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Factors in Pediatrician Medication Administration

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FACTORS IN PEDIATRIC PAIN MEDICATION ADMINISTRATION

By

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ABSTRACT

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King's conceptual framework was used to examine the relationship between nurses' stated beliefs of goals of pain management, their personal experience of pain, and their educational levels when choosing to intervene in the management of pain for pediatric patients. A descriptive correlational design was used with a convenience sample of 51 registered nurses in a West Michigan children's hospital.

No significance was found between the goal of pain management and the level of stated intentions to intervene, the education level of the nurse and stated intentions to intervene, and nurses who have had a personal pain experience and their stated levels of intentions to intervene. The study was limited by a small sample size, environmental circumstances at the time of data collection, and the similarity of responses to require a redistribution of the respondents into three redefined categories. Other findings that were significant were the perceptions of usefulness of pain scales.

DEDICATION

To my family, Randy, Katie, Samantha, and Jesse who have sacrificed having me "there" as I have worked on this project. To Grace Youth Camp's climbing wall that instilled in me determination. Also, to my thesis committee, Patricia Underwood, Nikki Grinstead, and Susan Allaben for their dedication in helping me complete this degree.

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CHAPTER ONE

INTRODUCTION

Considerable progress has occurred over the last twenty years in the study of pediatric pain management. The pediatric pain management research has included many aspects of the management of a child in pain. The bulk of research has focused on age appropriate pain assessment tools and their validity and reliability in measurement of pediatric pain (Budreau, & Kleiber, 1991, Elander, Hellstrom, & Quarnstrom, 1993, Faries, et al., 1991, Joyce, 1994, Lawrence, et al., 1993, Stein, 1995, Stevens, 1990, Tesler, et al., 1991, Unruh, McGrath, Cunningham, & Humphreys, 1983, VanCleve, & Savedra, 1993). Villarruel and Denyes (1991) further examined age appropriate tools, developing a culturally and age specific tool. Other aspects studied include methods of pain relief and effectiveness of interventions (Broome, Lillis, McGhee, Wilson, & Bates, 1992) and comparison studies of nurses' assessment of a pediatric patient in pain and self report by the patient (Camp, 1988, Camp, & O'Sullivan, 1987, Teske, Caut, & Cleeland, 1983). Although research and opportunities for increasing knowledge are available, inconsistent clinical decisions are made in regard to pediatric pain management. Two nurses given similar situations may arrive at two totally different assessments and interventions for the child in pain.

The assessment and management of a child in pain is a difficult responsibility for the nurse. The entity of pain is abstract. McCaffrey (1979) defines pain as whatever the person perceives their pain experience to be. Adopting this definition, children become a special challenge due to different development levels altering perceptions and ability to articulate

their pain experience. Harrison (1991) states:

> It has long been recognized that pain is an unverifiable personal experience, and that when medical personnel are called upon to estimate what pain a patient is experiencing they are making a subjective judgment which by its very nature is problematic. Recent research has identified a number of factors which cause errors when pain is assessed. Some have to do with the nature of the pain experience and others with the types of cues available and how medical staff reach their decisions (p. 1018).

Decision-making in the clinical setting is a key element to pain management. The nurse not only has to clearly interpret the patient's perception of pain, but must also assess personal beliefs that may bias the assessment and choice of intervention. Nurses must accept the fact that unrelieved pain has negative physiologic consequences (Eland, 1990). Nurses must also accept the responsibility for assessment and intervention to provide pain relief as a component of their role in assisting the patient to health. Once accepted, further reflection can occur regarding their personal beliefs about pain and goals of pain relief. Research studies show nurses' perceptions of their practice with respect to pain relief are different than the actual interventions given (Burokas, 1985, Gadish, Gonzalez, & Hayes, 1988).

This study will replicate Burokas's 1985 study, modifying the tools and the study to reflect current practice trends. The purpose of this study is to examine factors associated with the decision to administer pain medication to pediatric patients. The research will examine stated nursing practice through responses to the Modified Pediatric Nurses' Pain Relief Questionnaire (MPNPRQ).

CHAPTER TWO

LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

Conceptual Framework

Throughout this research paper, concepts of decision-making, interaction, and the goals of the professional nurse will be discussed regarding pediatric pain management. King's conceptual framework was used to structure the research discussed in this study.

Definition of concepts

King (1981) defines nursing as, "a process of action, reaction, and interaction whereby nurse and client share information about their perceptions in the nursing situation" (p.2). A major component of nursing is use of cognitive abilities of perceiving, relating, judging, thinking, and acting in conjunction with behaviors of the individual seeking nursing service to establish goal setting to achieve wellness (King, 1981). Each of the above components is a part of the decision process when assessing a child in pain. The end product of the decision should be reached mutually with the patient. The goal of nursing is, "to help individuals maintain their health so they can function in their roles" (pp. 3-4). Nursing includes the promotion, maintenance, restoration of health, and the care of the dying (King, 1981). The method by which nurses carry out their service is through the nursing process. Nurses are taught to assess, plan, implement, and evaluate (termed the nursing process) in the establishment of health (King, 1981).

Health is defined as, "dynamic life experiences of a human being, which implies continuous adjustment to stressors in the internal and external environment through optimum use of one's resources to achieve maximum potential for daily living"

(King, 1981, p. 5). Illness, therefore, is where an individual has a deviation from normal or an imbalance in the biological, psychological or social structure (King, 1981). Depending on the culture, illness and health have different meanings both for individuals and groups. Illness can occur at any age and to any social class (King, 1981). The concept of environment is incorporated within King's (1981) definition of health by stating that individuals must continually adjust to stressors in the internal and external environment.

King's (1981) most in-depth concept explanation is of the individual as a personal system. Both the nurse and the patient are, each, their own total system. King (1981) uses many concepts to explain personal systems. Major concepts, pertinent to this study, will be defined.

"Perception is each human being's representation of reality" (King, 1981, p. 20). Although individuals may experience similar events, each individual will select specific data from the event to enter their perceptual field (King, 1981).

The concept of self is described as the way an individual defines self to self and to others (King, 1981). In preserving self, when encountering values or beliefs that are inconsistent with a personal definition of self, the natural response is to avoid these conflicting values and beliefs (King, 1981).

King (1981) also discusses growth and development as predictable patterns that occur when an individual grows. Development is influenced both positively and negatively by other objects and people in the environment that yield individual differences (King, 1981).

Another aspect of the personal system is time. King (1981) defines time as relational, durational, and measurable. It is irreversible (King, 1981). Although measurable, King (1981) suggests that time is in a sense subjective reflecting individual perceptions.

King (1981) further explains how personal systems react with each other and the environment. This expanded system is termed interpersonal systems. Two or more people interacting comprise interpersonal systems.

Within the framework of interpersonal systems, interaction is a key component. Each individual involved in the interaction brings personal knowledge, goals, needs, perceptions, expectations, and prior experiences to the situation (King, 1981). Communication is the tool used for interactions. Communication, "...is the structure of significant signs and symbols that brings order and meaning to human interactions." (King, 1981, p. 62). Effective communication occurs only when there is mutual respect and a common desire for understanding (King, 1981).

Interactions where individuals communicate with the environment to attain goals that are mutually valued are defined as transactions (King, 1981). Through transactions, stress is decreased as goals of the individual are met (King, 1981). King (1981) states that each individual has their own world of reality based on their perceptions. She also states that this reality comes from experience, or a series of events in time. Transactions differ from communication in that communication is a transfer of information, where transactions are a transfer of values (King, 1991).

Roles are evident through communication, another component of the interpersonal system. Each individual may have many roles. Roles are learned from childhood beginning with the role in the family. As each individual develops and grows, additional roles are established such as student, friend, and other roles in the community. King (1981) defines the concept of role as:

> ...(1) role is a set of behaviors expected when occupying a position in a social system; (2) rules or procedures define rights and obligations in a position in an organization; (3) role is a relationship with one or more individuals interacting in specific situations for a purpose. Role of a nurse can be defined as an interaction between one or more individuals who come to a nursing situation in which nurses perform functions of professional nursing based on knowledge, skills, and values identified as nursing. Nurses use knowledge, skills, and values to identify goals in each situation and to help individual achieve goals (p. 93).

As stated earlier, effective transactions decrease stress. It can be assumed that if transactions are not effective that stress remains at the same level or intensifies. Stress is the last component of King's interpersonal system. Stress appears in many ways and can affect

the physical, and social realm of an individual. King (1981) defines stress as, "...a dynamic state whereby a human being interacts with the environment to maintain balance for growth, development, and performance, which involves an exchange of energy and information between the person and the environment for regulation and control of stressors." (p. 98). Stress, for some individuals in certain situations, can be stimulating initiating the highest achievement possible. For others, stress can be wearing and debilitating (King, 1981).

The final system described by King (1981) is the social system. A social system is an established set of boundaries of social roles, practices, and behaviors to maintain values and the organization of practice standards and regulations (King, 1981). Within each social system there are elements that influence the authority, power, status, and decision-making of an individual.

Relevance of King's work to pain intervention

According to King (1981), health is the adjustment to stressors within the internal and external environments. Illness occurs when there is an imbalance within the individual. Pain is a deviation from normal in addition to a potential biological, psychological, or social structure. Pain stresses the body yielding negative physiological consequences (Eland, 1990).

The nurse's role is to assist with the adjustment to stressors, establishing goals for return to health (King, 1981). This goal is accomplished through decision-making. Decision making leads to taking action in a given situation. It is a process (King, 1981). The steps involve defining the problem, analyzing the data obtained, and choosing the best alternative by evaluating the negative consequences versus the benefits. Each individual approaches decision making from a different reference point based on the make up of their personal system.

When pain is involved, perception is a key element in achieving mutual goal planning to return the individual to health. Most individuals have experienced pain to some degree in their lives. They have selected specific events from these experiences to remember based on the factors King stated. The nurse and the patient may have different perceptions of pain. These differing perceptions can interfere with adequate pain assessment and treatment. Professional nurses caring for patients in pain must understand that their own personal values and beliefs regarding pain may differ greatly from their patients' values and beliefs. If these values conflict, the nurse must acknowledge the difference. The nurse must not participate in avoidance of conflicting values and, therefore, a lack of response to the patient's definition of self and physical needs.

Communication is another component of King's personal system and an influencing factor in the decision making process. The beginning phases of communication are data gathering and analysis. Aspects of communication need to be understood to insure the accuracy of the message sent and the message received.

