education (Neitzel et al., 1999).

Postoperative pain management orders were developed to include the AHCPR guidelines. These orders were placed on the patient chart by the PACU staff. The Standards of Pain Management were available on each nursing unit (Neitzel et al., 1999). The Patient Pain Interview (Ferrell, 1995) tool is a visual analogue (0-10) self report of pain scale. Interviews were completed on postoperative day 3. Patients were also asked the question "Desire for same pain relief in the future" (Neitzel, Miller, Shepherd, & Belgrade, 1999, p.40) to determine satisfaction with pain management.

The Knowledge and Attitude Survey Regarding Pain (Ferrell, 1995c) (as cited in Neitzel et al.) was used to measure nurses' knowledge. The tool is a survey that uses true/false, multiple choice and case history format to measure provider knowledge and attitudes about pain.

The first patient related hypothesis was that perceived intensity of pain would decrease. This hypothesis was rejected. Findings indicated that pain intensity did not change after implementation.

Hypothesis 2 stated that patient satisfaction with pain management would increase. This hypothesis was rejected.

Findings indicated that satisfaction increased from 83% to 89%, this was found to be statistically insignificant.

Hypothesis 3 was that opioid related side effects would decrease. This hypothesis was rejected. Findings indicated that 53% of patients reported drowsiness and 25% reported itching.

Hypothesis 4 stated that function would improve relative to pain management. This hypothesis was rejected. Findings indicated 16% more patients had less pain related problems. While this is an improvement it was not found to be statistically significant.

The first provider hypothesis stated that the use of morphine and hydromorphone would increase and meperidine would decrease. This hypothesis was partially supported. The findings indicated that meperidine use decreased, hydromorphone use increased, and morphine use increased however the dose administered was not significantly different.

Hypothesis 2 stated that use of the intravenous route for opioid administration would increase. This hypothesis was supported. Findings indicated that both IV and oral routes of opioid administration increased and IM injections were decreased to less than 7%.

Hypothesis 3 stated that communication on the patient chart of objective assessment ratings and pain plans of care would increase. This hypothesis was partially supported. The findings indicated that documentation of pain assessment did not improve but that documentation of pain plans of care did increase.

Hypothesis 4 was that scores on a test of pain management attitudes and knowledge would improve. This hypothesis was supported. Findings indicated that the test scores improved from a mean score of 74% to 85% after implementation.

The fiscal hypothesis was that hospital length of stay would not increase. This hypothesis was rejected. Findings indicated that hospital length of stay decreased from 5.9 days to 5.1 days.

Despite increases in nurses' knowledge, clinical practice has not significantly changed. This indicated a need for continued education regarding pain management and clinical practice.

Lack of pain management may be related to lack of knowledge regarding treatment options, medication choices and administration of narcotics.

The purpose of this study was to determine knowledge and attitudes of cancer pain management of oncology nurses and non-

oncology nurses (Rushton, Eggett, & Sutherland, 2003, p. 850).

The target population consisted of 1500 nurses in Utah. The survey was sent to all members of the Intermountain Chapter of the Oncology Nursing society. It was assumed by the researchers that the ONS members would have current knowledge regarding cancer pain management. A total of 347 (23%) surveys were returned, 44 from oncology nurses and 303 from non-oncology nurses. There was minimal statistical difference in demographic data with an exception in educational levels; oncology nurses had more formal education (Rushton et al., 2003).

Demographic information was collected on 23 items developed by the principal investigator. This tool included age, education, number of years of experience as an RN and in caring for patients with cancer, past and present employment status, exposure to education about cancer pain management, and personal cancer experience (Rushton et al., 2003).

The Nurses Knowledge and Attitude Survey Regarding Pain "developed by Ferrell, B., and McCaffery, M. (1993) (as cited in (Rushton et al., 2003) assessed knowledge and attitudes about cancer pain management." This tool was designed using pain management standards from the American Pain Society, World Health Organization and AHCPR. The authors established content validity and reliability using expert review and continuing

education with test and retest of nurses at varying levels, respectively. The survey included questions regarding non-pharmacological pain management, non-steroidal and aspirin use, narcotic use, and the use of placebos in pain management. Scoring of each question was either correct or incorrect. Responses were summarized between groups by using ANOVA (Rushton et al., 2003).

The findings regarding the knowledge of cancer pain in oncology nurses and non-oncology nurses using ANOVA were significantly different. The oncology nurses had a 40% failure rate on 5 questions while the non-oncology nurses had a 40% failure rate on 15 questions. Both groups had difficulties with pharmacology related questions. Oncology nurses missed five questions 40% of the time, and they lacked understanding of the role of non-steroidal anti-inflammatory medications in pain management in particular with the management of bone pain. They also did not understand morphine equivalent dosing.

Non-oncology nurses also lacked knowledge of the role of non-steroidal anti-inflammatory medication and morphine equivalent dosing. In addition, the non-oncology nurses were unable to correctly answer questions related to non-pharmacological pain control methods, addiction, over reporting of pain and appropriate administration of opioids to treat

cancer pain.

Many nurses don't believe the patient's report of pain was accurate. Nurses could rate the level more accurately than the patient. Nurses also focused on addictive behaviors rather than pain descriptions. The behaviors were greater in the non-oncology nurses than in the oncology nurses.

Rushton et al. (2003) concluded that oncology nurses had a better understanding of the principles of cancer pain management than non-oncology nurse. Findings demonstrated a lack of knowledge regarding the use of medication in pain management with both study groups. The use of available research allows practitioners to design pain management programs based on evidence.

A study conducted in North Carolina by Brown, Bowman, and Eason (1999) was designed to determine the knowledge and attitudes of RN's related to pain and pain management. The purpose of this study was to determine the current knowledge and attitudes related to pain assessment and management of practicing RN's in North Carolina (Brown et al., 1999). The authors identified 3 research questions:

1. What are practicing nurses' knowledge and beliefs regarding pain management?

2. Is level of knowledge regarding pain management influenced by nurses' educational preparation, practice setting, or clinical specialty area?

3. What is the level of nursing knowledge regarding the frequency of addiction in patients treated for pain?

McCaffery and Ferrell's (1992) The Nurses' Knowledge and Attitude Survey Regarding Pain was mailed to 1000 RN's in North Carolina. Returning the questionnaire indicated consent to participate in the study. The survey consists of 22 true or false questions, 13 multiple choice questions, and 10 questions designed to collect demographic data.

