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Chapter I: Introduction

Introduction

Each day millions of people suffer from pain whether they are in the hospital, their homes, or assisted living facilities. The experience of pain negatively influences their daily lives. As nurses and physicians interact with patients and families, they assess and treat their pain. Nurses and physicians attitudes and knowledge of pain management can affect their patient's treatment options. Most of the time drugs are prescribed to relieve the pain including narcotics and non-steroidal anti-inflammatories. However, pain is often under-treated and patients continue to suffer from the ill effects of pain and lack of management (Yates et al., 1998). Nonpharmacological pain management therapies are increasing in popularity; however, medical personnel as well as patient's knowledge of these therapies are not well researched. Physicians and nurses level of knowledge and attitudes of nonpharmacological pain management greatly affects whether a patient is given these options. Nonpharmacological pain therapies and techniques have great potential to relieve someone's pain and can be used with or without pharmacological methods. There are many benefits to using nonpharmacological methods in relieving pain, therefore, the barriers keeping patients, nurses, and physicians from using them need to be explored. Nurses' attitudes and knowledge of nonpharmacological pain management therapies needs to be assessed, and any deficits identified need to be rectified so patients have access to other options to more effectively manage their pain.

Purpose and Research Questions

The purpose of this exploratory research is to randomly survey registered nurses at BroMenn Regional Medical Center and explore nurses' attitudes, use, and knowledge of non-pharmacological pain management therapies when caring for patients in the hospital setting. The aim of the study was to answer the following research questions:

- To what extent do nurses use nonpharmacological pain management?
- What nonpharmacological pain management therapies do nurses utilize in their nursing practice of hospitalized patients?
- What barriers or disadvantages do nurses perceive in using nonpharmacological therapies in their nursing practice?
- What advantages or benefits do nurses see to using nonpharmacological therapies to manage pain?
- How are background factors (age, type of nursing degree, work experience, hours of nonpharmacological education, amount of general pain education, and unit worked) related to the use of nonpharmacological therapies to manage pain?

Chapter II: Review of Literature

Pain Knowledge

Pathophysiology of Pain

Pain is the body's way of alerting a person to potential or actual damage. According to Barrett (2003), pain is the way the peripheral nervous system warns the central nervous system of injury or potential injury to the body. The message is transmitted through nerve cells called nociceptors by neurotransmitters. The body also releases prostaglandins that may enhance the pain message. Lynch (2001) describes pain as being nociceptive, neuropathic, or mixed in

nature. Nociceptive pain is somatic pain that arises from an injury or visceral pain that arises from inflammation, obstruction, or ischemia. Neuropathic pain results when there is damage to the peripheral or central nervous system that alters sensation. Barrett (2003) states that nociceptive pain is typically called acute pain, which usually resolves when the condition that caused the pain is removed. However, if pain remains after the disorder is resolved, it may be considered chronic pain. Chronic pain usually lasts from three to six months and negatively impacts patient's daily lives and activities such as increased stress and inability to sleep (Yates et al., 1998) and (Lynch, 2001).

Pain and People's Daily Lives

According to the National Institute of Arthritis and Musculoskeletal and Skin Diseases (National Institute of Arthritis and Musculoskeletal and Skin Disease [NIAMS], 2003), pain is a personal and subjective symptom that is influenced by age, gender, race, and psychosocial factors. A June 2000 Gallup Survey indicated that 42% of adults say they experience pain daily, and approximately 28-30% of the US population suffer from chronic pain (NCS Pearson, 2003).

Even patients in the hospital continue to experience unrelieved pain. In a study done by Yates, Dewar, Edwards, Fentiman, Najman, Nash, Richardson, and Fraser (1998), 79% of hospitalized patients reported pain during the 24 hours before data collection. The study also identified that untreated pain has a profound affect on the patient's general well-being. Sixty-seven percent of patients in the study said that their sleep was affected by pain. The pain also affected their movement and made them feel worried and exhausted. Unrelieved pain can also alter immune function, increase stress, delay healing, and cause anxiety and depression for the person experiencing it (Lynch, 2001). Patients' reports of unrelieved pain while hospitalized suggest a need for more effective pain management.

Under-treatment of Pain

There are many reasons pain is under-treated by both physicians and nurses. The most common barrier to effective pain management is the healthcare provider's incorrect assessment of pain and/or the effectiveness of pain relief measures. A study by Miaskowski et al. (as cited in Von Roenn, 2001) found that there is a lack of knowledge of pain management and assessment by physicians. The doctors may not write the proper prescriptions for pain management because they are not given enough education in pain and symptom management in their curriculum. Just like the treatment of diabetes requires follow-up assessments and adjustments in medication, so does the treatment of pain and that is not being done by physicians.

Nurses have a central role in assessing patients' pain and providing pain treatment options; therefore, they are in a position where they can decrease the number of people suffering from pain and the under-treatment of pain (Lynch, 2001). According to Dalton (1989), nurses are more worried about addictive behaviors when patients request pain medication than adequately treating severe pain. She also found that nurses spend little time assessing the effect of pain on the patient's daily life and do not understand the importance of pain management. A different study by Broome, Richtsmeier, Maikler, and Alexander (1996) looked at pediatric nurses pain practices. They found that some obstacles to adequate pain management included knowledge deficits about pain management 83% of the time, attitudes about pain treatment 77% of the time, and skills regarding pain management 35% of the time.

A study done by Brunier, Carson, and Harrison (1995) looked at nurse's knowledge and attitudes about pain and found that both greatly affect the nurse's management of pain. Their findings indicated there was a serious gap in nurses' knowledge and attitudes about pain. Very

few nurses felt strongly that patients can and should have a pain free state. Attendance at an inservice on pain management in the past year increased nurses' score on the pain knowledge survey. University prepared nurses were found to get more out of the inservice than non-university prepared nurses and scored higher on the posttest. Respondents were asked to rate barriers to optimal pain management and 53% of the nurses said that inadequate assessment of pain and pain relief was a barrier. However, less than one third of the nurses said that a barrier to pain management was the reluctance of nursing staff to administer opioids.