The element of communication is vital to pain management. Both verbal and nonverbal data are used by the nurse to assist with the decision for an appropriate intervention for pain management. As King has stated, individuals bring their own personal experiences and beliefs into the communication process. Communication through interactions and achievement of transactions is necessary for pain management. It is through the achievement of transactions that pain is effectively assessed and mutual goals relative to the relief of pain can be set.

Role conflict may also influence the nurses' decision to deliver pain medication. For example, when the expectations of the individuals and organizations differ, role conflict may occur. On a smaller scale, nurses' definitions of their roles in pain management may differ from the patient's expectations of the nurse. The goal of pain relief may have two separate definitions by patient and the nurse. "Misunderstanding of role and distortion in perception, for whatever reason, may influence the outcome of care."(King, 1981, p. 94).

Clarification of the patient's needs and expectations is essential for effective transactions and goal attainment.

Unique characteristics of children that may influence the decision-making process

Children pose an interesting population for delivery of nursing services. Through growth and development King (1981) states there are predictable patterns. Within these stages children develop at their own rate and ability. Even though predictable patterns exist, there are wide ranges in the definition of normal development at defined ages. Recognizing growth and development as an intricate part of the personal system assists the professional nurse in understanding the responses of the child and the limitations of those responses.

The stage of growth and development affects the concepts King defined. Communication is hampered through an inability to find the words to communicate effectively the source of pain, the intensity, or the quality of pain. The child has limited expressive skills. Many age and culturally appropriate pain assessment tools are available to assist with the child's identification of pain. The nurse must assess which tool is most developmentally appropriate, having opportunity for subjective judgment based on the nurse's prior experience. The limited language the child may have may not be adequate to utilize some pain assessment tools.

Literature Review

The literature regarding pediatric pain management is vast. For this study, the literature on decisions that influence intervention for pain, pain assessment and intervention results, nurses' beliefs concerning pain, and decision making was reviewed.

Decisions relative to pain interventions

Burokas (1985) published research on factors that influence the nurse's decision to deliver pain medication. The study was conducted in two large, midwest, urban, university

affiliated hospitals. One hospital was a children's hospital, the other hospital was a pediatric ward within a university hospital. The Intensive Care Nursery (ICN), Pediatric Intensive Care Unit (PICU), and a pediatric surgical unit were studied. A total of 134 nurses from the ICN, PICU, and the surgical ward responded to the Pediatric Nurse's Pain Relief Questionnaire (PNPRQ). Burokas (1985) does not indicate in her article how the sample of nurses was obtained, nor does she define the criteria for nurses to be included in the study. A descriptive correlational methodology was used to answer the research question of what influenced the nurses' choices to administer analgesics and to assess the administration of analgesics on the same nursing units. Burokas (1985) developed the PNPRQ by modifying an adult tool used to survey nurses medicating adult surgical patients. The PNPRQ consists of two sections. The first section is a series of vignettes of postoperative situations. The second section uses multiple choice questions to assess nurses' goals for pain relief and comfort in administering analgesic medication. Validity and reliability of the tool were not mentioned.

The second part of Burokas' (1985) study included chart reviews of 40 pediatric patients, during the same time frame that the nurses were surveyed. The patient charts reviewed all came from units where nurses were being surveyed. Ages of patients whose charts were reviewed ranged from birth to 10 years. All had undergone thoracic or abdominal surgery and were followed for five postoperative days.

The nurse sample was primarily women prepared at the baccalaureate level. The average age was 28.9 years with 5.2 years of nursing practice and 4.5 years of pediatric practice. Burokas (1985) analyzed the vignette responses to the PNPRQ and found nurses significantly (Chi-square = 40.04, $p < .001$) chose to administer an analgesic versus other means of intervention. Of those nurses who chose not to administer an analgesic, distraction was the most common intervention used for pain relief. The patient characteristics in the vignettes were reviewed to determine if delivery of an analgesic was based on patient character type. Burokas (1985) found that terminally ill patients were more

frequently given narcotics than any other intervention (Chi-square = 91.9, $p < .001$). Terminally ill younger patients were less likely to receive narcotic medication (Chi-square = 114.28, $p < .001$).

Burokas (1985) did not find statistically significant differences in demographic variables and self-reported administration of medication with one exception. Nurses who had experienced their own children in severe pain chose to administer pain medications more frequently, in the vignettes, (Chi-square = 5.04, $p = .03$) than those nurses who did not have this experience. Reported delivery of pain medication was significantly different depending on which unit the nurse practiced. Those nurses in PICU reported giving significantly fewer non narcotic analgesics than did the surgical ward and the ICN (Chi-square = 29.17, $p = .01$). Responses from PICU and ICN nurses showed preference for intravenous analgesic medication administration versus the surgical ward which preferred intramuscular (Chi-square = 18.78, $p < .02$). The surgical ward nurses significantly responded more hesitantly to the administration of intravenous narcotics (Chi-square = 34.14, $p < .01$) than the PICU nurses. The reported factors that most influenced the nurse to deliver pain medication were vital signs (90 responses), type of surgery (76 responses), severity of pain (57 responses), and nonverbal behaviors (56 responses).

Within the questionnaire, Burokas (1985) asked the nurses' goals in pain relief. The majority of nurses surveyed (61.2%) stated their goal was to relieve the pain as much as possible. Only 12% responded that complete pain relief was a goal. Those nurses reporting complete pain relief as a goal significantly intervened with administration of an analgesic more often than the other nurses (Chi-square = 35.07, $p < .0005$).

Burokas's (1985) chart review of the 40 patients revealed the average analgesics administered a day were two doses per day. Sub therapeutic doses of analgesics were ordered for 38% of the patient's reviewed.

In this study, three factors appeared to influence nurses' pain medication interventions: type of unit, the nurse's goal of pain relief, and having offspring who had experienced

pain. Nurses' responses to the questionnaire indicated the type of surgery also influenced the decision to medicate. However, the chart reviews of actual practice did not support this finding.

Gadish, Gonzalez, and Hayes (1988) replicated Burokas's study a few years later at a private children's hospital in the southeast. The hospital is a major referral center and serves a multi-cultural community. The study was designed in the same fashion as Burokas's with a few exceptions. Gadish, et al. (1988) used a convenience sample of 38 registered and licensed practical nurses who had been practicing in the pediatrics area a minimum of three months in the recovery room, PICU, nursery or the pediatric surgical units. Equal numbers from each unit responded to the PNPRQ. The demographics of the respondents were similar to Burokas except the age range was higher with 26.5% being 36-40 years of age. Nurses who had offspring were also higher at 70%. Those nurses that had children who had a painful experience were approximately half of those with offspring. Gadish, et al. (1988) established content validity of the PNPRQ by submitting the questionnaire to a panel of experts for review. They did not address the reliability of the questionnaire.

The chart review examined the charts of those patients in the respective units at the time the nurses were surveyed. Gadish, et al. (1988) expanded the age of children reviewed to age 12 and did not define the type of surgery other than the child was an inpatient undergoing general anesthesia.

Responses to the questionnaire showed nurses significantly chose to medicate patients (84.8%) rather than use nonpharmacologic interventions ($p < .005$). Of those nurses choosing interventions other than medication (15.2%), repositioning (30 responses) and notification of the physician (30 responses) were the top two choices. Nurses who chose medication were further examined as to the dose given. Baccalaureate degree nurses (BSN) chose more medium (35%) and high doses (65%) of narcotic analgesia. Associate degree nurses (ADN) chose medium doses and high doses 38% and 10% of the time, respectively.

Nurses prepared in Diploma programs (two to three year hospital based programs) administered 20% medium and high doses of narcotic analgesia. This finding was in contrast to Burokas's study.

Gadish, et al (1988) found similar results with 63.2% of the nurses responding that their goal was to relieve as much pain as possible. These findings are incongruent with the vignettes. Nurses responding to the vignettes indicated that clinical work experience and personal pain experience were most influential in their decision to deliver pain medication, yet Gadish et al. (1988) stated that educational preparation was the most influential factor in the decision to deliver pain medication. Gadish, et al. (1988) did not provide percentages or statistical analysis, beyond the above results, to support this statement. Age was influential only in the vignettes as stated by Gadish, et al. (1988), yet no data was given to support this statement. Nurses reported the most influential factors in assessment were vital signs, severity of pain, response to last medication, type of surgery, and nonverbal behaviors as the top five (Gadish, et al., 1988). A chart was provided in the article to review the number of respondents to each factor, however, no percentages or statistical analyses were included.

A review of 38 charts of patients on the units of the nurses responding to the questionnaire was done at the time they answered the questionnaire. Comments concerning the chart review were brief, only discussing the types of narcotics used and the ranges. Gadish, et al. (1988) found 31% of doses ordered were subtherapuetic while 14% were above the therapeutic range.

Caty, Tourigny, and Koren (1995) examined assessment and management of children's pain in community hospitals. The research questions to be answered were:

1) What criteria do nurses use to assess pain in children?

2) What criteria do nurses use to decide when to give medications?

3) What non-pharmacological nursing interventions do nurses use to manage pain?

4) What factors influence nurse's assessment and management?

A descriptive method was used for the study. Seventy two nurses responded to the questionnaire from ten pediatric units in community hospitals located in Northeast Ontario. The response rate from each of the units ranged from 17% to 93%. The respondents were 93% staff nurses with 42% being in practice less than ten years and 41% in practice for greater than ten years. Those nurses in pediatric practice less than ten years were 64% and 36% had greater than ten years of pediatric experience. Educational preparation of respondents was 82% Diploma graduates and 14% pursuing or holding a Baccalaureate degree. Only one third of the respondents had taken a pain course. Two thirds were greater than 30 years old. Seventy-five percent had offspring and 61% stated their offspring had experienced a painful event (Caty, et al., 1995).

Caty, et al. (1995) used the Ritchie Questionnaire to conduct the survey. Content validity was verified by two pediatric nursing instructors. Reliability studies were not mentioned. The three part questionnaire consists of forced choice questions of general knowledge about pain and three clinical examples of situations to which respondents are asked to rate patients' pain. Nurse respondents had to support their pain ratings by listing data that led them to their conclusion. A third section addressed assessment and management of pain.

Caty, et al. (1995) found the two most common definitions of pain were as an individual and personal experience (36%) and from a physiological perspective (36%). The goals of pain relief were complete pain relief (57%) and to reduce the pain to a tolerable level (24%). When rating the clinical situations, the ten month old child was rated as having less pain ($M = 5.72$, $SD = 2.16$) than the three year old ($M = 7.34$, $SD = 1.65$) or the twelve year old ($M = 7.29$, $SD = 1.92$).