The response rate was 26% totaling 260 participants. One hundred sixty five nurses were younger than 45 years old and 94% of respondents were female. The sample had 56.5% with 10 years of nursing experience or greater. Education differed with 33% of the nurses holding degrees at the baccalaureate level or higher. One hundred forty seven of the participants were employed in the hospital setting.

The Nurses' Knowledge and Attitude Survey was designed so that questions may provide answers related to both knowledge and attitude. The mean score on this survey was 64.58 with a range of 31.43 to 97.14 (median = 63, SD = 13.07). ANOVA (analysis of variance) was used to examine differences in "scores based on

clinical specialty, practice setting, age, years of experience, or educational preparation" (Brown et al., 1999, p.135).

Results indicated that medical surgical nurses scored higher than other specialties. There was no correlation between frequency of caring for patients with pain and survey scores.

Brown, et al (1999) noted that the findings of this study support the concern of inadequate knowledge and attitudes regarding pain management. Of the 35 survey questions 10 were answered incorrectly by at least 50% of the participants. Survey questions related to pharmacology were a concern. For example, only 44 nurses were aware that promethazine does not act to enhance the effects of opioid analgesics. The respondents also had difficulty with equianalgesic dosing and equivalents. One hundred forty eight of the participants responded that at least 10% of all patients over report pain. And, 182 participants believed that opioid addiction occurs in more than 5% of the patients being treated for pain.

The authors concluded that pain remains under treated in both acute and chronic conditions. These results are consistent with previous studies in the literature. While advancements have been developed in the treatment of pain and published guidelines are readily available to all practitioners pain knowledge remains inadequate for many healthcare providers.

Recommendations have been proposed to increase basic and advanced pain management education. Changes in the healthcare system are also recommended as this is thought to directly influence the behaviors of the practitioner. The healthcare system can implement quality improvement programs and specific pain guidelines to improve the pain management process in each institution.

In 2001 Watt-Watson, Stevens, Garfinkel, Steiner, and Gallup published an article titled Relationship between nurses' pain knowledge and pain management outcomes for their postoperative cardiac patients. The purpose of this study, which was part of a larger study, was to examine nurses' knowledge and beliefs about pain and outcomes of their patients related to pain and pain management.

This study used a "descriptive, correlational, mixed between-within subjects design" (Watt-Watson, et al. 2001) to study the questions: (a) Do nurses with greater pain knowledge have patients who have pain management outcomes of less pain and more adequate analgesic use? And (b) Does nurses' knowledge vary with their age, education, and birthplace and/or hospital site?

The study was conducted on the four cardiovascular surgical units of three large metropolitan hospitals. A convenience sample consisting of 225 consenting patients and 94 consenting

nurses was obtained. Data were collected through patient interviews using the McGill Pain Questionnaire-Short Form (MPQ-SF), the collection of analgesic prescription and administration data, and the use of visual analogue scales (VAS). The MPQ-SF collected data related to pain quality and pain intensity using 15 descriptors, the present pain intensity (PPI) and VAS. Patient interviews were conducted on postoperative day three following uncomplicated coronary artery bypass graft surgery. The researcher read the MPQ-SF to each patient to facilitate accurate data collection. Patient were also asked to complete 4 VAS which focused on the perceptions of how well their nurse listened to them, understood and helped with pain, and if the patient requested pain medication from their nurse. The first 3 VAS were combined for a total score 0-300. This score was indicative of the patient perception related to the nurses' usefulness in responding to their pain. The fourth VAS scored 0-100 determined if the patient would request pain medicine from their nurse.

Nurse data were collected using The Toronto Pain Management Inventory (TPMI) and the Social Desirability Scale (SDS). TPMI explored nurses' evidence based pain knowledge as well as commonly held beliefs related to pain. The total combined score of the VAS ranged from 0-2300, least knowledge to most

knowledge. The SDS is an indicator of responses generated to impress the researcher instead of focusing on the test items. There should not be a significant correlation between the TPMI and SDS when the "substantive construct is being measured" (Watt-Watson, et al., 2001,).

Analysis was completed using Pearson correlation coefficients, t-tests, and Chi-square statistical processes. Analysis of variance (ANOVA) was used to analyze dependent interval variables within and between groups.

Results relating to the question, do nurses with greater pain knowledge have patients who have pain management outcomes of less pain and more adequate analgesic use are as follows. Middle range scores were noted on the TPMI ranging from 1219 to 2063 with a mean of 1565 (68%). A score equal to or greater than 75% was achieved by 15% of the nurse participants. An increased level of nurse pain knowledge did not reflect less pain in patients in the last 3 hours of their assignment. Nurses stated that they utilized standard pain rating tools while patients did not remember being asked pain related question. The results also noted that while patients rated their pain as severe before the next medication 66% of the nurses indicated that the pain should be mild before the next analgesic dose and after surgery. All nurses stated that

patients should inform the nurse of an increase in pain and request pain medication. Further data collection indicated that patients are under-medicated. Under-medicating was a result of both under prescribing and under-administering analgesic medications. The "optimal standard dose equals 50-60 mg SC morphine equivalents/24 hours" (Watt-Watson et al., 2001,). The ordered morphine equivalent dosage range was 0-200 mg in 24 hours with the average dose equal to 33mg. Incidentally two patients did not have analgesia orders. Administered analgesia equaled 14 mg morphine equivalents per 24 hours with a range of 0 to 60 mg. Watt-Watson et al. (2001) noted that patients received approximately 47% of the prescribed analgesic despite rating their pain as severe prior to the next dose administration. There was no correlation between level of knowledge and increased analgesic administration. It is significant to note that just under half (44%) of the nurses had concerns related to analgesic addiction. Birthplace was significant in the TPMI scores and was responsible for the variance in the TPMI regression model.

Eighty six percent of the patients reported moderate to severe pain in the preceding 24 hours and 68% reported moderate to severe pain with activity during the interview. The MPQ-SF mean score was 11.8 on a scale of 0-45.

Regardless of nurses' "pain knowledge" patients continue to lack pain relief. At issue are the facts that nurses' do not believe the patient's pain scores and administer less than half of the prescribed analgesia. The authors suggest that further study is required to determine why nurses do not administer higher dose of analgesia when the patient's pain score is high (moderate to severe). Recommendations also include increased continuing education for nurses related to pain.