Another study conducted by Manworren (2000) assessed pediatric nurses' knowledge and attitudes of pain management. They found that a lack of pain management knowledge lead to inadequate management and treatment of pain. Some of these deficits included problems in assessment, pharmacological management with opioids, and knowledge of how to use nonpharmacological pain interventions.

JCAHO Standards on Pain

Pain is a serious problem that inhibits patients daily functioning and is under-treated for a variety of reasons. Nurses' knowledge and attitudes of pain management greatly affects their patient's treatment of pain. In August of 1999, the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) (NCS Pearson, 2003) established new standards for the assessment and management of pain. The most recent standards were published in 2000-2001. The new standards state that a pain assessment should include a psychosocial assessment, a detailed patient history, physical examination, and a diagnostic evaluation. How pain affects the patient's functioning in daily life also needs to be addressed. A pain scale to rate pain should be used for adults. Mazanec, Buras, Hudson, and Montana (2002) also listed other JCAHO standards in their article on pain. They suggested all patients need to be screened for pain,

providers need to be educated in pain assessment and management, and the quality of pain management must be monitored. Facilities are also required to have policies and procedures in place to support effective pain management. Mazanec and her team suggest using an interdisciplinary approach to pain management with patients, especially the hospice population.

Education Needs

Education and inservices that focus on a multidisciplinary approach to pain management of nurses and physicians are necessary to meet the new JCAHO standards as well as patients' pain needs. Currently, The National Foundation for the Treatment of Pain has a national pain awareness campaign. People who are educated about pain wear a pin on the lapel of their shirt and when they are asked about the pin they are supposed to inform people about the number of people that suffer from untreated pain (NFTP, 2003). In addition to making nurses more aware of pain management techniques, research that examines pain relief approaches needs to be conducted (NIAMS, 2003). Research provides a broad base of knowledge necessary to advance the diagnosis, treatment, and prevention of many diseases. There are currently many research projects on pain being developed by the National Institute of Arthritis and Musculoskeletal and Skin Diseases. Nonpharmacological pain management is one method of relieving pain that can be combined with pharmacological methods. Nonpharmacological pain management should not be overlooked when trying to correct the under-treatment of pain; however, in the United States nonpharmacological methods are just beginning to gain popularity and not much research has been done in this area.

Nonpharmacological Pain Management

Complementary and Alternative Therapies

Complementary and alternative therapy, another name for nonpharmacological therapies, use is increasing throughout the world. In one study in 1997, forty-two percent of Americans had used at least one complementary therapy in the past year (King, Pettigrew & Reed, 1999). Alternative therapies are used in place of mainstream medicine; however, complementary therapies are treatments used along with more conventional medical practices (Brolinson, Price, Ditmyer and Reis, 2001). For the purpose of this study the focus was complementary therapies that could be used with patients in the hospital setting. According to King, Pettigrew, and Reed (1999), nurses need to be able to assess patient's use of these alternative and complementary therapies and be able to describe how alternative treatment interacts with traditional medicine. However, in their study they found that many nurses do not know about complementary or alternative therapies and there is a great need for continuing education on these alternative options. Overall, the nurses in this study were found to hold favorable ideas about complementary treatments being used with traditional medical practices and identified healing touch, prayer, and biofeedback as nonpharmacological treatments for pain relief (King, Pettigrew & Reed, 1999).

In a survey of nurses by Brolinson, Price, Ditmyer, and Reis (2001) about complementary or alternative therapies, nurses were asked to respond to the safety of the therapies as well as their use of them. Seventy-nine percent of nurses in this study perceived their professional education in the area of complementary or alternative therapies to be fair or to be poor. The nurses completing the survey recommended that complementary and alternative therapies be included in basic baccalaureate nursing education curriculum. These nurses felt that

biofeedback, chiropractic, and meditation/relaxation were the three most effective nonpharmacological therapies. Complementary and alternative therapies can be used for many different healthcare concerns not just pain; however, there are some that are used to help treat pain and can be implemented by nurses.

Nonpharmacological Pain Techniques and Therapies

Nonpharmacological pain management is one approach to a comprehensive method of pain relief. They do not replace pharmacological methods of pain management and can be used in conjunction with pharmacological pain practices to enhance the patient's relief of pain.

Nonpharmacological pain management therapies can be classified into three categories. There are cognitive or behavioral strategies, which include distraction, relaxation, imagery, and breathing techniques. The second category is physical or cutaneous strategies, which include heat/cold, vibration, massage, position changes, and trans-electrical nerve stimulation (TENS). Finally, there are environmental or emotional strategies such as touch, reassurance, or interior decorating of the room (Polkki, Vehviläinen-Julkunen & Pietila, 2001). Sometimes these therapies or treatment options will overlap with one category or another. According to McCaffery and Pasero (1999), the nurse must consider many things when selecting one of these treatment options. For example, the nurse must consider the relationship between the non-drug and drug treatments, the patient's previous experiences, and current attitude and the patient's coping styles.

The cognitive behavioral strategies are thought to interfere with the neural perceptions of pain in the brain. They alter the subjective experiences of pain intensity (Titler & Rakel, 2001). According to Titler and Rakel, distraction is directing attention away from pain by focusing attention and concentration on something else. There are many different kinds of distraction

including music, humor, and movement. Those techniques require more active participation by the person experiencing pain and are more effective in relieving pain. McCaffery (1990) described a study that showed humor to be one of the most effective distraction methods to relieve pain and the effects continued for at least ten minutes after the laughter stopped. Relaxation is the second cognitive behavioral strategy. McCaffery and Pasero (1999) stated that relaxation may work to relieve pain because of the reduced muscle tension. Relaxation techniques included relaxation imagery, which involves a person imaging a pleasant or peaceful experience. Others also included music, massage and slow breathing. When a person is relaxed, their heart rate, blood pressure, and respirations decrease (Titler & Rakel, 2001). Cole and Brunk (1999) compiled a literature review about the effectiveness of relaxation in relieving pain. They found six research articles and all of them told about the positive effects of relaxation techniques regardless of what technique was used. The patients reported having a feeling of control over their pain when using relaxation techniques.

Cutaneous interventions such as heat or cold work according to the gate control theory of pain transmission. Stimulation of the skin activates the large diameter nerve fibers and prevents the short diameter nerve fibers from transmitting pain to the brain (Titler & Rakel, 2001).