The most frequently cited criteria used to assess pain varied. Oral expression, such as crying or the lack thereof, was most influential for the ten month old (90%). The second most frequent response for this age group was RN judgment (81%). Physical changes and relief of action scored 69%. Body language (61%) and affect (54%) were the lowest

scoring responses for this age group. The three year old age group also scored highest with oral expression (81%). Second highest was body language (68%) then RN judgment (67%). Other factors influencing assessment were physiological changes (60%), affect (58%), and parent assessment (58%). The seven year old age group was assessed most through verbal communication (97%) and second body language (83%). RN judgment (74%), physiological changes (63%), and affect (56%) also were influential (Caty, et al., 1995) The article does not identify the rationale for the age change between the clinical situations and the factors that influence pain assessment.

Caty, et al. (1995) also examined criteria nurses use to decide to administer an analgesic. The most influential factors for the ten month old and three year old age group were RN judgment (90% and 88%, respectively), and oral expression (82% and 74 %, respectively). The seven year old age group differed with 94% indicating verbal communication was the most influential factor in deciding to give an analgesic. The second most influential factor was RN judgment (85%). Non-pharmacological interventions were also examined. The most frequently cited interventions used to manage pain across all three age groups were providing company, providing distraction, and repositioning (Caty, et al., 1995). Demographic data revealed no correlations.

Hamers, Abu-Saad, Halfens, and Schumacher (1994) examined questions similar to Caty, et al. (1995) through a qualitative research study. Specific questions asked were, what information do nurses consider when assessing acute pain and what information do nurses consider when choosing a pain relieving intervention. The data were collected in pediatric wards in a general and university hospital in the southern region of the Netherlands for the first study and the western region for the second study. The researchers used semi-structured interviews, observation, and review of nurses' notes as the method of data collection. A small sample size of ten was obtained. In the first study the respondents were approximately 30 years old, the majority female, with one to fourteen years of nursing experience and with less than one year to eleven years of pediatric nursing

experience. The respondents in the second study were mostly female, with average age being 36 years, all were pediatric nurses with 2-28 years of pediatric nursing experience and, overall RN experience 5-33 years.

Hamers, et al. (1994) used the Jaccard index to measure similarity in coding between the main researcher and the two other researchers. The results were interpreted to have reasonable similarity with J = 0.5 between the main researcher and the other two researchers. The score between researcher one and two was J = 0.4. Other efforts to improve reliability were education on interviewing techniques.

Results of Hamers, et al. (1994) were reported narratively. Excerpts of the interviews were included in the article to substantiate conclusions of the authors. Medical diagnosis was cited as influencing the nurses' assessment of acute pain as well as the administration of analgesics. The more severe the diagnosis, the more pain the nurse believed the patient was experiencing. Verbal responses also appeared influential in both pain assessment and the decision for intervention. Crying was stated as the most frequent verbal response with the conclusion being a crying child is in pain. Hamers, et al. (1994) also found age was influential in the pain assessment and implementation of pharmacological interventions, however, no conclusion was drawn as to how age was influential. Parents were also mentioned as influencing the nurses' pain assessment. The influence appears to be associated with the nurses' image of the parent (Hamers, et al., 1994).

Nursing characteristics were also involved with pain assessment and the decision to intervene. Knowledge and experience were key elements using past experience to problem solve in current situations. Knowledge of pain-relieving intervention influence nurses as well with most nurses expecting an analgesic to be more effective than nonpharmacological interventions. Attitude was found to be influential noting most nurses have negative feelings about pain medication. Interviews indicated most nurses postpone administering analgesic as long as possible (Hamers, et al., 1994).

Results of study two supported study one with continuing ambiguity of the influence of age. An additional finding in study two was the influence on workload. Nurses reported administering fewer analgesics if they perceived the workload to be great (Hamers, et al., 1994).

Ferrell, McCaffery, and Grant (1991) examined how nurses make clinical decisions regarding pain in adults and what factors influence the decisions made to assess and relieve pain. Ferrell, et al. (1991) surveyed 53 nurses through a convenience sample of those attending presentations by McCaffery. Each participant was asked to complete the survey after caring for a patient in pain. The sample was biased because it included only those nurses who evidenced an interest in pain management by attending McCaffery's pain management lectures. The survey consisted of questions on pain assessment, decisions about drug and non-drug interventions, barriers to effective pain management, and ethical / professional conflicts. A panel of experts reviewed the instrument for clarity and content prior to it's distribution. (Ferrell, et al., 1991).

The mean age of the patients selected by the nurses surveyed was 53 years with 71% of the patients having a diagnosis of cancer. It is presumed that all patients surveyed were adults since there is no mention of pediatric patients within the article. The three most frequently used strategies in assessing pain were asking the patient (91%), observing the patient's activity (87%), and observing the patient's behavior (81%). While these were the top three most frequently used strategies, the percentage of nurses identifying these strategies as the most influential in their decision to administer pain medication dropped dramatically. Asking the patient was the most influential to only 45% of the respondents. Observing patient behavior was the second most influential (24%) and observing the patient's activity was third (20%). Barriers to providing optimum pain relief included knowledge of the patient and family (35%), knowledge of physicians (30%), inadequate medications ordered (28%), physician cooperation (23%), nursing staff time (19%), knowledge of other nurses (19%), and patient cooperation in taking the medication (17%).

Ethical / professional conflicts identified were feelings that the patient was receiving inadequate pain relief (76%), concern about under medication (69%), physician conflicts (63%), conflicts with the patient or family (59%), knowledge that the patient is in pain and would not acknowledge it (57%), concern of over medication (49%), concern of respiratory depression (33%), concern of contributing to patient addiction (22%), and doubting the pain is real (22%) (Ferrell, et al., 1991).

Pain assessment

Elander, Hellström, and Quarnström published a research study in 1993 using a prospective descriptive method to observe infant's behavior, record activities and care routines, record analgesic routines, and record analgesic administration. Elander, et al. (1993) videotaped a convenience sample of 12 infants the first 24 hours of the postoperative period. Observations were recorded on videotape every 15 minutes for five minutes. Activities in the room, care activities, care routines, presence of parents, and medications administered were also recorded. No specific location or institution was mentioned as to where the data was collected. It is assumed the data was collected at an institution in Sweden as the authors are noted to be employed at the University of Lund, Sweden. The infant participants underwent a variety of major surgeries. Infants were excluded if there was presence of an additional diagnosis or malformation or if there were post operative complications.

Elander, et al. (1993) used Prechtl's instrument which consists of sleep-wake states divided into quiet sleep, active sleep, drowsiness, and awake categories. The Prechtl instrument also has facial expression-vocalization characterized by neutral, grimaces, moaning, crying categories. Elander, et al. (1993) report on interrater reliability of 85% for the sleep-wake state and 95% for the facial expression-vocalization. Elander, et al. (1993) used a pain scoring system described by Attia, Amiel-Tisen, Mayer, Schnider, and Barrier (1987) to assess postoperative pain. Interrater reliability for this instrument was 95%.

Scores using this system range from zero to 20. A zero score indicates severe pain, a score of 20 indicates no pain.

Results showed five infants had occasional episodes of quiet sleep and were awake for 50% of the observed episodes. Moaning and crying observations occurred during 56% of the episodes for four infants and during 29% for six infants. The pain scoring system showed 36% of the episodes to have scores 14 or below ($M = 7.7$) indicating unsatisfactory pain relief (Elander, et al., 1993). No correlation was found between the number of doses of analgesic and the infant's behavior. No correlation was found between parental presence and pain score. Care routines were noted to be disruptive; infants were medicated with a pain medication and then disturbed for care shortly after causing the need for further pain medication. The environment was also not conducive to sleep having high level of noise and light over a 24 hour period. Dosages given in a 24 hour period ranged from one to eight times with a mean of five. There was no agreement in interval, medication, or dosage amongst the care observed. Routes of medication administration varied with 23 doses being administered subcutaneous when intravenous access was available, therefore, inflicting more pain with the injection that is meant to relieve pain (Elander, et al., 1993).

Beliefs about pain

Many of the aforementioned researchers included nurses' beliefs related to pain in children within their studies. Margolius, Hudson, and Michel (1995) specifically examined the beliefs related to pain in children and perceptions of effective pain management practices of nurses in a pediatric setting. The data was collected at a southeastern metropolitan hospital in the U.S. Six inpatient pediatric units and one outpatient pediatric unit were surveyed. Margolius, et al. (1995) developed their own tool through literature searches, interviews with children, parents, physicians and nurses. A 17 item, Likert scale, questionnaire was developed. Content validity was established through review of the

survey by ten health professional experts in the field of pediatric pain management. Internal reliability was at an acceptable level using the Cronbach alpha coefficient. The Belief Alignment score was .70 and the Perception Awareness score was .83.

Margolius, et al. (1995) distributed the survey to all nursing personnel on the seven nursing units. A response rate of 68%, sample size of 222, was obtained. The demographics of the respondents were 82% Registered Nurses, 11% Licensed Practical Nurses, and 7% Patient Care Assistants. Half of the RN's were bachelors prepared and 11% were masters prepared. Two thirds of the respondents had greater than six years of nursing experience. Half of the respondents were 25-34 years old. Forty percent were 35 years or older. Margolius, et al. (1995) used Spearman's correlation coefficient for data analysis. Significant correlation's were found between nursing education and the Belief Alignment Scores ($r_s = .52, p < .0005$) and nursing education and the Perception Awareness Scores ($r_s = .31, p < .0005$). Years of nursing, number of years of experience in pediatrics and age were not significantly related to questionnaire scores. Comments from respondents included on the survey were compiled. Margolius, et al. (1995) found four themes emerged as hindrances to appropriate pediatric pain management: the lack of education of physicians on pediatric pain issues, the need for increased education and information about neonatal and infant pain management, the need for increased collaboration between RN and physician, and the increased need for support for RN's to influence pain management.

Decision-making

In addition to the research of pediatric pain management, literature researching decision making by nurses was reviewed. Hughes and Young (1990) looked at consistency in decision making. The dependent variable in the study was the agreement between nurses' decisions about independent nursing interventions and those recommended by a decision analytic model. The research design was a non experimental ex post facto design. A

random sample of 101 paid nursing volunteers from 12 surgical and surgical intensive care units in three public hospitals in the midwest was obtained. The researchers stratified along educational criteria prior to their selection to ensure equal representation in each group. Volunteers, to qualify for the study, needed to work, at least, half time and be direct care givers (Hughes & Young, 1990).

Hughes and Young (1990) used a Decision Analytic Questionnaire (DAQ) as the research instrument. The DAQ consisted of three parts designed to measure staff nurse's abilities to make clinical decisions that are consistent with those reached by a normative decision model. The researchers pilot tested the DAQ for validity and reliability before beginning data collection.