There is a relationship between the nurse and the degree of satisfaction the patients have regarding all aspects of care. A critical patient assessment is the pain assessment and the subsequent response to that assessment. How do nurses perform pain assessments and do they use the tools provided in their institution of practice? The purpose of this study conducted by Young, Horton, and Davidhizar (2006) is to examine the attitudes and beliefs of nurses using the Fishbein and Ajzen's attitude measurement model. Young et al. asked the questions: (1) what is the attitude of nurses towards pain assessment tools? And, (2) is there a relationship between attitude towards pain assessment and education and experience?

An open ended questionnaire was collect data regarding nurses' beliefs about pain assessment. Study participants were obtained using a convenience sample of 52 nurse volunteers.

Consent to participate was indicated by returning a completed questionnaire. Ethical approval was received from both the college and the hospital where the study was conducted.

The data collection tool consisted of 3 open ended questions: (1) what are your beliefs about assessment of pain? (2) What are your beliefs about the use of pain assessment tools? (3) What are your beliefs about the use of pain assessment tools in improving patient's outcome (Young et al., 2006,)? Young et al. (2006) also asked participants to rate their beliefs related to the questions on the collection tool from mildly (+1) or strongly (+2) believe and rate their feelings about the questions from very negative (-2) to very positive (+2). Demographic data was collected in order to answer the second research question.

A hundred eighty seven beliefs were identified. Positive beliefs centered on the value of assessment tools, assessment tools value to positive outcomes, and the value of collecting objective measurable data. Negative beliefs centered on the lack of objectivity of assessment tools, assessment tools are inaccurate and subjective, and there are other strategies that can be used to assess pain in place of a tool.

Statements regarding positive beliefs indicated that the use of assessment tools related to pain enhanced the

effectiveness of assessment and treatment. Pain assessment tools were seen as providing positive benefits to both the nurse and the patient. The use of pain assessment tools allows the patient to communicate their pain levels in a consistent manner allowing the nurse to provide level appropriate treatment. Twenty two respondents believe that pain management tools provide accountability and assist in data collection (Young et al., 2006,). Negative beliefs centered on the lack of accuracy in the data collection relating this to the subjectivity of pain assessment, this belief was stated by 29 of the respondents.

Demographic data indicated that 94% of the nurses were female. Nursing licensure ranged from Licensed Practical Nurse (LPN) to Bachelor of Science Degree in Nursing (BSN). Nursing experience ranged from less than 5 years to more than 10 years. Interestingly nurses with less than "5 years experience had the most negative attitude towards the use of pain assessment tools and patient outcome, with a range of -6 to 12" (Young et al., 2006, p. 417). Educational data collected demonstrated that 52% of the nurses had 1-3 hours of education related pain management tools, 29% had 5-10 hours, and 19% had more than 10 hours in the past 2 years.

Analysis of the data indicated that more years of nursing experience did not correlate to a positive belief related to the

use of pain assessment tools or their benefit to patient outcomes. The data suggests that education does not necessarily improve nursing practice or patient outcomes but a change in attitude may improve both. The implementation of nurse mentors may provide effective leadership in altering practice patterns and improving patient outcomes.

Knowledge that is based in science is integral to the nursing care of patients. Nurses' use evidence based knowledge in all aspects of care including pain. However, nursing practice is also influenced by "what we know" or myths such as risk of addiction to pain medication and disbelief of patient pain ratings. The purpose of this study was to compare two groups of expert nurses (Wilson, 2007) and their knowledge of pain. Hospice/oncology nurses were defined as an expert group related to their attendance at pain management courses and clinical expertise in pain management. The second group of nurses identified were "district nurses, primary care-based nurses who are often team leaders and responsible for caseload management" (Wilson, 2007). This group are considered expert generalists related to their continuing education and clinical expertise. Participant groups in the study were classified as specialist (hospice/oncology) nurses and generalists (district nurses).

Ethical approval was obtained from the Local Research and Ethics Committee and the Research Governance Committee (Wilson, 2007). The researcher provided instructions to the nurse leader of each group pertaining to "distribution and completion of the questionnaires" (Wilson). One hundred questionnaires, divided equally, were provided to the participating groups. Each questionnaire contained a cover letter describing the study, emphasizing anonymity and providing instructions.

Wilson used a questionnaire based on McCaffery's (1986) Pain Knowledge and Attitude Survey consisting of 20 true/ false statements. Additional demographic data was collected and any nurse with experience less than 3 years was excluded from the study. Participation was voluntary. A total of 72, 35 specialists and 37 generalists, completed questionnaires were included in the study.

Study results were analyzed using inferential and descriptive statistics. A significant difference in knowledge was identified when the mean score (15.8286) of the specialist nurses was compared to the mean score (12.7568) of the generalist nurses using a Mann-Whitney U-test. The researchers also considered the impact of years of nursing compared to knowledge scores. The relationship between years of nursing and knowledge scores was examined using Spearman's rho (order

correlation coefficient). A positive relationship was found between years of experience and knowledge scores. This analysis was performed on the group participants as a whole. The Spearman rho was also performed on each group separately; there was a positive relationship between the generalist nurses years of experience and knowledge scores, and no relationship identified between the specialist and knowledge scores.

The results of this study support the proposal that education influences knowledge scores. However, the scores of the Spearman rho indicate that years of experience also influence knowledge scores. "Harrison (1991) argues that experienced nurses are more accurate at pain assessment, an indication that training and work experience has made them more skilful at interpreting the relevant cues that lead to effective pain management" (Wilson, 2007, p. 1017).

Wilson (2007) identifies that attitudes are multidimensional consisting of cognitive, behavioral, and affective components. The components are related but not dependent upon each other. According to this, nurses may cognitively hold the knowledge to effectively manage pain and continue to have patients with unrelieved pain. Demonstrating that behavior (medication administration) does not correlate with knowledge base. The author suggests that evaluation of

practice environments may provide information as to why nurses do not utilize the evidence-based knowledge to improve patient care. One environmental component identified is the perceived lack of control or autonomy. Nurses historically have followed physician orders in caring for patients. As autonomous nursing practice strengthens the lines between healthcare professionals diminish encouraging a collaborative practice. However, it is the responsibility of the nursing professional to be accountable for decisions and care provided. As the structure of accountability and responsibility change it is imperative that nurses are provided the resources to implement interventions providing adequate pain management. The author concluded that "specialist nurses have a more comprehensive knowledge base in relation to physiological/pharmacological aspects of pain and pain management" (Wilson, 2007, p.1019). Wilson acknowledged the importance of continuing education in pain management and noted that the clinical environment also has an effect on the level of knowledge each nurse acquires.