Cutaneous stimulation may be applied to the site of pain or other sites distal or proximal to the pain. According to McCaffery (1990), the use of cold is almost always more effective than heat, and alternating cold and heat is even more effective than using one thermal method alone (Titler & Rakel, 2001). Both heat and cold cause a decrease in the sensitivity to pain or decrease muscle spasms and that is maybe why they work to relieve pain (Titler & Rakel, 2001).

Vibration is a second type of cutaneous stimulation that causes paresthesia or anesthesia to the area stimulated and changes sharp pain to a dull sensation. Pain relief can last for up to 30

minutes after the vibration is removed. The use of heat with vibration is the best cutaneous stimulation method to relieve pain. Massage is another type of a cutaneous therapy to relieve pain. According to McCaffery and Pasero (1999), the back and shoulders are the areas typically massaged. In a study of terminally ill patients, a three-minute slow back rub lowered blood pressure indicating relaxation and less pain.

Other nonpharmacological pain management techniques identified include family interventions. Collins and Kaslow (2000) state that family therapy may be indicated to treat dysfunctional family interactional patterns in order to relieve pain. Education is also very important to the pain management plan. Patients need to have education about the techniques they are using. There are many nonpharmacological pain management therapies or techniques that provide benefits to patients even though there is not much scientific evidence on their exact mechanisms of action or effectiveness; but, why are they not being used?

Barriers to Using Nonpharmacological Pain Techniques

According to a study by Clarke, French, Bilodeau, Capasso, Edwards, and Empoliti (1996), documentation of nonpharmacological treatments for pain was minimal to nonexistent. Ninety percent of all charts audited had no use of nonpharmacological pain methods to relieve pain documented. The respondents identified that nonpharmacological pain management techniques was one of the areas that they received the least amount of information on, a factor that may have prevented them from using those therapies. Another survey done by Salanterä, Lauri, Salmi, and Helenius (1999) identified obstacles that prevented nurses from using nonpharmacological pain management. They found that workload, lack of proper materials, and lack of knowledge were the three main reasons. The results showed that the areas that nurses needed the most education on included nonpharmacological interventions to relieve pain,

differences between acute and chronic pain, and the anatomy and physiology of pain. In this survey, nurses that specialized in care of children knew more about nonpharmacological pain management than other groups of nurses.

A study by Pederson and Harbaugh (1995) identified lack of time and competing nursing tasks as major barriers to using nonpharmacological techniques. Other barriers identified included lack of distraction materials, being a stranger to the child, and nurses' lack of knowledge. Nurses indicated that they used simpler techniques like distraction and focusing on breathing most frequently. The barriers to optimally managing pain and using nonpharmacological pain techniques seem to be similar to nurse's knowledge, time and attitudes on pain management. Nurses should be educated about pain management treatment so that the patients can receive the best care possible.

Nurses' Attitudes, Knowledge of Nonpharmacological Pain Management

In order for patients to receive the best pain management available and have the best outcomes, nurses need to be able to combine pharmacological and nonpharmacological pain management therapies. Nurses' knowledge and attitudes are two barriers to using nonpharmacological pain management techniques. Research assessing these factors has been done in Australia and Finland; however, not much has been done in the United States. A single study done in the United States by Broome et al. (1996) found that 50% of nurses surveyed use nonpharmacological techniques like relaxation, distraction, imagery, positioning, and massage 'often' or 'sometimes' with the pediatric population. Another study by Kankkunen, Vehvilainen-Julkunen, Peitila, and Halonen (2003) in Finland identified the use of nonpharmacological pain therapies used by parents at home for their children. The most commonly used therapies included holding the child on their lap, comforting the child, and

spending more time with the child. Parents usually used the methods that were most familiar to them; however, if they were taught other methods before the children left the hospital they would use them to decrease the child's pain.

In Australia (Helmrich et al., 2001) a qualitative study was done to assess nurse's attitudes and use of nonpharmacological pain techniques. Eighty-nine percent of the nurses said that they had used nonpharmacological therapies on their hospitalized patients. Some of the benefits they identified for their patients included a unique opportunity to develop a therapeutic relationship with the patient, pain relief while waiting for a drug to work, more control over their pain, and distraction during painful procedures. Some barriers to using these therapies included the time needed to implement them, use of these not considered standard of practice, and lack of resources and knowledge to implement them.

A study done by Polkki, Vehvilainen-Julkunen and Pietila (2001) in Finland looked at nurse's attitudes and knowledge of nonpharmacological methods in relieving children's post-operative pain. Only about 57% of the respondents used nonpharmacological methods to relieve pain routinely; however, most of the nurses told the children about pain medications. Ninety-eight percent of nurses used position changes 'nearly always' or 'always' to relieve pain, and 72% used massage 'sometimes.' Thermal regulation was used 63% of the time 'sometimes.' The nurses used emotional support, helping with daily activities, and creating a comfortable environment routinely; however, the cognitive behavioral and physical methods like relaxation, distraction, and massage were used less often and were less well known.

Summary

There are many nonpharmacological pain management strategies identified as helpful to patients for use with pharmacological methods to relieve pain. The nonpharmacological

therapies and techniques have unique advantages to relieving pain that medications do not have like giving the patient more active role in managing their pain management. However, pain is still under-treated and there are many patients that suffer each day from uncontrolled pain. If patients and nurses were educated about the use of nonpharmacological pain therapies in conjunction with pain medications, their general well-being might be improved because they would experience less pain. Nurses are the professionals most responsible for caring for patient's pain and symptoms. As indicated in numerous studies, nurses have a significant knowledge deficit in relation to pain management. Healthcare providers do not know about many of the nonpharmacological methods to relieve pain. There are many barriers preventing nonpharmacological pain therapies from being used in the hospital, some of which are physicians' orders, physicians' approval, patient compliance, nurses' knowledge, and nurses' acceptance. Nurses' own attitudes greatly affect the way they treat a patient's pain. There have only been a few studies that have assessed nurses' attitudes and knowledge of nonpharmacological pain management and none have been done in the United States. A survey needs to be done to assess nurses' knowledge and attitudes so that deficits can be identified and corrected with continuing education, pain seminars, or demonstrations that support patients receiving a combination of pain management techniques to decrease their suffering. Exploratory research to randomly survey registered nurses at BroMenn Regional Medical Center and will explore nurses' attitudes, use, and knowledge of nonpharmacological pain management therapies when caring for patients' in the hospital setting.