Demographic results showed 47 BSN, 32 Diploma, and 22 Associate prepared nurses participated in the study. Years of nursing experience ranged from less than six years to greater than 14 years. Thirty-five nurses had less than six years of experience and 35 had between 6 and 14 years of experience. Thirty-one stated they had greater than 14 years of experience (Hughes & Young, 1990).

Analysis of the DAQ data revealed 38% of the respondents made clinical decisions that corresponded with those recommended by the model when situations were at the level of least complexity. As task complexity became greater, only 18% of respondents' decisions coincided with the decision model's recommendations. The overall performance on the DAQ indicate that the majority of nurses do not make clinical decisions that support their stated beliefs and clinical knowledge (Chi-square = 10.62, $p < .005$) (Hughes & Young, 1990). The profiles of the subjects who responded consistent with the model at differing complexity levels were evaluated using Probit Regression Analysis. The profile of respondents at the least complex level ($p = .08$) were enrolled in nursing education immediately after high school (t -Ratio = -1.26), currently enrolled in a degree granting program (t -Ratio = 1.15), had no prior experience as a nurse's aide or Licensed Practical Nurse (t - Ratio = -1.19), worked in a non-intensive care unit (t -Ratio = -0.95), and had

little exposure working in a primary care nursing environment (t -Ratio = -1.84). The moderate task complexity profile was significant at the p = .001 level (Chi-square = 9.75). The profile of respondents in this category worked more hours per week (t -Ratio = 1.606), were employees of hospital C (t -Ratio = 0.51), had less clinical time as students (t -Ratio = -0.67), had less time in direct patient care activities (t -Ratio = -2.37), had increased time in primary care nursing environments (t -Ratio = 2.32), and had lower incomes (t -Ratio = -0.81). The most complex DAQ profile (Chi-square = 23.15, p = 0.04) revealed respondents who were currently enrolled in an educational program (t -Ratio = 0.8), married (t -Ratio = -2.28), work more hours per week (t- Ratio = 0.02), employed by hospital C or A (t -Ratio = -0.84), and more career time in direct patient care activities (t -Ratio = 0.56) (Hughes & Young, 1990). In summary Hughes and Young (1990) state that additional work is needed to determine why nurses make clinical decisions that are inconsistent with their stated values and probable knowledge base, especially in high task complexity. These findings are consistent with Burokas's study where clinical vignettes reflected differences between stated practice and actual practice apparent from the chart review.

Jenks (1993) studied clinical decision making through the aspect of personal knowing. A qualitative research methodology using naturalistic inquiry was employed. Validity and reliability were established using two methods of data gathering as well as a peer review of sample transcripts and categories. The study was done in three phases. Phase I and II used focus groups for interview data collection. Phase III used investigator observation of practicing nurses for data collection.

Jenks (1993) studied 23 nurses in an East coast, university based, 700 bed hospital. Ten nursing units were represented (inclusive of pediatrics); no intensive care units were included within these ten. Participants were selected to ensure equal representation from all the units and needed at least one years work experience. The 23 respondents had 1-21

years of nursing experience. Educational preparation was BSN (n = 13), ADN (n = 4), Diploma (n = 6).

Four themes emerged through evaluation of the interview transcripts using constant comparative technique, however, Jenks (1993) describes only one theme of "knowing" in the article. Respondents' interviews suggested that knowing the patient to the point of an interpersonal relationship is crucial to decision making. Other respondent statements include relationships with (knowing) peer nursing staff and relationships with (knowing) physicians. Both of these aspects were felt to be important for collaborative efforts of decision making (Jenks, 1993).

Summary

Throughout the literature it is clear that nurses are inconsistent in decision making given similar situations. Many factors influence decision making. As King's conceptual framework describes, each individual has developed a set of perceptions based on the individual's life experience. Through these perceptions, decisions are made. As individuals differ, so will the criteria by which individuals make decisions. As each author stated, future research to further examine how nurses make decisions is needed. As the literature indicated, there is some agreement that nurses chose to administer analgesics versus delivering other forms of treatment. Nurses generally believe their goal in pain relief is to relieve as much pain as possible. Nurses who have had a personal experience of pain tend to administer more medications. One of the most influential stated factors in delivering pain medication was the type of surgery the patient had, although the authors do not define what type of surgeries are the most influential. The authors found that chart reviews did not reflect the nurses' stated interventions and that many physicians ordered subtherapeutic doses of narcotics. Differences in the literature occurred with regard to the significance of educational preparation and influential factors in assessing pain. Continued research will establish a commonality to the decision-making process of nurses regarding delivery of

pediatric pain medications. Further research will also raise an awareness and knowledge level of nurses which may improve the practice of pain medication delivery.

Definition of Concepts

In using King's theory, specific concepts identified for this research study include:

1. Pain: "...composed of three factors: a breach in a protective barrier or in the wholeness of the person, a signal that warns of danger, an unpleasantness." (McCaffery, 1972, p. 2). Pain is what ever the individual says it is (McCaffery, 1979). Pain is stressful to the individual (Eland, 1990).
2. Pain relief intervention: the assessment, plan, intervention, and evaluation of the patient's indications of pain to establish a transaction through interaction for relief of pain based on the patient's perception of relief.
3. Decision making: A process of identifying the problem of pain, evaluating the data, and choosing a treatment intervention. The process of decision making is assumed to be the same whether in a clinical setting or in a self reporting situation of intentions to intervene.
4. Acute pain: an unpleasant sensation beginning abruptly and is time limited.
5. Medicate: Administration of a medication via the intravenous, intramuscular, rectal, or oral routes with the intent of reducing or eliminating the patient's experience of pain or perceived pain.

The assumptions of this study are:

1. Patients do not want to experience pain.
2. Elimination of pain decreases stress, therefore promoting wellness.
3. The nurse believes one role of nursing is to (at least) relieve some pain.
4. The patient and, where applicable, the family have an important role in the assessment of pain.

Research Question

The research question to be answered in this study is what are the major influencing factors for nurses in the decision to deliver pain medication to a child? Specific questions are:

1. What is the relationship between nurses' stated beliefs about the goals of pain management in children and nurses' stated intentions to intervene?
   Hypothesis: There will be congruence between nurses' stated beliefs about the goals of pain management and the level of intended intervention.
2. What differences are there in level of intended pain intervention between nurses with at least a BSN preparation and those who have less than a BSN education?
   Hypothesis: Nurses with BSN preparation will state intentions to intervene with pain management treatment at a higher level than nurses who are not BSN prepared.
3. What differences are there in level of intended pain intervention between nurses who have and have not had a personal experience of pain (or pain experience of a dependent child or family member).
   Hypothesis: Nurses who report personal experience of pain (or pain experience of a dependent child or family member) will state intentions to intervene at a higher level than those nurses who do not report a personal pain experience.

CHAPTER THREE

METHODS

A descriptive correlational design was chosen for this study. Descriptive correlational research specifically addresses observation, description, and documentation of a phenomena as it naturally occurs in the environment. The intent of this research study was to examine characteristics and understand factors associated with nurses' delivery of pain medication. The data was collected using the Modified Pediatric Nurses' Pain Relief Questionnaire. The data was examined for relationships between the nurses' stated responses to the demographic, vignette, and personal belief questions.

Sample and Research Site

The study was conducted in a midwest, teaching hospital known to have a 138 bed children's hospital within a 529 bed community hospital. The questionnaire was distributed to a convenience sample of pediatric registered nurses in three employee groups: general pediatrics, pediatric critical care, and resource staff (contingent staff). Participant criteria included registered nurses who had successfully completed orientation in their respective units. Resource Center staff included were those nurses who had completed orientation to general pediatrics and/or pediatric critical care. The total population of eligible nurses in these three employee groups was 150. A 60% return was chosen as a target sample size due to the use of Chi-Square for analysis. A total of 51 questionnaires were returned representing 34% of the total pediatric nursing staff at this institution.

Instrument

The PNPRQ (Pediatric Nurses' Pain Relief Questionnaire) was developed by Laura Burokas (1985) for her research. Permission was received from Burokas to use her tool (see Appendix A). Adaptations were made by the researcher to reflect current practice.

The researcher's Modified Pediatric Nurses Pain Relief Questionnaire (MPNPRQ) contains three sections (see Appendix B). The first section includes demographics, specifically age, initial educational preparation, highest level of educational preparation, years of nursing experience, years of pediatric experience, work shift, unit of employment, and pain education in the past year through continuing educational offerings.

The second section includes vignettes of patients' post-surgical and post-traumatic events with multiple choice questions for response. The vignettes specifically address choices in timing of medication administration and intervals between doses, choice of medication, and choice of dosage. In addition, pain assessment criteria for medication administration is also addressed. The participants were instructed to circle their response. More than one response could be circled, if desired. Each question was given a score (see Appendix C). If more than one response was present, as in many of the questionnaires returned, the single response yielding the highest score was used. Scoring was based on the following criteria:

3 = The nurse:

a) gives the maximum dose of narcotic.

b) gives a narcotic at the highest frequency.

c) gives medium dose of narcotic with non-narcotic medication at the maximum dose.

d) calls for a change in orders immediately (within the hour) if the patient remains in pain with maximum dosages given.

e) increases the dose from the dose that was being given.

The total score possible in the high intervening category was 25-36.

2 = The nurse:

a) gives the medium range of narcotic ordered.

b) gives the narcotic at the medium frequency.

c) utilizes non-medicinal interventions with medium range narcotics being administered.

d) adds a non-narcotic medication to the current regimen if pain symptoms still persist.

The total score in the medium intervening category was 16-24.

1 = The nurse:

a) gives the minimum dose of narcotic.

b) gives the narcotic at the lowest frequency.

c) waits to intervene when pain symptoms are present.

d) does not intervene to change the pain management regimen when the patient remains in pain.

e) only intervention is a non-narcotic medication.

f) only intervention is a non-medicinal intervention.

The total score in the medium intervening category was 0-15.

Sums of scores will be calculated to place each participant in one of three categories: (3) highly likely to intervene with maximum pain intervention, (2) moderately likely to intervene with a pain intervention, (1) least likely to intervene with a pain intervention.