Patient satisfaction and pain management

In order to meet the standards set forth by the Joint Commission on Accreditation of Healthcare Organization, it is necessary to evaluate nursing practice and implement measures to improve pain management. The purpose of this quality

improvement project was to examine the effect of pain education on the following: (a) patient satisfaction with how well patients' pain is managed, (b) nurses' knowledge of pain assessment and management, and (c) nursing documentation of patients' pain.

This study took place at an urban teaching hospital in Canada on a 74 bed general medical unit. The population consisted of 99 full and part time registered nurses (RNs). A convenience sampling method was used for patient survey data and chart audits. Criteria for patient exclusion were patients being postoperative, in the high intensity unit (critical care), dementia, palliative care, and patients admitted against their will.

Data were collected during 2002 and 2003. The first data collection period was October and November of 2002. RNs were surveyed using the nurse survey tool. A total of 93 nurses completed the survey; six nurses were either on vacation or maternity leave. Fifty charts were audited for pain documentation and 50 patients were surveyed. The chart audits did not correspond to the patient surveys.

The second data collection period was between January and February 2003 following an intervention program. The assessment data was collected. RNs = 75 at this time due to staff

turnover, vacation and maternity leave. Patient chart audits and patient surveys contained 50 samples.

The intervention program consisted of pain education for the RN staff. The program consisted of a 1-hour in-service on pain assessment and management (Innis, Bikaunieks, Petryshen, Zellermeier, & Ciccarelli, 2004). Instructions to assess patient's pain using a numerical pain scale every shift were given. Other interventions included brief in-services with unit medical resident from the University of Toronto. Pocket sized 'Pain Management Reference' cards (obtained from the University of Wisconsin Hospitals and Clinics) were handed out to all nurses, physicians, and pharmacists, as well as other interested healthcare providers. A member of the interdisciplinary pain consult team attended rounds. Implementation of effective pain management was assessed (Innis et al., 2004).

Assessment tools included the American Pain Society's Pain Satisfaction Questionnaire in Hospitalized Patients with Acute or Chronic Pain which was modified for this project. This questionnaire used a 0 (no pain) to 10 (greatest pain) scale. Additional questions included for this study included: (a) did you receive your medications in a timely manner? (b) Were you satisfied with how well your pain was controlled? And (c) During your hospital stay, how much pain did you experience? Nurses

were assessed using McCaffery's Pain Knowledge and Attitude Survey. This is a 15 item questionnaire. And, charts were audited using the Medical Record pain Management Audit tool which collects data regarding documentation of pain assessment.

Findings related to patient satisfaction demonstrated no significant changes pre and post intervention on patient pain scores. However, patient's stated increased satisfaction with how the pain was being managed 62% pre-intervention and 82% post-intervention.

Findings related to nurses' knowledge and attitudes showed a significant improvement post-intervention. Innis et al. (2004) noted that the pre-intervention survey mean score was 59% and the post-intervention survey mean score was 71% three months after intervention.

Findings related to the chart audits identified a lack of documentation related to pain assessment prior to intervention. Nurses had documented pain assessments on 52% of the patient charts. Documentation of pain assessment increased to 100% on patient charts post-intervention.

Innis et al. (2004) concluded that the interventions were successful. Patient satisfaction and nursing knowledge scores increased following implementation of the interventions. Recommendations included continuing pain education, involving a

multidisciplinary team in pain management, ongoing chart audits, and patient satisfaction surveys.

There is a discrepancy between nurses' assessment of postoperative pain and the patient's assessment of his pain. The purpose of this study is to (1) compare nurses' ratings of pain intensity and suffering in adult surgical patients with the patients' own ratings of these variables, and (2) to investigate whether pain ratings are significantly influenced by cultural and ethnic differences (Sloman, Rosen, Rom, & Shir, 2005).

Sloman et al. (2005) used a descriptive comparative design to compare the patients' self rating of pain and the nurses' rating of that patients' pain. The sample population consisted of 95 pairs of registered nurses (RN) and patients with each pair being tested only one time. All postoperative patients were included if they were suffering from and being treated for surgically induce pain. The study population was from four hospitals in Jerusalem, Israel

Data were collected using the McGill Pain Questionnaire Short Form (MPQ-SF) in Hebrew and English, visual analogue scales (VAS), and a demographic and cultural questionnaire. The MPQ-SF consisted of four affective pain descriptors and eleven sensory descriptors. Scoring was completed using 0-3 intensity scale, none to severe pain. The MPQ-SF resulted in three pain

scores, (1) pain sensation, (2) pain affect and (3) total pain score. VAS were used to establish (1) overall pain intensity; (2) suffering and distress associated with pain; and (3) patient satisfaction with their pain treatment (Sloman et al., 2005). The demographic and cultural questionnaire collected information such as gender, country of birth, education, and ethnic background.

Each hospital ethics committee approved the study. The researcher explained the study to each participant and consent to participate was indicated by completing the forms. Data collection consisted of the researcher asking each of the patient participants to complete the three questionnaires. Following this collection the RN entered the patient room performed a pain assessment and then completed the three questionnaires after leaving the patient room. Additional data collected was surgical procedure, surgical date, analgesic medication, hospital and ward.

Data analysis was completed using SPSS 11.0 for Windows. Each of the MPQ-SF was summed and the patient and nurse data were compared using paired t-tests. The VASs from each group were measured in centimeters; the mean scores were compared using paired t-tests. Pearson's correlation was used to determine construct validity by comparing the scores from the

VAS and MPQ-SF. Multivariate analysis was used to examine the demographic and cultural data.

Patient participants totaled 95 with 52 men and 43 women. All patients were assessed with 48 hours of surgery and were experiencing pain at the time of assessment. Nurse participants totaled 95 with 22 men and 73 women. All nurses had academic diplomas or degrees in nursing and worked in surgical nursing (Sloman et al., 2005).