Chapter III: Methodology

Study Design, Setting, and Ethics

A descriptive survey design was used to gather information to answer the research questions from the nurses at BroMenn Regional Medical Center. A questionnaire was used as the method of data collection because it allowed for accurate, detailed, and timely gathering of information from a population of nurses that have little time to spare. The study received Institutional Review Board approval from both Illinois Wesleyan University and BroMenn Regional Medical Center.

Data Collection

Surveys were placed in 185 nurses' mailboxes at BroMenn Regional Medical Center. The convenient sample included 82.2% of nurses from the units surveyed. The following units were used to recruit nurses: Neurology (5 West), Critical Care, Step-Down (1 South), Medical/Surgical (5 West and 6 West), Oncology (4 South), Pediatrics, Labor and Delivery, and Post-Partum. To encourage better participation, posters were hung in all the units' break rooms reminding nurses to get the survey from their mailbox, fill it out, and return it. I also went to some of the units' staff meetings to inform the nurses that these surveys would be in their mailbox and explain the purpose of the research project to them. Attending the units' staff meetings did not seem to affect the response rate. Each person received an informed consent and authorization to participate letter in their mailbox that they signed and returned in an envelope. The informed consent letter told the nurses the purpose of the research project, gave a brief background of previous research in this area, guaranteed confidentiality, explained what participation involved, disclosed any risks or benefits, and explained that participation was voluntary. They also received the survey with a separate envelope to enclose the completed

survey. This system maintained anonymity and confidentiality. Respondents returned the authorization to participate and survey enclosed in a sealed envelope to a large manila folder that was hung in the break room of the units. Forty-eight nurses (25.9%) voluntarily returned their surveys and informed consents. One questionnaire was returned but unusable, leaving 47 surveys to include in data analysis yielding a usable response rate of 25.4%. Due to time constraints a second round of survey distribution was not done.

Sample

The sample included only nurses from BroMenn Regional Medical Center. There were 91.3% females and 8.7% males in the sample. For the purpose of data analysis we grouped the units worked into five categories which included: critical care, which included critical care and step-down (1 South); medical/surgical, which included 6 West, 5 West, and neurology; oncology, which included 4 south; pediatrics, which included pediatrics, and obstetrics; and other which included a float. The largest group of respondents were from the medical/surgical group, making up 48.9% of the sample. Most (46.8%) of the participants worked days. The sample included; people in all age groups from 20-60 years of age; however, the most common age represented was 20-29 group or 34% of the sample. Nurses with their baccalaureate degree made up 55.3% of the sample, but those with associates degrees (23.4%), diploma (19.1%), and master's level (2.1%) were all represented. The years of experience was measured by the nurses circling the range of years since their first degree. The largest range of years since their first degree was 0-9, which was 55.3% of the nurses. For all characteristics and percentages of the sample see Appendix A.

Instrument

The instrument in this study included five demographic questions based on the literature review. It also included twelve questions about nurses' general pain practices as well as nonpharmacological pain management practices. These questions were modified from other pain research surveys and the literature. Some of the questions included how much education do you have on pain management, and what are some benefits to using nonpharmacological pain management therapies. The remainder of the survey was adapted from Tarja Polkki's Nonpharmacological Methods Questionnaire (Polkki, Vehvilainen-Julkunen & Pietila, 2001). Her instrument was used for nurses caring for children's post-operative pain. A few words in the questions were changed to make the questions more applicable to all patients not just children and to all pain not just post-operative pain. The questions ask the nurse to rate how often they use certain nonpharmacological methods to reduce their patient's pain on a likert scale ranging from 1-'not at all' to 5-'always.' For data analysis the questions were divided into the different nonpharmacological method categories used to reduce pain including cognitive-behavioral methods, physical methods, emotional support, comfortable environment, and patient family involvement. The cognitive-behavioral methods included preparatory information, imagery, distraction, relaxation, breathing technique, and positive reinforcement. On the adapted instrument, this included questions 19-27. The physical methods included questions about thermal regulation, massage, and positioning and are included in questions 28-30. The questions related to a comfortable environment were number 31-33. Finally, questions 36 and 37 asked about using family or patient involvement to reduce pain. A copy of the questionnaire has been attached for review. See Appendix G.

Tarja Polkki's original instrument had high content and construct validity because it was given to 35 different Finnish nurses as well as two experts specialized in pediatric pain management to revise. Cronbach's alpha was used to assess the reliability of the adapted questionnaire. The alpha coefficient was .93 indicating that there is very good internal consistency of the tool. That indicated that the items on the tool measured the same critical attribute, which was nonpharmacological therapies.

Data Analysis

All of the information from the surveys was entered into SPSS for Windows (10.1) software for analysis. Descriptive statistics frequencies were used to analyze the nominal data and answer the first four research questions. Question 16 on the survey, which asked "how often do you use any of the identified nonpharmacological therapies", was used to analyze the first research question. This question answered the extent that nurses use nonpharmacological pain management therapies. Descriptive frequencies and percentages were used for analysis. The utilization of nonpharmacological pain methods was analyzed in two ways. Descriptive statistics were used to determine the mean and standard deviation of the scores from the Likert scale on each persons' survey for the different nonpharmacological categories like cognitive behavioral, physical methods, and provide emotional support. Respondents answered what nonpharmacological therapies they could use in the hospital setting. Answers were put into categories and tallied to determine percentages of nurses that use the therapy. For the third research question about the barriers to using nonpharmacological therapies, qualitative data were analyzed from question number 18. All of the nurses' responses were grouped to see trends in responses. The fourth research question referring to the benefits of using nonpharmacological methods was analyzed with the qualitative data from question number 17. Trends were analyzed

to determine the percentages of nurses that expressed the same benefits to using nonpharmacological therapies. The fifth research question asking how the demographic variables affected nurses' use of nonpharmacological methods was analyzed using a one-way ANOVA with a Tukey post-hoc. The independent variables were the demographic information as age, years of experience, and degree. The dependent variables were the mean scores from the subjects' surveys on the different nonpharmacological method categories. A p-value of $< .05$ was considered significant. Student's t-test was also used to determine if having nonpharmacological classes was significant in nurses' use of nonpharmacological pain therapies.