The last section surveys the nurse respondent on beliefs about pain administration. Areas addressed are influence of side effects of pain, goal of pain medication administration, concerns about side effects of medication, reasons for hesitation in administration of pain medication, personal experiences which have influenced current pain practice, and personal pain experience. Five questions were scored to categorize the respondent in one of three groups. Group three were those participants most likely to believe in pain intervention for total pain relief (total pain relief) with a score range from

12-15. Group two were those participants most likely to relieve some pain, but do not believe in complete pain relief (moderate pain relief) with a score range from 8-11. Group one were those participants most least likely to believe in pain intervention to relieve pain (limited pain relief) with a score range of 5-7. Other pertinent data gathered in the personal pain belief section of the questionnaire is reported in frequency distributions in chapter four.

Reliability of the MPNPRQ vignettes was established using the Cronbach alpha. The reliability coefficient desired was > .70. The Cronbach alpha obtained was .41. Explanations for the low reliability coefficient are many. Burokas (1985) did not include a reported reliability coefficient in it's original form in her research report. Modifications were significant to the instrument, rendering the instrument essentially new. The small sample size of 51 in addition to the twelve item vignette section may all have contributed to the low reliability coefficient.

Content validity of the MPNPQR was established through a panel of three experts in pediatric pain management. The panel of experts critiqued the questionnaire. Each believed the questionnaire was reflective of actual pediatric situations and would elicit adequate data to achieve the research goals. Comments for revisions included making vignettes more objective such as changing wording from, "increased heart rate" to an actual heart rate that would be increased for that age patient. One panel expert suggested changing a diagnosis from necrotizing enterocolitis to intussusception due to the greater frequency of the later diagnosis in the pediatric population. All three experts commented on the lack of pain assessment scales in the vignettes. The researcher chose not to include pain assessment scales in the vignettes as it was felt this would slant the response. Assessment of use of pain scales was reflected in one question in section three which queried factors influencing the participant to deliver a pain medication. Two additional questions were added to the questionnaire on the use of pain assessment scales. All panel experts felt this was a

reasonable alternative to adding pain scale scores to the vignettes. Prior reliability or validity and content validity of the PNPRQ were not reported.

Procedure

A letter of explanation as to the purpose of the study and request for participation was sent to all pediatric, pediatric critical care, and appropriate Resource Center registered nurses. Each potential participant was mailed a cover letter through the routine hospital distribution system explaining the study, instructions on how to self administer the questionnaire and a letter of gratitude for their participation (Appendix D). Included with the cover letter were the questionnaire and an addressed envelope for returning the questionnaire. Participants could choose to return the questionnaire via envelopes posted in PCCU and general pediatrics or the U.S. Postal System. A two week time frame was given for questionnaires to be returned. At ten days the researcher had only 15 responses. Verbal reminders were felt to be inappropriate due to the management position of the researcher and the risk of staff feeling pressured to respond to the questionnaire. The researcher posted notes by the PCCU and general pediatrics time clocks indicating the response received to date and the desire for more responses. The researcher also asked colleagues who were non-eligible to complete the survey to verbally remind staff to complete the survey. Within a four week time frame, 51 responses were obtained.

Consent

Permission for the study was obtained through Grand Valley State University's Human Subject's Review Board (see Appendix E) as one posing minimal risk to the participants. Permission from the hospital's Nursing Research Committee (see Appendix F) and Human Subject's Review Board (see Appendix G) was required and obtained prior to data collection. Once permission was obtained, individual nurses, who met the criteria, were informed of the study and requested to participate. Each eligible nurse received a cover

letter and a questionnaire. Return of a the completed questionnaire indicated informed consent.

Benefits and Risks of Participation

The benefits and risks of participation were few, but significant. The researcher is a well known staff member in all departments to be surveyed. Participation or choosing not to participate may be perceived as altering a relationship between the potential respondent and the researcher. The researcher is a first line manager in the Pediatric Critical Care Unit where choosing not to participate may be viewed as affecting the staff member's performance evaluation negatively.

To deter this risk, the researcher took care to treat all participants the same. No discussion by the researcher occurred with regard to the questionnaire return or lack of questionnaire return. The letter of explanation clearly stated that participation was voluntary. Staff were assured in the cover letter that this project is a personal research endeavor to finish a graduate degree and had no bearing on work status or relationships.

Staff nurses may also perceive the time needed to complete the questionnaire as a deterrent to participation in the study. The questionnaire took approximately 30 minutes to complete and used selection of answers rather than writing of answers to assist in brevity. Questionnaire completion may be viewed as tedious, therefore altering participation response. Statements of purpose and importance of the study were included in the cover letter enclosed with the questionnaire. Self-disclosure of personal practice and risk of loss of confidentiality (or loss of privacy) of responses are also risks. Again, questions called for checking or circling the answers, therefore, handwriting cannot be identified unless the participant chooses to write a comment. Questions have been designed to group information to avoid identifying participants with specific data (i.e.: age, education, etc.). The demographics of gender and education higher than BSN were eliminated due to the known few numbers of male nurses and post-graduate degreed staff to decrease the risk of

identification. Although the post-graduate educational option was not available, five respondents wrote in their post-graduate degrees as an option. Participants were allowed to return their questionnaires via the U.S. Postal System or envelopes posted in the PCCU and the general pediatrics floors eliminating identification through postmarks.

As a benefit, staff nurses may have viewed participation in the research as an opportunity to expand their knowledge base and significantly improve practice if needed. Many nurses are concerned with pain management of children, desiring the best possible treatment for their patients. Participation in the research would allow nurses to assist in practice change or verification of current quality care. Nurses are rewarded financially on performance evaluations for participation in research.

Threats to Internal and External Validity

The target population for this study were nurses working with pediatric patients. The sample consists of pediatric, pediatric critical care, and resource nurses in a local children's hospital. The findings, therefore, are specific to these nurses and not generalizable to all nurses caring for pediatric patients. Although this is a weakness of the study, the intent of the research is to study current practice in these particular areas, in this facility, to assess for the need to change practice.

The Hawthorne Effect is also a potential weakness of the research due to convenience sampling. Those volunteering for the study may have a special interest in pediatric pain management, thus yielding more positive results on the questionnaire than actual practice.

Internal validity may also be threatened by nurses filling out the questionnaire more positively indicating what they wish their practice would be instead of reflecting their actual practice.

Slanting of beliefs may occur through experimenter effects. The researcher is a staff member and first line manager at the institution where the study will take place. Over the course of planning the research, beliefs may be effected through conversation or role-

modeling of expected beliefs and behavior. Discussion of questionnaire answers may also occur amongst staff. Those staff who have completed the questionnaire may influence those staff who have not completed the questionnaire through discussion. Within the cover letter, the staff were instructed to not discuss the questionnaire or their answers with their colleagues.

CHAPTER FOUR

DATA ANALYSIS

A descriptive correlational design was used to examine relationships between intent to deliver pain medication to pediatric patients and education, personal pain experience, and stated beliefs regarding goals of pain management. The Modified Pediatric Nurses Pain Relief Questionnaire was used for data collection with a convenience sample of registered nurses.

Sample Characteristics

A convenience sample of pediatric registered nurses comprised the sample. All staff receiving the questionnaire had successfully completed orientation to their respective units. A total of 150 surveys were distributed to three employee groups (Resource Center, pediatric critical care, and general pediatrics) representing the entire inpatient pediatric staff. Of these three groups resource (RC) staff comprised 75 staff, general pediatrics (GP) 45 staff, and pediatric critical care (PCCU) 30 staff. Fifty-one registered nurses returned the questionnaire, representing a 34% return. Resource Center staff had the highest return rate of 39.2% (f=20), PCCU 35.3% (f=18), and general pediatrics 25.5% (f=13).

The ages of respondents ranged from 20 to >50. The majority of respondents were 31-35 years of age (Table 1). An error was noted in the questionnaire after data collection occurred. The groups of 41-45 and 45-50 were not mutually exclusive as intended. This error could alter the responses yielding the most respondents per age category. The data could be correctly stated that 28% (f=14) of respondents were age 41-50.

Table 1

Age of Respondents

Age/Years	f	Valid %
20-25	1	2%
26-30	6	12%
31-35	18	36%
36-40	10	16%
41-45	10	20%
45-50	4	8%
>50	3	6%

Initial and highest education attained were both asked in the questionnaire. Highest education was limited to BSN due to confidentiality for the few numbers of bedside practitioners with higher than BSN education. Although this choice was not available, five respondents chose to add an additional category commenting on their specific degrees. Three stated they had obtained a Master's of Science degree, one midwifery education, and another a Bachelor of Arts degree. These individuals will be represented in the table of highest education as "other". BSN education was the majority response with 39.2% reporting an initial BSN education (Table 2) and 45.1% reporting a BSN as the highest level of education (Table 3).

Table 2

Initial Education

Initial Education	f	%
BSN	20	39.2%
ADN	16	31.4%
Diploma	8	15.7%
LPN	7	13.7%

Table 3

Highest Education

Highest education	f	%
BSN	23	45.1%
ADN	15	29.4%
Diploma	8	15.7%
Other	5	9.8%

Years of nursing experience ranged from 0 years to >20. Those nurses having 11-15 years of experience and those having >20 had equal representation of 28.6% (f=14) (Table 4). Of these years of experience, the majority of respondents had 11-15 years of pediatric nursing experience (Table 5). The majority of nurses worked 7 a.m. to 7 p.m. (35.3%, f=18). Other shifts were well represented as shown in Table 6.

Table 4

Years of Nursing Experience

Yrs/nrsg	f	Valid%
0-5	5	9.8%
6-10	9	18.4%
11-15	14	28.6%
16-20	7	14.3%
>20	11	21.6%

Table 5

Years of Pediatric Nursing Experience

Yrs/peds nrsg	f	Valid%
0-5	8	15.7%
6-10	14	27.5%
11-15	15	29.4%
16-20	3	5.9%
>20	14	28.6%

Table 6

Shift Worked

Shift	f	%
7 a.m.- 7 p.m.	18	35.3%
7 p.m.- 7 a.m.	15	29.4%
7 a.m.- 3 p.m.	11	21.6%
3 p.m.- 11 p.m.	4	7.8%
11 p.m.- 7 a.m.	3	5.9%

The hospital research committee requested the researcher to include in the survey a question on continuing education (CEU) attendance as the hospital has made endeavors to improve the response to pain management. The researcher included the question within the demographics portion of the questionnaire. Those who had attended a CEU offering on pain management within the past year were 59.2% (f=29). Those who had not attended a CEU offering in the last year were 40.8% (f=20). Two participants chose not to respond.