Analysis of the pain scores identified that nurses significantly underrated pain when compared to the patient ratings of pain sensation. There was no statistical difference in pain treatment satisfaction between nurses and patients. The demographic and cultural variables did not have a significant effect on this study. The level of nursing education did not impact the pain assessment.

The results of this study demonstrated that nurses consistently underrated pain in the postoperative patient. Findings from this study are consistent with existing research related to pain assessment and treatment. The authors noted that nurses place great emphasis on patient comfort and its priority in patient care. Pain management is often left to nursing judgment to make choices in the amount of medication to administer and the application of alternative comfort measures.

The authors concluded that pain education for nurses must improve to decrease the differences in pain assessment between the nurse and patient. The author's also recommended that further study of nurses' pain assessment be completed.

Pain assessment and nursing practice

Management of chronic pain in older adults is especially difficult. This belief leads to the under treatment of pain in the older adult.

The author has identified that approximately one-third of older adults suffer from chronic pain that interferes with the activities of daily living and social function. What strategies are these people using to manage their pain? The purpose of this study was to determine the types of limitations that older adults have related to chronic pain and the comfort measures that are used to relieve the pain.

The researchers used a grounded theory method with unstructured interviews to collect data. The sample consisted of 63 people, 42 female and 21 male. Twenty eight of the caregivers/spouses were also in attendance per the request of the respondent. Each subject was interviewed in their home by the first author. The interview lasted approximately one hour and was audio-taped.

The interview was started with a question about the effects of pain. Each answer leads to the next question. This process of data collection and analysis continued until no new ideas emerged. After the transcription of the audio tapes the data was "coded by the lead researcher and an independent expert in qualitative research. The codes were further collapsed into themes, allowing for construction of an exploratory theoretical framework" (Sofaer et al. 2005, p. 463).

Analysis of the data detailed two main themes which are: the maintaining of personal control and the adaptive mechanisms employed to maintain quality of life. Each theme also had subheadings. Theme 1 subheadings include home and garden adaptations and aids. Theme 2 subheadings including acceptance and non-acceptance, pacing oneself, helping other people, the use of prayer and looking good and feeling good (Sofaer et al. 2005). Each of these themes and subheading were supported through direct quotes.

The authors concluded that maintaining independence is very important to the older population. The older population had a preference for "self administered strategies" whether it was medication or looking good. The subjects had a desire to maintain normalcy. They did not want other people, including family members, to know they were in pain. "On the whole,

knowing a cause of pain did not appear to be a major concern. The majority of the respondents tended to be more accepting of chronic pain and of their treatment than younger people (Sofaer et al. 2005).

This study has implications for nursing practice in that the older population is more accepting of chronic pain as a part of aging therefore less likely to complain about being in pain. As nurses we must be thorough in assessing pain and teaching pain management strategies to the older population. Pain management strategies should include pharmacologic and non-pharmacologic interventions such as heat, cold and exercise.

Changing nurses' pain assessment practice: a collaborative research utilization approach (Dufault, Bielecki, Collins, & Willey, 1995) was a quasi-experimental study to evaluate the effectiveness of a collaborative research utilization model in the transfer of knowledge into practice. The emphasis is on the use of pain research in the clinical practice of pain management. There was a secondary emphasis on increasing competency in research utilization and positively altering attitudes regarding research. Dufault et al. (1995) identified the following research questions for this study:

1. Does using a collaborative research utilization model, focused on the research base in pain assessment, change nurses' day-to-day pain assessment practice?

2. Does using the model improve nurses' competency in research utilization?

3. Does using the model positively affect the attitudes of nurses towards research?

The conceptual model used in this study was the collaborative research utilization model; this is based on a process developed in the Conduct and Utilization of Research in Nursing Project (CURN) and adoption of innovations literature. This model is a partnership between clinician and scientists. The clinicians learn the process of research and the scientists learn how the clinicians use the research in providing care.

This model has six phases to use in the research process:

1. Problem identification and assessment of research bases for utilization.

2. Evaluation of research relevancy to problem selected, nursing department values, standards and policies, and potential cost and benefit.

3. Innovation design to meet the needs of the problem within the scope of the research base.

4. Actual or construct replication and evaluation of the innovation.

5. Decision to adopt, alter or reject the innovation.

6. Development of means to extend the innovation within and outside the setting.

This study took place at Roger Williams Medical Center in conjunction with the University of Rhode Island College of Nursing. The population consisted of nurses on four patient care units. Two units were assigned to the control group and two units were assigned to the experimental group. A convenience sample of nurses from each group was obtained, control group = 15 and the experimental group = 12. No significant demographic differences were noted between the groups. The experimental group had limited experience with evaluating and critiquing nursing research. The control group had been exposed to several research studies by a clinical nurse specialist. Nurses in the experimental group became a part of the research team.

The Pain assessment Audit Instrument which is an instrument that measures 25 indicators related to pain assessment in the patient record. "Examples of these indicators include evidence of a pain rating scale in the nurses' notes, and the nurses' notes or plan of care reflect evidence of assessment of pain's

effect on the patient's sleep habits, etc." (Dufault et al., 1995, p. 639). One point was awarded for documentation of each item. For each nurse that participated, three charts were audited pre and post experiment for a total of 168 charts. Inter-rater reliability was established through review of every tenth chart by two independent raters.

Kim's Research Utilization Competency Scale was used to measure improvement in research competencies. This is a 13 item Likert type scale. Subjects rated themselves on a 1-7 scale which is a measurement of the degree to which they can carry out the steps of research utilization. Problem identification is an example of research utilization. This tool was used pre and post experiment and the point range was 13-82 (Dufault et al., 1995 p. 640).

Kim's Attitudes Toward Research Scale were used to measure attitudes and values regarding research. This tool was also administered pre and post experiment to all participants. This is a 10 item Likert type scale with values at 1-5 for a total point value or 10-50. Participants were asked to rate themselves on agreement with statements such as "Nurses should seek new research findings when confronted with nursing care problems for which solutions used in practice are not satisfactory".

Both Kim's Attitudes Toward Research and Utilization Competency Scales were examined using paired t-tests to determine if after intervention there was significant change for each individual.