Chapter IV: Results

Results

Background Questionnaire

A description of the sample is in Appendix A and the sample section of this paper. Most (57.8%) respondents had 0-5 hours of pain education in the last 2 years. There have been many advances in the healthcare field in the past 2 years, as well as pain management, so it is somewhat surprising that nurses have so few hours of education in this area. When nurses were asked where they attained most of their knowledge about pain, 80.4% said they received the knowledge in nursing practice since graduation as opposed to formal nursing school education. Sixty-seven percent of the participants said that they have had some classes on nonpharmacological pain management. Of the 32.6% of nurses that said they did not have any classes on nonpharmacological pain management, 26% said they wished they had more education in this area. All of the nurses that completed the survey said there is a pain assessment tool available on their unit, and all of them said they use it. Appendix B contains a detailed list of

frequencies relating to questions on the demographic questionnaire regarding general pain practices and amount of pain education.

Extent Nurses Use Nonpharmacological Pain Management

Nurses were asked to circle how often they use the nonpharmacological therapies they listed. They could choose from 'everyday', 'at least 3 times a week', 'once a week', 'once every other week', 'once a month', and 'never.' The mode was 'at least 3 times a week.' Forty-two percent of nurses said they used nonpharmacological pain management therapies 'at least 3 times a week.' No one answered 'never.' See Appendix C for more information about how often nurses use nonpharmacological pain relief techniques.

What Nonpharmacological Pain Management Therapies Nurses Utilize

Nurses were asked to write down what nonpharmacological pain management therapies they could use in the hospital without a doctors order. The qualitative answers were analyzed. The most common therapy mentioned was change of position (53.2%). Massage, distraction, and heat/cold were cited by 51.1% of the nurses filling out the survey. Nurses listed many other nonpharmacological therapies that could be used to relieve pain. This research question was also analyzed using the mean scores for the nonpharmacological categories. According to these descriptive statistics, nurses provide emotional support most of the time as a nonpharmacological therapy. The mean was 3.95, which meant that nurses report using emotional support 'nearly always' on their surveys. Interestingly, providing emotional support was the most common nonpharmacological method used by nurses; however, no nurse listed providing emotional support on his or her qualitative question about nonpharmacological methods used in the hospital. An explanation for this could be that nurses believe emotional support is an integral part of nursing in general and is not perceived as a separate nonpharmacological pain management

therapy. Most of the time nurses listed cognitive behavioral methods on the qualitative question such as distraction and imagery, which had a mean of 3.76 on the survey questions. A list of all the nonpharmacological therapies identified by the nurses and the mean scores from each of the categories of nonpharmacological therapies can be found in appendix D.

Barriers to Using Nonpharmacological Therapies

Nurses were asked an open-ended question to identify the barriers they perceived to using nonpharmacological pain management therapies. All of the nurses answered this question and their responses were grouped to find common themes. The largest barrier identified by 27.7% of the nurses responding was that the patient is unwilling to try nonpharmacological methods of pain relief. Lack of time, lack of knowledge, and efficacy were three other barriers listed by nurses. Appendix E includes the nurses' responses.

Benefits to Using Nonpharmacological Therapies

This research question was also analyzed by grouping responses of nurses perceived benefits of nonpharmacological treatment. Nurses were asked to list any benefits to nonpharmacological therapies and common themes were found from their responses. Fewer side effects was listed as the most prominent benefit (40.4%). Other popular responses that nurses wrote related to the benefits were: more patient control (19.1%), less medication needed (12.8%), and more one on one time with the patient (10.6%). See appendix F

How Demographic Characteristic Affect Nurses Use of Nonpharmacological Therapies

A one-way ANOVA with a Tukey post-hoc was used to analyze the differences between nurses' use of nonpharmacological therapies compared to other demographic characteristics such as age and nursing degree. A level of .05 was considered significant. There was no statistically significant difference between nurses' use of nonpharmacological therapies and age range,

amount of pain education, years since first degree (experience), hours of nonpharmacological classes, and unit worked. Post hoc showed a statistical significance at the level of $p=.041$ for the difference between a baccalaureate degree and associates degree nurses and their use of cognitive behavioral nonpharmacological therapies. Nurses with their baccalaureate use cognitive behavioral methods such as distraction and imagery less than nurses with their associate degree. Baccalaureate degree nurses reported a mean of 3.61 on the Likert type scale for using cognitive behavioral methods, while associate degree nurses reported a mean of 4.03. This is a surprising result; however, it might be slightly skewed because there were unequal groups. ANOVA's are not as meaningful when used with unequal group sizes. Our sample had many more baccalaureate degree nurses (55.3%) compared to associate degree (23.4%).

A t-test $t(44) = 3.527$ $p<.001$. To further explore the data a t-test was used to analyze whether or not having classes on nonpharmacological techniques lead to a greater use of them. The t-test was statistically significant at the level of $p<.001$. Participating in classes on nonpharmacological pain management lead to the use of physical methods such as heat/cold and change of position more often.

Chapter V: Conclusions

Discussion

This study described nurses' attitudes, knowledge and use of nonpharmacological pain management techniques and therapies from BroMenn Regional Medical Center. Although the sample was smaller than desired, valuable insights about nurses' use of nonpharmacological methods were discovered. The questionnaire took 15 minutes to complete; however, our low response rate indicated that nurses are very busy and many might not have taken the time to

complete it. The survey allowed for the anonymity and confidentiality of the volunteers to be maintained.