Data Analysis

Tabulation of scores revealed no respondents fell into the low intervening category (scores of 0-15) and 3 fell into the category of medium intervening (scores of 16-24). Scores ranged from 22-36 (M=29.6; SD=3.1). The researcher reset the scoring for the tool. A score of 22-29 was a lower intervening staff, 30-32 were medium intervening staff, and 33-36 were the highest intervening staff. Likewise, the personal pain beliefs scores were also redefined. Twelve staff fell into the moderate pain belief range with the original scoring, all others were in the total pain relief category. Scores for personal pain belief were: 9-11 as limited relief, 12-13 moderate relief, and 14-15 total relief. Rescoring allowed analysis with three groups for differences.

Hypothesis one

The first hypothesis states: There will be congruence between nurses' stated beliefs about the goals of pain management and the level of stated intentions to intervene. Original vignettes scores ranged from 22-36 (M=29.6; SD=3.1). Original personal pain belief scores ranged from 9-15 (M=12.8; SD=1.6). These two sets of scores were rescored according to the criteria previously defined and used to correlate the difference between nurses' stated beliefs about the goals of pain management and the level of stated intentions to intervene. Analysis indicated there is no significant relationship between goals of pain management and intentions to intervene (tau = -.06; p=.67).

Hypothesis two

The second research question examines what differences there are in level of intended pain intervention between nurses with at least a BSN preparation and those who have less than a BSN education. The researcher believed that more knowledge would yield intervention of pain management at a higher level. The hypothesis states: nurses with BSN preparation will state intentions to intervene with pain management treatment at a higher level than nurses who are not BSN prepared. Participants with a BSN degree numbered 23 (45.1%), those without a BSN degree numbered 28 (54.9%). Data of BSN and non-BSN were analyzed with vignette scores. Two approaches were used in analyzing the data. Data were viewed as nominal for the independent variable with the dependent variable viewed as ordinal or as interval. The Mann-Whitney U statistical analysis revealed no significant difference between education level and response to vignette scores (z= -.48; p=.63). Raw vignette scores were then used as interval data for t-test analysis (t= -.55; df=47; p=.58), also revealing no significance between these two variables.

Hypothesis three

The last question to be examined was: what differences are there in level of intended pain intervention between nurses who have and have not had a personal experience of pain (or pain experienced by a dependent child or other family member). The researcher believed those nurses who had experienced personal pain or the pain of their own children have the ability to empathize at a higher level and, therefore, will intervene at a higher level.

The third hypothesis examined: nurses who report personal experience of pain (or pain experience of a dependent child or family member) will state intentions to intervene at a higher level than those nurses who do not report a personal pain experience. Ten participants (20%) stated they had personally not experienced pain (M=28.8; SD 3.0), nor had their child. Other respondents (N=41; 80%) either had personally experienced severe pain and/or their child had experienced severe pain (M=29.9; SD=3.1). The original intent was to analyze using Chi-Square statistical analysis, however, the group of 10 that had not experienced pain for themselves or their children was not felt to be large enough for chi-square. Raw scores of the vignettes were used to test for differences of those who had children in severe pain, and those who had personal experience of severe pain. There was no statistical significance of scores to vignettes with those who had children in pain ($t= -.58$; $df= 37$; $p=.57$), nor those that had personal pain experience ($t=1.01$; $df= 47$; $p=.32$), however, there were slight differences in mean scores. This difference could indicate a tendency for those who have experienced pain to have a higher sensitivity to needs of patients in pain.

Other findings of interest

Within the personal beliefs section of the questionnaire, participants were asked a variety of questions to evaluate their decision to intervene with a child in pain. Table 7 displays participants response to those factors influencing them most when deciding to intervene with a pain medication. Each participant ranked their first four choices of 15

options (see Appendix H). Severity of pain ranked was chosen by 62.7% (f=32) as the most influential in deciding to administer pain medication to pediatric patients.

Table 7

Most Important Factor Influencing Pain Medication Selection

Factor	f	%
severity of pain	32	62.7%
overall condition	8	15.7%
vital signs	3	5.9%
patient wt.	2	3.9%
nonverbal. behavior.	2	3.9%
type pain	2	3.9%
age	1	2.0%
time since surgery.	1	2.0%

The majority of participants (58.0%; f=29) responded that the goal of pain relief was to relieve as much pain as possible. Another 17.6% (f=9) felt that pain relief goals should only relieve enough pain for the patient to function. Those who felt pain relief should only be relieved to a level where the patient can tolerate it were 15.7% (f=8). In contrast, 7.8% (f=4) desired to completely relieve the pain.

The preferred method of pain medication delivery was the intravenous route. Those participants choosing continuous IV, patient controlled analgesia (PCA), or intermittent IV administration were 80.5% (f= 41) with 8 (15.7%) giving multiple responses and could not be included in the data. The least preferred method of pain medication administration was

intramuscular (84.3%; f=43). Six participants chose to give multiple answers and could not be included in the data.

Participants felt that pain management in their respective units met the real needs of the patient (70%; f=35). Fifteen participants (30%) felt that pain management was less than the real needs of the patient.

When asked what has most influenced the participants pain management practices with pediatric post-operative and traumatically injured patients, 72.5% (f=37) chose clinical work experience. Continuing education offerings ranked second (9.8%; f=5). Other responses included personal pain experience (5.9%; f=3), child's pain experience (2%; f=1), nursing education (2%; f=1), and 7.8% (f= 4) responded with multiple answers.

Physical signs and symptoms (41.2%; f=21) were chosen as the most important method in assessing a child in pain. Verbal indications were chosen by 37.3% (f= 19). The use of pain scales as the most important method of assessing pain was chosen by 7.8% (f= 4) (Table 8).

Table 8

Most Preferred Method in Assessing Pain

Methods	f	%
Physical signs	21	41.2%
Verbal indications	19	37.3%
Pain scales	4	7.8%
Nonverbal indicators	4	7.8%
Observation of activity	3	5.9%

Pain scale scores were, however, chosen as the least preferred method of pain assessment (44%; f= 22). Criteria chosen as least preferred is displayed in Table 9. This finding was supported by 56.9% (f= 29) of staff responding that they use pain scales approximately 25% of the time when assessing pediatric pain. Those using pain scales >75% of the time

Table 9

Least Preferred Method in Assessing Pain

Method	f	%
Pain scale scores	22	22%
Observing activity	13	26%
Parental input	11	22%
Verbal indications	3	6%
Nonverbal indications	1	2%

were 25.5% (f=13). Those who stated they never use pain scales were 7.8% (f=4).

Participants were asked to respond to their belief as to the accuracy of pain scales on a 0 (least accurate) to 6 (most accurate) scale. Over half of the participants (56%; f=28) rated pain scale accuracy to be a 3 or less (Table 10). Only 2% (f=1) rated pain scales as very accurate with a score of 6.

Table 10

Accuracy of Pain Scale

Score	Score	f	%
Completely inaccurate	0	0	0%
	1	3	6%
	2	11	22%
	3	14	28%
	4	16	32%
	5	2	4%
Completely accurate	6	1	2%

Summary

All hypotheses were statistically not supported. Participants, essentially, fell into the high intervening category and the high personal belief category leaving no groups for statistical comparison. Re-dividing the responses to establish high, medium, and low groups allowed statistical analysis, yet all participants were originally in the same narrow range of raw score responses. The sample size of 51 was also small for the research objectives.

CHAPTER FIVE

DISCUSSION AND IMPLICATIONS

The research question was: what influences pediatric nurses to deliver pain medication to pediatric patients in pain. Specific questions examined were: a) what is the relationship between nurses' stated beliefs about the goals of pain management in children and nurses' stated intentions to intervene? b) What differences are there in level of intended pain intervention between nurses with at least a BSN preparation and those who have less than a BSN education? c) What differences are there in level of intended pain intervention between nurses who have and have not had a personal experience of pain (or pain experience of a dependent child or family member). This study was developed to investigate pain management practices among pediatric nurses in a particular midwest institution. The researcher desired to identify factors influencing this particular staff in delivering pain medication to examine and improve pain management within the pediatric department.

Discussion of Findings and Conclusion

The purpose of this research was to investigate what influences pediatric nurses to deliver pain medication to pediatric patients as patterned after Burokas's study in 1985. King's (1981) conceptual framework was used for this research due to her detailed definition of the individual as a personal system. The level of communication and decision making skills involved in pain assessment and intervention is complex. King (1981) identifies that each individual approaches decisions differently based on perceptions of life experiences and communicates based on these perceptions. Nurses base actions on their decisions. Action is required to assist with adjustment to stressors. Stressors are identified

by King (1981) as one of the elements causing illness. Pain is a by product of illness, yet is also a stressor. Without intervention pain can cause a further imbalance yielding more stressors.

Although the study was patterned after Burokas's (1985) research, the study could not be replicated in it's entirety. Thirteen years have elapsed from the initial study. The original tool dealt with Demerol and IM injections which have fallen out of favor with in the practice realm. Questions on the questionnaire were modified extensively and questions were added to reflect current national practice trends as well as situations that were familiar to the institution. Burokas (1985) simultaneously reviewed charts to make statements as to reported practice and actual practice. The chart review was felt, by representatives of the institution, to not be of statistical value as in Burokas's (1985) study. Suggestions were made to chart review individual participants to directly correlate stated behavior with actual behavior. Confidentiality could not have been maintained, and therefore, the chart review was eliminated from the study.

Discussion of Hypotheses

Hypothesis one stated: there will be congruence between nurses' stated beliefs about the goals of pain management and the level of stated intentions to intervene. This hypothesis was not statistically significant in contrast with Burokas's (1985) study. As stated earlier, most participants fell into the highest intervening and personal pain belief categories and were re-divided to establish groups for statistical testing. Statistical difference may not have been found due to the lack of differences within the groups.

In comparison with Burokas's (1985) study, sample characteristics differed in age, years of nursing and pediatric experience. Burokas (1985) reports a sample of predominately 28.9 years of age, 5.2 years of nursing experience with 4.5 years of pediatric nursing experience. The researcher's sample consisted predominately of staff 31-50 years of age (80%, f=41) with 89.9% (f=44) having greater than 6 years of nursing

experience and 84.3% (f=43) having greater than 6 years of pediatric experience. Much education has occurred in literature and practice settings since Burokas's (1985) study. Nurses in Burokas's (1985) study did not have the benefit of a multitude of continuing education offerings. King (1981) states that we select specific data to enter into our perceptual fields to shape our realities. The increase in age, years of experience both in nursing and pediatric nursing, and opportunity for education, potentially, have altered the realities of pain delivery practice yielding a contrast in findings. Also, Burokas (1985) sent the questionnaire to staff working on surgical floors and intensive care units. This particular institution where the sample was obtained does not distinguish units by surgical or medical diagnosis. Nurses surveyed were asked how they would respond to patients with traumatic or surgical pain, however, they may have responded with knowledge and practice methods of medical or chronic pain. Acute and chronic pain management practices differ. Those involved with medical or chronic pain could tend to be more sensitive to pain issues, therefore, scoring higher on the questionnaire.