Use of innovations questionnaire was used to assess nurses' practice concerning pain management. This is a tool developed by the investigator consisting of three items. Nurses were asked to describe the assessment techniques and questions they use when assessing pain (Dufault et al., 1995). This tool was measured using chi-square statistics.

Findings related to the question about using a collaborative research utilization model, focused on the research base in pain assessment, change nurses' day-to-day pain assessment practice found that 67% of the experimental group indicated that there was a positive practice change in the way nurses assessed pain after the intervention, compared to 0% indicating change in the control group (Dufault et al., 1995).

Chart audits pre-intervention indicated no difference in documentation of pain indicators. Post-intervention chart audits demonstrated a significant difference in the documentation of pain indicators. The experimental group was more likely to have documented pain assessments including

patient descriptors, administration of pain medication, use of non-pharmacological intervention and post intervention results.

Findings related to the question about using the model improve nurses' competency in research utilization indicated that nurses who participated in the experimental group improved their competency in using research. The average change in research competency scores for the experimental group was a positive change of 10 points; this was found to be statistically significant (Dufault et al, 1995). The control group was not found to demonstrate a change in competency in research utilization.

Finding related to the question about using the model positively affect the attitudes of nurses towards research indicated that the two groups had similar post test attitude scores. The experimental group had a statistically significant positive change ($P=0.03$) (Dufault et al, 1995). The control group was exposed to research by a clinical nurse specialist who was successful in promoting a positive attitude toward research which may account for the results of the control group.

The authors concluded that nursing participation using a collaborative research model improved nursing practice in relation to pain assessment and management. When innovations (new tools) are identified users they are more willing to

incorporate into practice. It is also interesting to note that when the research has taken place in community the results of the research have a greater impact than research data obtained through journals or conferences.

Inpatients continue to have unrelieved pain despite the documented pain management guidelines such as those provided by The Joint Commission on the Accreditation of Healthcare Organizations (JCAHO) and the Agency for Healthcare Research and Quality. The purpose of this study was to improve quality of pain management and patient satisfaction scores on a 29 bed inpatient oncology unit.

A Pain Performance Improvement Team (PIT) was formed to assess the problem and develop an improvement plan. The assessment phase of the project included chart audits, patient satisfaction surveys, and a unit based needs assessment. Results of the assessment identified a need for formal accountability and responsibility, pain education for all staff, culturally based patient education, and a pain reevaluation system.

The planning phase included goal setting. The primary goal of the program is to provide "consistent, improved pain management for all inpatients on the oncology unit" (Woodward, 2005, p.264). The primary goal was broken into sub-categories

in order to manage the implementation process. The categories are identifying nursing staff responsibilities and associated accountability related to pain management, initiating a pain education program (basic and ongoing) appropriate for all levels of the nursing team, and improve accessibility to assessment tools and current pain therapies (Woodward, p. 265).

Strategies to accomplish the stated goals were devised through brainstorming sessions. All staff was encouraged to participate in the brainstorming sessions. Strategies to enhance accountability included all oncology unit staff writing a belief statement related to how they will demonstrate accountability and responsibility to patients in pain. The statements are signed and become a part of the personnel record. A second strategy included providing all admitted patients with a pain management brochure. The staff nurse will explain the brochure and the patient and family responsibility and the staff's responsibility in managing pain.

The Pain PIT met in November 2003 to plan the timeline for 2004 implementation of the strategies. For example the timeline for distribution of the patient pain brochure was implementation within 8 months.

Evaluation of this program is measured through quarterly patient satisfaction surveys, chart audits, and staff and

inpatient surveys. Patient satisfaction results showed an increase from 4.10 to 4.13; however this was a decrease from the previous quarter (4.36). This result would indicate that patient satisfaction with pain management remains inconsistent. Results from the chart reviews indicated improvement on all indicators. Pain ratings were documented every 4 hours equaling a 35% improvement, pain documentation on admission improved by 35%, and post medication reassessment improved by 30%. Patient survey results indicated a 3% decrease in nursing asking patients if they are experiencing pain, a 10% increase in patients being reevaluated after pharmacological intervention, and a 12% increase in patients having controlled pain.

Overall the implementation of the pain management program on this oncology unit has been successful. Chart reviews and patient surveys have demonstrated improvement 6 months post implementation.

Woodward concluded by noting that this program is a comprehensive, systematic, and evidence based program. The management team and unit personnel were committed to improving patient outcomes and satisfaction which was integral to the success of this program. The next step is to maintain the improvements and then identify additional patient improvement goals.

Quality indicators and postoperative pain management

There has been much research into pain management and patient responses and perceptions of pain management. A continuation of pain management is the measurement of patient outcomes. It is necessary to identify quality indicators that are a "quantitative measure that can be used as a guide to monitor and evaluate the quality of important patient care and support service activities" (Idvall, Hamrin, Rooke, & Sjoström, 1999, p. 217). The purpose of this study was to evaluate the use of the tentative model when designing strategic and clinical quality indicators about pain management (Idvall et al., 1999).

This study was conducted in Sweden. The population consisted of 233 nurses who had participated in a 2 day acute pain management course. A questionnaire was mailed with a 90% (210) response rate. Twenty seven questionnaires were returned partially completed. This was compensated for by mean substitution during data analysis (Idvall et al., 1999).

Focus group taped interviews were used to identify units of interest. Identified units were used to define categories and dimensions to be used as the tentative model. A questionnaire was developed using the information from the interviews and a literature review. The questionnaire include: Part 1 demographic data, Part 2 15 items designed to establish validity

and usefulness using a 5 point Likert type response scale, and Part 3 15 identical items where "nurses were asked to choose 3 items in each of the dimensions, elements of performance and prerequisites, respectively, which were to be the most crucial for achieving high quality in postoperative pain management (Idvall et al., 1999, p. 218). The nurses were also asked to identify actions that influenced pain management outcomes in difficult situations.

The results from the questionnaire demonstrated that the eight items listed under the dimension, elements of performance, were recognized as being essential by more than 90% of the respondents. Six items were identified as being realistic to carry out and seven items were identified as being possible for nurses to influence. Item numbers 1, 2, 5 and 7 were identified as crucial factors necessary to achieve high quality by 50% of the participants. These items are:

1. The patients' perception of pain must be assessed regularly with the help of a pain assessment instrument;
2. Pharmacological pain treatment must be administered preventively;
3. The patient must receive information pre-operatively about pain management;

4. The nurse must act until a level has been reached that is acceptable to the patient.

The results from the dimension of prerequisites demonstrated that six of seven items were identified as essential. Four items were identified as being realistic to carry out and three items were identified as being possible for nurses to influence. Items 11, 12 and 14 were identified as the most important factors for achieving high quality. These items were: Nurses must possess special knowledge of pain assessment and pain treatment; there must be special rules for the documentation of pain assessment and pain treatment; Nurses must believe what the patients tell them concerning their pain.