The results of the demographic questionnaire indicate that the sample was mostly young nurses fewer than 10 years from graduation who held baccalaureate degree in nursing. The importance of research, continuing education, and evidenced-based practice are stressed in the baccalaureate undergraduate nursing programs and may have influenced the young baccalaureate nurses' decision to participate in this study. Interestingly, most nurses responding had only zero to five hours of pain education. Numerous studies in the literature review suggested that there is a serious knowledge deficit and under-treatment of pain by nurses (Lynch, 2001; Broome et al., 1996; Brunier, Carson & Harrison, 1995). This research project supported the conclusion cited in the literature and indicated that more continuing education is needed in the area of pain management in general but more specifically nonpharmacological pain management. Nonpharmacological pain management is growing in popularity and has much potential when managing patient's pain; however, nurses were not incorporating nonpharmacological pain management therapies in their nursing practice.

Most nurses in this study (42.2%), conducted at BroMenn, reported using nonpharmacological therapies 'at least 3 times a week.' When compared to the study done by Polkki, Vehvilainen-Julkunen, and Pietila (2001) who reported that 57% of nurses used nonpharmacological therapies routinely, the responses of nurses at BroMenn is consistent with this study. Nurses at BroMenn did not report using nonpharmacological therapies alone but in conjunction with medications. There are numerous nonpharmacological therapies that could be used in the hospital setting to manage pain that nurses might not even think of as alternative methods. For example, the survey of nurses at BroMenn asked questions about providing a

comfortable environment to decrease a patient's pain. Nurses did not list changing the air temperature or interior decoration of the patients' room to be a nonpharmacological pain management therapy; however, they indicated that they used these interventions on the Likert scale of the instrument in this study. Nurses also indicated that they used emotional support for the patient to manage their pain but they did not recognize this nursing interventions as a nonpharmacological therapy.

Nurses in this study used a large number of nonpharmacological therapies to manage pain in the hospital setting. Nurses listed the different types that they easily recalled. After analyzing trends on nurses' lists, they seem to view nonpharmacological management needs as those things performed outside the realm of ordinary daily activities of nursing care like imagery, distraction, and massage. The nonpharmacological Likert scale survey asks about a variety of nonpharmacological therapies to reduce pain that nurses did not list such as informing the patient of a procedure, rewarding the patient, verbally comforting the patient, and changing the environment. I believe that nurses did not list these types of things because they think of them as activities they should do for every patient as part of routine nursing care whether the patient is in pain or not.

Nurses have identified different benefits to using nonpharmacological therapies. Nurses did identify barriers to performing these therapies, but if nurses and patients had more information and knowledge about these therapies, a majority of the barriers might be eliminated. The barriers listed by nurses in this study are similar to the barriers listed in previous studies cited in the literature review (Clark et al., 1996; Salantera et al., 1999; Helmrich et al., 2001; Broome et al., 1996). Nurses and patients need to understand that nonpharmacological pain management therapies have major benefits for pain relief. Barriers need to be explored and

continuing education needs to be done to eliminate some of these perceived barriers. If nurses were more educated about nonpharmacological pain management, they could be confident in informing their patients about these techniques and have more success in managing their pain. The t-test findings demonstrated that more knowledge about nonpharmacological pain relief methods increased nurses' use of them. Therefore, we need to offer more opportunities to educate nurses' so they can manage their patients' pain more effectively. More classes should be available to nurses so they have a greater knowledge of nonpharmacological therapies and their patients can benefit from them.

Degree held by nurses was the only variable that was found to be significant in relation to use of nonpharmacological management therapies. This finding may be biased due to the tool itself and the sample size. The sample size was not large enough when divided into sub-groups and the reliability of the ANOVA findings was impacted. For example the study had 55.3% baccalaureate degree nurses, and 23.4% associate degree nurses. BroMenn's distribution of baccalaureate verses associate degree nurses is very similar to our sample. BroMenn currently has 45.6% baccalaureate degree nurses, 26.7% diploma nurses, and 19.6% associate degree nurses (MA Kirchner, April 16, 2004). The fewer number of associate degree nurses presented data showing significant differences when compared to baccalaureate nurses.

Based on the results from this study, nurses were found to use nonpharmacological therapies on all units of the hospital for patients in pain. Nurses indicated they used emotional support (mean 3.94) the most, followed by providing a comfortable environment (mean 3.87). For both of these categories of nonpharmacological pain management, nurses rated them being used 'nearly always.' Cognitive behavioral methods are used 'nearly always' and have a mean of 3.76. This category included interventions like informing the patient about procedures,

medications, and treatment, imagery, distraction, and relaxation. In this study, nurses had positive attitudes about using nonpharmacological pain management therapies and used them 'often'. Nurses' frequent use of nonpharmacological pain management allows for the patient to participate in managing their pain in the midst of today's complex healthcare system. If patients learn to perform these therapies while hospitalized they will continue doing them after discharge, making the transition to home easier.

Limitations

Limitations of the study include a small convenience sample, wording of question 15 on the survey, categories on amount of pain education questions, adapting the original tool, and the difference between nurses in the United States and Finland. There was a small sample size of only 47 nurses with a response rate of 25.9%. This would have been adequate for the descriptive statistics; however, when the sample was broken into sub-groups there were not enough people represented in each group for analysis. Most people who returned their surveys were young nurses with their baccalaureate degree; however, that does not describe most of the nurses working at BroMenn. This limits the generalizability of our results. If more time was available, a second round of survey distribution might have increased the response rate. Nurses could also have been reminded a second time to fill out the survey in their mailboxes.

A second limitation was the lack of clarity of question 15 on the survey. The question asked what nonpharmacological pain management therapies could be used in the hospital instead of what nonpharmacological pain management therapies do you use in the hospital. This would have given the researcher a better idea about nurses actual practice of using nonpharmacological therapies verses what they might do.

A third limitation was the categories used for the hours of pain education and the hours of nonpharmacological pain education. The categories overlapped. For example, the choices were “none”, “0-5”, and “5-10”. A clear understanding of the hours of classes nurses had was impossible to gather. Nurses may have selected “0-5” and had 0 hours instead of selecting none because that was the socially acceptable answer.

Another limitation is that the original tool from Tarja Polkki (Polkki, Vehvilainen-Julkunen, & Pietila, 2001) was changed to include all patients in the hospital with pain not just post-operative pediatric patients. Making the changes altered the internal consistency of the tool. The reliability of the original tool was really high. However, the alpha coefficient .93 for the adapted tool was still really high. Content validity had also been done, so when the tool was changed that was altered.