Hypothesis two states: nurses with BSN preparation will state intentions to intervene with pain management treatment at a higher level than nurses who are not BSN prepared. Hypothesis two was not statistically significant in agreement with Burokas's (1985) findings and in contrast to Gadish, et al. (1988). Both Burokas (1985) and this study had larger sample sizes than Gadish, et al. (1988), as a potential explanation for the contrasting differences between studies. Gadish, et al (1988) also included practical nurses in the data collection, where the other two studies did not.

Hypothesis three states: nurses who report personal experience of pain (or pain experience of a dependent child or family member) will state intentions to intervene at a higher level than those nurses who do not report a personal pain experience. Burokas (1985), Gadish, et al. (1988), and this research all revealed the majority of nurses responded that the goal of pain relief was to relieve as much pain as possible. Burokas (1985) found statistical significance of personal pain experience and stated intentions to

intervene. This study found the hypothesis to be unsupported. The researcher feels reasons given in hypothesis one would also apply to the explanation of the contrast of hypothesis three.

Discussion of Other Findings

Burokas (1985) found differences of medication route administration route based on unit worked. This research study found 80.5% (f=41) of respondents stating the IV route was the most preferred route of administration whether continuous drip, intermittent, or PCA. Eight respondents chose multiple answers and could not be included in the data. IM was chosen as the least preferred method of pain medication administration (84.3%; f=43). Six respondents chose multiple answers and were eliminated from the data. Education, improvements in pain medication practices, and experience with IV medication administration (including the use of PCA) most assuredly impacted these findings contrasting to Burokas (1985).

Burokas (1985) found vital signs to be the most influential factor in the decision to deliver pain medication, second was type of surgery. Participants of this study indicated severity of pain was the most influential and overall condition as second. The development and implementation of the variety of pain scales could explain the shift in the most influential aspect to deliver pain medication. Pain scales have given nurses other methods to gather data to assess pain.

While pain scales have given nurses the ability to have a tool to further gather data, this research study indicated pain scales were the least preferred method of assessment by 44% (f=22) of participants. This finding was further supported with 56.9% (f=29) of participants stating they use pain scales approximately 25% of the time when assessing a child in pain. Respondents (56%; f=28) rated pain score accuracy to be a score of 3 or less on a 6 point scale with zero indicating complete inaccuracy and six indicating completely

accurate. Although there has been much development of a variety of pain scales, staff do not appear to perceive them useful or accurate.

Limitations and Recommendations

There are several areas of this study that present possible limitations. The small sample size is a limitation making validity of results questionable. The sample was obtained from one institution, although the researcher was specifically seeking to evaluate behavior within this group of nurses, the findings are not generalizable beyond the setting. It is also well known that this particular region of the midwest is very similar in cultural behavior and beliefs due to a large religious influence. Data may have been affected by the cultural similarities of the respondents.

Data may have been affected by the circumstances occurring at the time of data collection. The pediatrics areas were experiencing an increased census and acuity, requiring many overtime hours and heavy assignments. In the midst of this, renovation was occurring and mailboxes were moved, accidentally locked, and more difficult to access than usual. These difficulties may have altered staff's willingness to respond as well as their candid responses to the questionnaire.

Those who responded, essentially, fell into one category requiring a re-division of respondents for statistical analysis. Results may have been affected by this re-division due to the groups were all high interveners and had high personal pain beliefs. A risk to questionnaire studies is that respondents will answer more favorably than actual practice. Nurses may know the answers that would place them in a high belief and intervening category, yet practice may be different. The inability to do the chart review for this research placed tremendous limitations on the results of the questionnaire. There was no ability to evaluate actual practice to assure what the nurses say they do is truly how they practice. Future research should include a chart review as Burokas (1985) did, or as the institution suggested, comparing individual nurse response to individual nurse behavior.

Physician practice in this particular institution may also have placed limitations on this study. The nurses may have responded to the questionnaire based on "normal practice". This may not indicate their comfort level or their choice, but only that of what is most commonly done in their practice environment. Evaluation of physician practices should also be evaluated through research of pain medications, dosage, and frequency ordered.

The Modified Pediatric Nurses Pain Relief Questionnaire was also a limitation to the study with a Cronbach alpha of .41. The tool needs modifications and further testing to be a more accurate indicator of participants' responses. Many comments were also documented on the tool from the majority of the respondents. It is unclear to the researcher if the respondents were a group that enjoyed sharing further ideas, or if the respondents felt the answer choices were unacceptable and must comment. Further evaluation of each question and specific comments made need to be studied as the tool is modified.

Areas of future research would include a repeat of this study with a chart review. A chart review of the practice areas could also be done independently of the questionnaire to establish the practice of the units to validate future need for research. More specifically, the response to pain scales requires further research. The response to the questionnaire indicated pain scales were not preferred for pain assessment evaluation, nor used consistently, nor felt to be accurate.

Implications for Nursing Practice

Generally, stated pain beliefs and intervening practices were high, indicating that pediatric patients in this institution should have satisfactory to exceptional pain management. The hypotheses were all not supported, indicating that nursing school education, personal pain beliefs, or personal pain experience do not affect the nurses' pain management practices. The significant difference between the researcher's study and those research studies done in the past were age of respondents and years of practice, both in pediatrics and nursing in general. The advancements in pain management over the past

decade could also have affected the results of this study showing practice has changed based on research implementation.

Respondents stated that the most influential factor in their pain management behavior was clinical experience and secondly, continuing education. Further research needs to be done to validate these findings, however, if true, this could impact hiring and orientation practices within institutions. It is also evident that continuing education, although responses were not as great, impacted clinical practice. Strong educational structures should be part of institutions to monitor and update practice.

Future education and research needs to occur regarding pain scales. Literature is massive on pain scales, their evaluation, and usage, however, this particular group of nurses do not value pain scales. Areas to examine specifically would be knowledge of the nurses in regards to pain scales, which pain scales they have used, education of pain scales that measure subjective and objective responses for all age groups.

Summary

The majority of respondents for this study responded to the MPNPRQ as high intervening and high personal pain belief practices. There was no statistical significance between nurses that had a high personal pain belief and their level of intervention; nurses who had a BSN versus those who had less than a BSN; and those nurses who had a personal experience of pain and their level of intervention. Limitations of this study, the small sample size and the homogeneity of participants may have affected results.

Findings of interest include respondents felt clinical work experience was the most valuable influence in regards to their pain management practice. Other findings include the lack of use or value for pain scales.

APPENDICES

APPENDIX A

Burokas Permission

I [redacted] give Kathleen Campbell permission to use the Pediatric Nurse's Pain Relief Questionnaire as a tool for her thesis work. I also give her permission to include a copy of the Pediatric Nurse's Pain Relief Questionnaire as an appendix to her thesis manuscript. I am aware that Kathleen's thesis manuscript will be submitted to Grand Valley State University 's library and the Cook Library at Butterworth Hospital upon completion. Requests for copies will be made according to the libraries policies and current copyright laws. Kathleen Campbell will include in her thesis manuscript proper citations of Ms. Burokas's work. Kathleen will also include acknowledgment of Ms. Burokas's permission within the manuscript.

Signature [redacted] Date 2/13/97

APPENDIX B

Modified Pediatric Nurses' Pain Relief Questionnaire

PLEASE ANSWER QUESTIONS ON BOTH SIDES.

Part I: Demographic Data

PLEASE ANSWER THE DEMOGRAPHIC QUESTIONS SO THAT THE SAMPLE CAN BE DESCRIBED .

Check only one response for each question.

1. Your age?

   (1)_____20-25 (2)_____ 26-30 (3)_____31-35 (4)_____36-40

   (5)_____41-45 (6)_____45-50 (7)_____>50

2. What is your initial nursing education?

   (1)____Practical or Vocational (2)____Diploma (3)____ADN (4)____BSN

3. What is the highest level of education you have obtained?

   (1)____Diploma (2)____ADN (3)____BSN

4. In which unit are you currently employed?

   (1)_____General Pediatrics (2)_____ Pediatric Critical Care

   (3)_____Contingent staff (Resource Center) (4)_____other

5. How many years have you been actively employed in nursing?

   (1)_____0-5 (2)_____6-10 (3)_____11-15 (4)_____16-20 (5)_____>20

6. How many years have you been employed in pediatrics?

   (1)_____0-5 (2)_____6-10 (3)_____11-15 (4)_____16-20 (5)_____>20

7. What shift do you most frequently work? (Check the shift where most hours are scheduled per week).

(1)_____07-19 (2)_____19-07 (3)_____07-15 (4)_____15-23 (5)_____23-07

8. In the past year have you received any education on pediatric pain?

(1)_____yes (2)_____no

Part II: Questionnaire Vignettes

For the purpose of brevity, the following clinical vignettes have been made concise. Please consider the following:

a. All patients are in good health except for the conditions mentioned.
b. No complications exist except those specifically described.
c. None of the patients has an idiosyncratic response or allergy to the drug.
d. All patients are N.P.O.
e. All ordered dosages follow Harriet Lane (1993) recommendations for pediatric patients:

MSO4: 0.1-0.2 mg/kg/dose SC, IV, or IM every 2-4 hour PRN.

Tylenol: 10-15 mg/kg/dose PO or PR every 4-6 hours.

Please circle the number of the response(s) that best reflects your preferred method of pain intervention. Both pharmacological and non-pharmacological options are provided as a wide range of acceptable options. More than one option may be chosen. Additional comments can be provided below each question or on the back, if so desired.

9. A six year old 25 kg. (55 lb.) boy, two days post-operative after abdominal surgery, with no complications, indicates he "hurts bad" and points to his surgical site. He does not move around much in bed, won't cough and deep breathe when instructed to and his heart rate is 116 / minute. He has Morphine 1.25 - 2.5 mg. I.V. q 3 hours PRN and Tylenol 300 mg. pr. q 4 - 6 hours PRN for pain. He received Morphine 2.0 mg. three hours ago. At this time you would:

    (1) Immediately give a medication.

    (2) Wait an hour before giving any medication.

    (3) Other nursing intervention: reposition, distraction, provide favorite comfort object or toy, play with the patient.

10. If you chose to medicate the patient in the above question, what medication and dosage would you administer? **(If you did not chose to medicate the patient please skip to question 11).**

    (1) Morphine 1.25 mg. I.V.

    (2) Morphine 2.0 mg. I.V.