Idvall et al. (1999) concluded that the tentative model, using aspects of surgical nursing care and a literature review, is effective when designing items to be used as strategic and clinical indicators of quality in post operative pain management.

Summary

The literature demonstrates consistently that registered nurses lack knowledge regarding pain assessment and management. However, with educational intervention there is an increase in knowledge leading to an increasingly thorough pain assessment technique. The literature also demonstrates that patient

satisfaction levels with pain management increases when the nurses have increased knowledge despite the constant level of pain that is verbalized. There is an ongoing need for research related to patient pain outcomes, the administration of analgesics and nurses' pain knowledge.

Chapter III

Methodology

Introduction

Previous research has studied the efficacy of analgesic medications, analgesic administration patterns, nursing knowledge about pain management and patient satisfaction with pain management. The purpose of this study is to examine the relationship between nurses' knowledge of pain management and the pain outcomes of postoperative orthopedic patients in a Midwestern community hospital. This study uses Melzak's Gate Theory as a guide to understanding pain and its treatment. Chapter three will discuss the research design, population, ethical procedures, and instrumentation for this study.

Research Question

Is there a relationship between nurses' pain knowledge and patient outcomes of pain and analgesic use in orthopedic post operative patients?

Population, Sample and Setting

The population will consist of all registered nurses in a Midwestern community hospital and all postoperative orthopedic patients that have had total knee or hip replacements. The convenience sample will consist of 32 registered nurses and 46 patients.

Protection of Human Subjects

This study will be presented to the Institutional Review Board at Ball State University to safeguard participants. The study will also be presented to the participating institution Board of Directors and Administration have a full understanding of the purpose of the study ensuring the protection of the participants. Participation in this study is voluntary. After an explanation of the study by the researcher all participants will sign a written consent to participate.

Research Design

This study uses a descriptive and correlational design to examine the relationship between nurses' pain knowledge and patient outcomes related to pain and analgesic use. Descriptive research is used with research methods such as questionnaires and physical audits to measure phenomenon. Correlational research is used to determine whether relationships exist between variables and the strength of that relationship.

Procedures

After completing the ethical approval process at Ball State University and the participating institution a comprehensive explanation of the study will be presented to the executive nursing staff. Following this presentation, arrangements will be made to present the study to all staff RN's and request

participation. Written consents are to be obtained prior to administration of the questionnaire. The researcher will approach all potential patient subjects, explain the study and obtain written consent from each participant before conducting the interviews.

Instruments

The researcher will collect data using the following instruments: The McGill Pain Questionnaire-Short Form (MPQ-SF) will be used to measure patient data. The Toronto Pain Management Inventory (TPMI) will be used to measure nurses' knowledge and attitudes related to pain management. Analgesic prescription and administration data will be collected from each patient medical record. The MPQ-SF measures patient's pain quality and intensity over a specified time period. The present pain intensity (PPI) is also measured using the MPQ-SF. The questionnaire consists of 15 descriptors that the subject will rank 0 (none) to 3 (severe), a visual analogue ranging from no pain to worst possible pain, and the PPI ranging from no pain to excruciating pain (Melzack, 1984). The MPQ-SF has established reliability and validity.

The Toronto Pain Management Inventory is used to measure nurses' pain management knowledge by examining nurses' knowledge of "analgesia, patients' experiences of and responses to pain,

and professional issues such as nurses' perceived competence and colleague support" (Watt-Watson, Stevens, Garfinkel, Streiner, & Gallop, 2001, p. 538). TPMI utilizes 23 visual analogue scales ranging from 0 to 100 for a total score of 2300. Each item tests either common beliefs or evidence based knowledge. Approximately 50% of the items are scored so that higher scores correlated to more knowledge and 50% of the items are scored so that lower scores indicate more knowledge. The TPMI also collects demographic data. Content and face validity have previously been established by experts in surgical pain (Watt-Watson, Stevens, Garfinkel, Streiner, & Gallop, 2001).

Data will be collected from the medical record of each participant related to analgesic prescription and administration, pain assessment and documentation, and patient response to the pain management intervention.

Data Analysis

Data from the MPQ-SF and TPMI will be analyzed using descriptive statistics. Relationships will be evaluated using Pearson correlation coefficients, t-tests, and Chi-square.

Summary

This descriptive and correlational study will attempt to validate previous findings by Watt-Watson, Stevens, Garfinkel, Streiner, and Gallop (2001). Results from this study indicated

that there was not a relationship between nurses' pain knowledge and patient pain scores.

The purpose of this study is to examine the knowledge and attitudes of nurses' in relation to pain management and the subsequent impact on patient outcomes. Findings from this study will be used to design an evidence based educational program to increase nurses' pain knowledge.

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Literature Table

Source	Problem Purpose	Sample	Framework	Concept	Design	Instruments	Results	Implications
Brown, Bowman & Eason (1999)	Nurses' attitudes & knowledge of pain	1000 RN's in NC w/ 260 Participants	Not Specified	Knowledge Attitude	Survey	Nurses' Knowledge & Attitude Survey Regarding Pain	More than ½ of sample had > 10 years Experience, & ranked Themselves Successful @ Managing pain	Study Consistent w/ prior research, Inadequate knowledge re: pain management. Continue to study patients perception of pain management

								effectiveness Continue nursing education, provide patient education
Dufault et al. (1995)	Changing nurses' assessment practice	Convenience sample RN's Control = 15 Experimental = 12	Research utilization Adoption of innovations	Research utilization	Pre/post- test Quasi-experimental	Demographic data collection Use of innovations questionnaire Kim's research utilization competence scale	Experimental group 67% indicated+ practice change Control group 0% indicated practice change	Collaboration between the researcher and the direct care nurses resulted in a positive response in pain