A fifth limitation is that people who respond to surveys answer with what they think is the correct and socially acceptable response. This suggests that most nurses may realize the importance of nonpharmacological therapies and say that they use them ‘nearly always’ or ‘always’; however, that may be inaccurate.

A final limitation is that the original tool was used on nurses in Finland and there are some cultural differences and differences in healthcare that might have affected the results. Nursing practice and the importance of alternative treatment maybe different in the United States than in Finland.

Conclusion

Nurses’ from BroMenn Regional Medical Center provided valuable insight in the their attitudes, knowledge, and use of nonpharmacological pain management therapies.

Nonpharmacological pain management therapies have the potential to be extremely beneficial in

the treatment of pain, which are currently highly under utilized. Little research in the United States has examined nurses' use of nonpharmacological pain relief methods. The understanding of nonpharmacological methods is an area for continued study for nurses' pain management practices and improving them. This study demonstrated that nurses do use nonpharmacological therapies on a regular basis with their patients in the hospital. Another area for future study is looking at the percentage of patients who actually suffer from pain and how well nurses are managing it. Emotional support, creating a comfortable environment, and cognitive behavioral methods were reported to be used 'nearly always.' Associate degree nurses appear to use nonpharmacological therapies in the physical methods category more often than baccalaureate degree nurses. An attempt needs to be made to reduce the barriers that nurses identified to using nonpharmacological therapies because benefits are numerous. Nonpharmacological education makes a difference in nurses' use of these therapies. In order to realize the importance of using nonpharmacological therapies, nurses need more knowledge and experience using nonpharmacological methods.

Chapter VI: Appendixes

Appendix A Sample Characteristics

Characteristic	Number of Nurses from Sample	% of Sample (n=47)
<i>Gender</i>		
Male	4	8.7
Female	42	91.3
<i>Unit worked</i>		
Critical Care	12	25.5
Medical/Surgical	23	48.9
Oncology	5	10.6
Pediatrics	6	12.8
Other	1	2.1
<i>Shift Worked</i>		
Day	22	48.9
Evening	7	15.6
Night	15	33.3
Other	1	2.1
<i>Age Range</i>		
20-29	16	34.0
30-39	13	27.7
40-49	8	17.0
50-59	7	14.9
60+	3	6.4
<i>Degree Received</i>		
Associate	11	23.4
Diploma	9	19.1
Baccalaureate	26	55.3
Master's	1	2.1
<i>Years of Experience</i>		
0-9	26	55.3
10-19	8	17.0
20-29	7	14.9
30-39	5	10.6
40+	1	2.1

Appendix B
Demographic Pain Practices

Characteristic	Frequency (n)	Percent of Sample (n=47)
<i>Amount of Pain Education</i>		
None	2	4.4
0-5 Hours	26	57.8
5-10 Hours	7	15.6
10+ Hours	10	22.2
<i>Pain Education in School</i>		
Yes	23	48.9
No	24	51.5
<i>Where was Pain Education</i>		
Nursing Practice	27	80.4
Nursing School	9	19.6
<i>Any Nonpharmacological Classes</i>		
Yes	31	67.4
No	15	32.6
<i>Hours of Nonpharmacological Classes</i>		
0-5 Hours	18	40.0
5-10 Hours	5	11.1
10-15 Hours	3	6.7
15+ Hours	4	8.9
None	15	32.6
<i>Want More Nonpharm. Education</i>		
Yes	12	26.7
No	2 \	4.4
N/A	31	68.9
<i>Pain Tool on Unit</i>		
Yes	47	100
<i>Use Pain Tool on Unit</i>		
Yes	47	100

Appendix C
Nurses' Extent of Nonpharmacological Use

Variables	Frequency (n)	Percent of Sample (n=47)
Never	0	0
Once a Month	4	8.9
Once Every Other Week	1	2.2
Once a Week	11	24.4
3 Times a Week	19	42.2
Everyday	10	22.2

Appendix D
Nurses' Utilization of Nonpharmacological Methods

Variables	Frequency (n)	Percent of Sample (n=47)	Mean
<i>Nonpharmacological Therapies Listed</i>			
Position Changes	25	53.2	
Massage	24	51.1	
Distraction	24	51.1	
Heat/Cold	24	51.1	
Imagery	16	34	
Music	16	34	
Relaxation	15	31.9	
Breathing Patterns	7	14.9	
Comfort	2	4	
Biofeedback	2	4	
Early Ambulation	1	2.1	
Quiet	1	2.1	
Elevation of extremity	1	2.1	
<i>Mean Scores from Likert Survey</i>			
Cognitive/Behavioral Methods			3.76
Physical Methods			3.21
Emotional Support Methods			3.94
Comfortable Environment			3.88
Patient/Family Involvement			3.67

Appendix E
Barriers to Using Nonpharmacological Methods

Barriers Listed	Frequency (n)	Percent of Sample (n=47)
Patient Unwilling	13	27.7
Lack of Time	9	19.1
Lack of Knowledge	8	17.0
Efficacy	8	17
Family/Patient Want Pill	7	14.9
Hard to Measure	4	8.5
Dr./RN Unwilling	3	6.4
Pain too Severe	3	6.4
Lack of Equipment	2	4.3
Trust	1	2.1
Critical Thinking	1	2.1
Not As Concrete	1	2.1
None	1	2.1
Order Needed for Heat	1	2.1
Start Pre-op	1	2.1
Age of Patient	1	2.1

Appendix F
Benefits to Using Nonpharmacological Methods

Benefits Listed	Frequency (n)	Percent of Sample (n=47)
Less Side Effects than Medication	19	40.4
More Patient Control	9	19.1
Less Medications Needed	6	12.8
Adjunct to Medications	6	12.8
More 1:1 Time	5	10.6
Patient Able to do Post-Discharge	4	8.5
Comfort	4	8.5
Less expensive	4	8.5
More Available	4	8.5
Relaxing	3	6.4
Less Dependency	2	4.3
Shorter LOS	1	2.1
Decrease Falls	1	2.1
Family Involved	1	2.1
Build Trust	1	2.1

Appendix G: Demographic Questionnaire

1. Circle: Male Female
2. Identify the unit you primarily work on and the shift you work. _____
3. Circle your age range: 20-29 30-39 40-49 50-59 60+
4. Circle highest level of education: Baccalaureate Associate Diploma
Master's
- List Certifications _____
5. Circle years since your first degree: 0-9 10-19 20-29 30-39 40+
6. Circle amount of pain education in last 2 years: None 0-5 hours 5-10 hours
more than 10 hours
7. Did you feel you learned enough information on pain in school: YES NO
8. Is most of your knowledge about pain from (circle).
1. Nursing practice since graduation
2. Formal nursing school education
9. Have you had any classes in nonpharmacological pain management in either nursing school or continuing education since graduation (circle)? YES NO
10. If you answered YES to number 9, about how many hours did you have (circle)?
0-5 hours 5-10 10-15 more than 15
11. If you answered YES to number 9 where did you attain this education?
12. If you answered NO to number 9, do you wish you had more education involving nonpharmacological pain management (circle)? YES NO
13. Is there a pain assessment tool available for evaluating patient's pain on your unit (circle)?
1. no
2. yes, what _____
(eg. Happy-Sad Face, Visual Analogue Scale, 0-10 Scale, or FLACC Scale)
14. If you answered YES to number 13, do you use the tool (circle)? YES NO
15. What are some nonpharmacological pain management therapies that you could use in the hospital without a doctors order? Please list.
16. How often do you use any of the above therapies? (circle)
everyday at least 3 times a week once a week once every other week
once a month never
17. What do you think some benefits of using nonpharmacological pain management therapies are? Please list.
18. What do you think are some barriers to using nonpharmacological pain management therapies? Please list.

Non-pharmacological Methods Questionnaire

The following statements pertain to the use of non-pharmacological methods in pain management among your patients. In each item circle the reply alternative that best represents your own actions. **Answer each item**, unless otherwise mentioned (eg. if you do not use one of the listed methods, circle the alternative 1 = not at all.) Also circle one of the alternatives 1-5 in the open-ended question (other, what _____).

Reply alternatives

- 1= not at all
- 2 = very seldom
- 3= sometimes
- 4 = nearly always
- 5 = always

	Not at All	Very seldom	Someti mes	Nearly Always	Always
19. I prepare a patient carefully for a procedure by telling him/her about what will be done.	1	2	3	4	5
20. If you circled any of the alternative 2-5 in item 19, which of the following matters do you discuss with the patient before the procedure					
20.1 what kind of procedure will be done	1	2	3	4	5
20.2 where will the procedure be done	1	2	3	4	5
20.3 by whom will the procedure be done	1	2	3	4	5
20.4 why is it important to do the procedure	1	2	3	4	5
20.5 how long will the procedure last	1	2	3	4	5
20.6 preparations for the procedure (abstaining from food, premedication, etc)	1	2	3	4	5
20.7 type of anesthesia (general/local anesthesia)	1	2	3	4	5
20.8 post procedure monitoring in the unit	1	2	3	4	5
20.9 post procedure limitations (what can/cannot be done by the patient)	1	2	3	4	5
20.10 pain medication before and after the procedure	1	2	3	4	5
20.11 other methods of pain relief other, what _____	1	2	3	4	5

21. I encourage the patient to think about/imagine pleasant and positive matters when s/he feels pain	1	2	3	4	5

	Not at All	Very seldom	Someti mes	Nearly Always	Always
22. If you answered any of the alternatives 2-4 in item 21, which of the following matters do you urge the patient to think about					
22.1 a pleasant place	1	2	3	4	5
22.2 a nice excursion/trip	1	2	3	4	5
22.3 a favorite activity	1	2	3	4	5
22.4 other, what _____	1	2	3	4	5

23. I try to focus a patient's thoughts/attention away from pain.	1	2	3	4	5
24. If you answered any of the alternative 2-5 of item 23, which of the following things do you use as distraction					
24.1 books/magazines	1	2	3	4	5
24.2 talking about the daily lives	1	2	3	4	5
24.3 playing games	1	2	3	4	5
24.4 watching television/videos	1	2	3	4	5
24.5 listening to music	1	2	3	4	5
24.6 hobby crafts	1	2	3	4	5
24.7 humor	1	2	3	4	5
24.8 other, what _____	1	2	3	4	5

25. I encourage the patient to relax different parts of his/her body to alleviate the sensation of pain	1	2	3	4	5
26 I teach the patient the correct breathing Technique to alleviate pain (ask him/her to take deep and slow breaths)	1	2	3	4	5
27. When a patient has pain, I encourage the patient by rewarding s/he verbally (say that s/he has done well so far)	1	2	3	4	5

	Not at All	Very seldom	Someti mes	Nearly Always	Always
28. I use thermal regulation as a method of pain relief					
28.1 I use cold application to relieve pain what _____ (cold pack, cold food/drink)	1	2	3	4	5
28.2 I use heat application to relieve pain what _____ (heating pad, warm bandages)	1	2	3	4	5
29. I use massage to relieve pain	1	2	3	4	5
30. I alleviate the patient's pain by position changes	1	2	3	4	5
31. I spend time with the patient when s/he feels pain	1	2	3	4	5
32. I verbally comfort and reassure the patient	1	2	3	4	5
33. I use touching as a method of pain relief (stroke the patient's head, hold his or her hand)	1	2	3	4	5
34. I try to alleviate pain by making the environment comfortable for the patient	1	2	3	4	5
35. If you answered any of the alternative 2-5 in item 34, which of the following methods do you use to make the patients environment comfortable	\				
35.1 I provide a suitable room temperature and good air conditioning	1	2	3	4	5
35.2 I provide the patient with a possibility to rest by minimizing noise	1	2	3	4	5
35.3 I encourage family members to bring some of the patient's belongings to the unit (pictures, walkman, pillow)	1	2	3	4	5
35.4 I think interior decoration of the unit (colors, lighting, furniture) affects patients ability to manage pain	1	2	3	4	5
35.5 other, what _____ _____ _____	1	2	3	4	5
36. I ask the patient to suggest ways to relieve his/her pain in the unit		2	3	4	5
37. I include family members in the pain management regimen	1	2	3	4	5

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