						Kim's attitude toward research utilization scale	After intervention experimental group documentation increased pain assessment	management practices Changes in practice are more easily adopted when the information is distributed at the point of care versus research journals
Idvall et al. (1999)	Developing quality	Nurses who had participated in 6	Tentative model	Perception of pain	Questionnaire ordinal scale	4 part questionnaire	Scores for essential	This model may be used

	<p>indicators for nursing</p>	<p>pain management training courses between 1995-1997 N= 233 = 90% participation</p>		<p>Advocacy</p>		<p>1) background variables 2) established face validity – 15 item likert scale 3) 15 items to determine aspects necessary to achieve high quality care 4) describe difficult to manage post-op pain</p>	<p>elements were higher than for realistic to carry out. RN's w/ > 10 years experience identified more items as essential</p>	<p>to identify strategic and quality indicators in pain management. More testing of the Tentative model is needed to prove it a general model</p>
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						situation		
Innis et al. (2004)	Pain Management & satisfaction	Convenience sample Patients = 50 RN's = 93 Charts = 50	Not specified	Satisfaction Knowledge Attitudes	Survey pre/post intervention	Patient surveys: American pain Society's Pain Satisfaction Questionnaire in Hospitalized patients w/ acute or chronic pain (version adapted) Nurse surveys: McCaffery's	No significant change in patient pain scale ratings. Increased patient satisfaction w/ pain. Nurses' knowledge increased post intervention and improved documentation	Educational pain management programs improve nursing knowledge and patient satisfaction

						Pain Knowledge and Attitude Survey Chart audits: Medical Record Pain Management Audit Pain management intervention: education		
Neitzel et al. (1999)	Improving pain management through	118 patients (57 before & 61 after	Principles of the Diffusion of	Innovations Evidence based	Pre/post test Research utilization	The Patient pain Interview (Ferrell,	Patient: Satisfaction improved	Increased education improves pt

	implementation of evidence based pain management	implementation) 28 orthopedic nurses	Innovation (Rogers, 1983) Detailing (Soumerai & Avorn, 1990)	practice		1995b) The Knowledge and Attitude Survey Regarding Pain (Ferrell, 1995c) The Pain Chart Audit (Ferrell, 1995a	Pain interfered w/ walking Provider: evidenced based pain management practice improved (orders and care plan) med administration decreased	satisfaction, increase IV admin vs. IM admin Changes in postoperative orders → ensured use of evidenced based pain management
Rushton, Eggett & Sutherland (2003)	Between group comparison of cancer pain management	44 oncology nurses 303 non-oncology nurses	Not specified	Knowledge Attitude	Descriptive	Nurses' knowledge & attitudes survey	Nurses do not use evidence based practice consistently in	Data can be used to develop staff education to

						regarding pain Demographic tool	pain management	improve pain management
Sloman et al. (2005)	Between group comparison of pain intensity ratings	Convenience sample 93 patients – adult surgical 95 nurses	Not specified	Assessment	Descriptive comparative design	MPQ-SF (Hebrew & English) visual analogue scales Demographic/ cultural questionnaire	Nurses under-rated pain compared to the patient ratings	Under-estimation of pain by nurses Findings consistent w/ those of other studies
Sofaer et al. (2005)	Perceptions of pain in older people	63 participants	Grounded theory	Independence Control Adaptation Coping	Qualitative	Audio taped interviews	2 main themes in older adults w/ chronic pain Desire for	Chronic pain affects independence Adaptation for quality of

							independence and control; adaptation	life
Watt- Watson et al. (2004)	Pain management after discharge in same day surgical patients	Convenience sample -180 patients post lap choley (LC), hand or shoulder surgery	Relationship between post operative pain and performance of usual activities	Patient satisfaction	Prospective, descriptive w/ repeated measures	The Brief Pain Inventory- short form (BPI-SF) Additional information collected: adverse events, complications and alternative pain relief	Patients expected to have post- operative pain LC & hand pts had less pain @ 72hrs & 7 days Non-pharml strategies rarely used Medication instructions	Ambulatory surgical patients need increase education r/t pain management, complication management and non- pharm strategies Recommend

						practices	inadequate for 55% patients 50% patients stopped taking analgesics @ 72 hours despite mod pain.	Further research r/t patient reluctance to take opioids
Watt- Watson et al. (2001)	Examine relationship between knowledge and pain management outcomes in postoperative	225 patients after CABG surgery & 94 nurses	Not specified	Attitudes & knowledge Pain	Descriptive, correlation, mixed between within subjects	McGill Pain Questionnaire- short form (MPQ-SF), Chart audits, Visual analogue scales,	Moderate pain knowledge More pain knowledge didn't = less pt pain or more analgesia Rx amt and	Improvement in prescribing practices. Need pain education Improve patient education

	cardiac patients					Toronto Pain Management Inventory (TPMI), Social desirability scale (SDS)	administration < standard Pain knowledge influenced by birthplace and education	
Wilson (2007)	Nurses' knowledge of pain Comparison of 2 groups of expert nurses	100 surveys were distributed 86% response rate 72 nurses participated	Not specified	Knowledge re: pain	Comparison	Revised version of McCaffery's pain knowledge and attitude survey 20 true/false statements	Specialist nurses had more comprehensive knowledge than general nurses. Knowledge scores	Training and education improve pain knowledge

							influenced by education. Experience = more accurate pain assess.	
Woodward (2003)	Using CQI to develop a pain management program	23 patient charts reviewed for pain documentation	Quality improvement	Patient satisfaction	Pre-test Post-test	Patient surveys Needs assessment	Lack of accountability and responsibility Lack of standard pain education Ineffective reevaluation system for pain	Need for improved, consistent pain management Staff education re: Rx & non-Rx strategies

Young, Horton & Davidhizar (2006)	Affects of attitudes & beliefs in pain assessment tools and relationship to education and experience	Convenience Sample 52 nurse volunteers	Not specified	Attitudes and beliefs	Questionnaire	Open ended questionnaire 3 questions rating scales and demographic data	Positive beliefs: improved data collection → improved pt outcomes Negative beliefs: tools are subjective & inaccurate, Lack objectivity Experience < 5 yrs → more neg attitudes; Education 1-3	Negative attitudes impede pain management Years of experience didn't correlate to positive outlooks re: assess tools Need change in attitude/ behavior
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							hrs → more neg outlook on pain management tools and outcomes	
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