    (3) Morphine 2.5 mg. I.V.

    (4) Morphine _____mg. I.V. (specify dose).

    (5) Tylenol 300 mg. pr.

11. Three more hours have elapsed since your nursing intervention and it is noted that the preceding patient again complains of incisional pain. No other signs of complications are present and he is having no side effects from the medication. At this time you would:

    (1) Immediately give a medication.

    (2) Wait an hour before giving any medication.

    (3) Other nursing intervention: reposition, distraction, provide favorite comfort object or toy, play with the patient.

12. If you chose to medicate the patient in the above question, which medication and dosage would you give? **(If you did not chose to medicate the patient skip to question 13).**

    (1) Morphine 1.25 mg. I.V.

    (2) Morphine 2.0 mg. I.V.

    (3) Morphine 2.5 mg. I.V.

    (4) Morphine _____mg. I.V. (specify dose).

    (5) Tylenol 300 mg. pr.

13. A 12 kg. (26 lb.), two year old girl, one day post-operative after a left thoracotomy for removal of a benign mass develops pneumonia. She cries when you perform chest physiotherapy, especially when you clap on her left side. She has been treated with Morphine 1.0 mg. I.V. q 4 hours for two days and coughs and deep breathes after her pain medication. Morphine 0.6 - 1.2 mg. q 3 hours I.V. PRN pain and Tylenol 120 mg. pr. PRN 4-6 hours is ordered. She does sleep after you medicate her with Morphine, but begins to become irritable about three hours after each Morphine dose. At this point you:

    (1) Continue Morphine 1.0 mg. I.V. q 4 hours PRN.

    (2) Change to Morphine 1.0 mg. I.V. q 3 hours PRN.

    (3) Change to Morphine 1.2 mg. I.V. q 4 hours PRN.

    (4) Change to Morphine _____mg. I.V. q _____ PRN.
    (specify dosage and time interval)

    (5) Change to Tylenol 180 mg. pr.

    (6) Continue giving Morphine at the same interval and dose and give Tylenol 120 mg. pr. q 4 hours PRN.

    (7) Other nursing intervention: reposition, distraction, provide favorite comfort object or toy, play with the patient.

14. A four year old 18 kg. (39 lb.) girl has had an exploratory laparotomy for a malignant end-stage tumor. An intra-abdominal abscess and a hematoma have been evacuated. She has been receiving Morphine 1.8 mg. I.V. q 3 hours PRN for pain for the last three days. Three hours after the last dose, she is still very irritable, has not slept and guards her abdomen. Assuming that you have the approval of the physician for any of the following, you would:

    (1) Give Morphine 1.0 mg. I.V. and repeat q 2 hours PRN.

    (2) Give Morphine 1.8 mg. I.V. and repeat q 2 hours PRN.

    (3) Give Morphine 2.0 mg. I.V. and repeat q 2 hours PRN.

    (4) Give Morphine 2.0 mg I.V. and repeat q 3 hours PRN.

    (5) Give Morphine 2.5 mg I.V. and repeat q 4 hours PRN.

    (6) Give Morphine _____mg. I.V. and repeat q _____hours PRN (specify dosage and time interval)

    (7) Obtain an order for Tylenol.

    (8) Other nursing intervention: reposition, distraction, provide favorite comfort object or toy, play with the patient.

15. A 5.2 kg. (11 lb. 8 oz.) three month old baby girl, diagnosed with intussussception has had a right hemi-colectomy and appendectomy with resultant left colostomy and right mucus fistula. It is one day post-operative. She has not slept for the last eight hours, has a weak shallow cry, is very irritable. Her respiratory rate is 62 and heart rate is 158. No medication is ordered for pain. It is 5 a.m. At this time you would:

(1) Notify the physician on call for medication orders.

(2) Bundle the baby and give her a nipple to suck on and wait until the doctors round in the morning to ask for a pain medication.

(3) Bundle the baby and give her a nipple to suck on in hopes that she'll settle down.

(4) Other nursing intervention: reposition, distraction, provide favorite comfort object or toy, play with the patient.

16. A one year old, 11.3 kg. (25 lb.) boy is first day post-operative after a repair of an inguinal hernia. His mother has gone home and he is not pacified with his favorite toy. He continues to cry despite all your efforts to pacify him and draws up his legs whenever you attempt to calm him down. Morphine 0.7-1.2 mg. I.V. q 3 hours PRN and Tylenol 100 mg. q 4 hours pr. PRN pain is ordered. The child has received no previous medications. You would:

(1) Give Tylenol 120 mg. pr.

(2) Give Morphine 0.7 mg. I.V.

(3) Give Morphine 0.9 mg. I.V.

(4) Give Morphine 1.2 mg. I.V.

(5) Not give any medication.

17. A five year old 27 kg. (60 lb.) girl on her second post-operative day after abdominal surgery, cries that "her stomach hurts around the bandage". Her heart rate is 118, she has been crying softly for the past hour and tenses up when you try to look at her incision. The physician has ordered Morphine 1.5 - 2.7 mg. I.V. q 3 hours PRN and Tylenol 400 mg. pr q 4 hours PRN pain. The patient received Morphine 2.5 mg. I.V. for pain two hours ago. No post operative complications are present. At this time you would:

(1) Give a medication.

(2) Wait an hour before giving a medication.

(3) Contact the physician on call.

(4) Other nursing intervention: reposition, distraction, provide favorite comfort object or toy, play with the patient.

18. If you chose "1", or "2" to the above question, which medication would you give?

(If you did not chose to medicate the patient, please skip to 19).

(1) Tylenol 400 mg. pr.

(2) Morphine 1.5 mg. I.V.

(3) Morphine 2.0 mg. I.V.

(4) Morphine 2.7 mg. I.V.

(5) Morphine ____mg. I.V. (specify dosage).

19. A seven year old 30 kg. (66 lb.) boy, fractured his femur in a playground accident. He was placed in skeletal traction. Twelve hours later he has an increased heart rate, shallow and fast respirations, is crying and lying stiffly in bed making sure his leg does not move. He received MSO4 3 mg IV five hours ago. His orders state MSO4 1-3 mg IV every 2 - 4 hours PRN pain. He denies his leg hurts when you ask him. At this time you would:

(1) Not administer a pain medication because he denies pain.

(2) Administer a pain medication to relieve his pain.

(3) Call the physician for a Tylenol order.

20. A parent of a three year old, 15 kg. (33 lb.) who is 48 hours post motor vehicle accident states that her son continues to be suffering from pain and would like him to receive a pain medication now. It's been three hours since his last pain medication. Morphine is ordered q 3 hours PRN. This is the first day that you have cared for this child. You would:

(1) Feel certain that she knows her child best and medicate the child.

(2) Take her concern into consideration and assess the child before choosing to medicate.

(3) Confirm her concern, but wait one more hour before medicating the child.

(4) Other nursing intervention: reposition, distraction, provide favorite comfort object or toy, play with the patient.

Part III: Questionnaire Survey

Please choose a single response for each question.

21. Inadequate pain relief post-operatively after abdominal surgery is often the cause of inadequate or depressed patient respirations.

    (1) Agree

    (2) Disagree

    Comments:

22. A five year old, 25 kg. (55 lb.) boy has been receiving Morphine 2.5 mg. I.V. q 4 hours PRN for five days for severe pain. The source of pain is eliminated, and the medication is abruptly stopped. In your estimation, the chances that this five year old has become addicted to narcotics is:

    (1) Less than 1%.

    (2) 1 - 10 %.

    (3) greater than 10 %.

23. Pick **four** factors that influence you most when selecting to medicate a pediatric post-operative or traumatic injury patient with a narcotic analgesic. Please number your choices based on importance, "1" being the most influential factor, "2" being the second most influential factor and so on.

(1)____Age of patient.
(2)____Evaluation of vital signs.
(3)____Post-operative complications.
(4)____Weight of the patient.
(5)____Type of surgery.
(6)____Time since surgery.
(7)____Severity of pain.
(8)____Relative's insistence.
(9)____Activity.
(10)____Response to last medication.
(11)____Non-verbal behaviors.
(12)____How much pain the patient should have.
(13)____Over-all condition.
(14)____Type of pain.
(15)____Side effects of the drug.
(16)____Other (please specify below).

24. The goal of giving narcotic analgesics during the first 48 hours post-operative or post traumatic injury is to:

(1) Completely relieve the pain.
(2) Relieve enough pain for the patient to function.
(3) Relieve as much pain as possible.
(4) Relieve pain to a level where the patient can tolerate it.

25. In my opinion, the administration of narcotic analgesics to post-operative and traumatic injury pediatric patients for the relief of acute pain on my clinical unit:

(1) Is greater than the real need of the patient.
(2) Meets the real need of the patient.
(3) Is less than the real need of the patient.

26. My most preferred method of administering pain medication is (please mark with a "P"). My least preferred method of administering pain medication is (please mark with a "L"):

(1)_____I.M. injection (2)_____intermittent I.V. (3)_____PCA

(4)_____epidural drip (5)_____enteral (6)_____I.V. drip

27. The hospital policy and the physician's order allow you to medicate a child with a narcotic analgesic via I.V., I.M., epidural, or pr. All side effects from any route of administration can and will be controlled. Which route would you prefer in medicating a four year old patient for post-operative or traumatic injury pain?

(1) Intravenous.

(2) Intramuscular.

(3) Epidural.

(4) Per rectum.

28. Assuming that the narcotic is within a safe dosage range and that all side effects can be controlled, how hesitant are you in administering an epidural narcotic to a four year old patient with post-operative or traumatic injury pain?

(1) A little hesitant.

(2) Very hesitant.

(3) Not hesitant at all.

29. I feel that my pain medication administration practices with pediatric post-operative and traumatic injury patients has been influenced most by:

(1) My basic nursing education.

(2) Clinical work experience after graduation.

(3) Continuing education programs.

(4) Personal pain experience.

(5) Experience with my children in pain.

(6) Experience with a family member or friend in pain.

30. Have the side effects of I.V. narcotics ever stopped you from medicating a pediatric patient in pain:

(1) Yes.

(2) No.

31. Have you, personally, ever been in severe physical pain?

(1) Yes.

(2) No.

32. If your answer to the preceding question was yes, how would you rank your pain on a scale of one to six, with one being the least amount of pain and six being the most amount of pain?

0.....1.....2.....3.....4.....5.....6

least pain most pain

33. Do you have any children?

(1) Yes.

(2) No

34. Have any of your children ever been in severe pain?

(1) Yes.

(2) No.

(3) Not applicable

35. Which methods do you use most in assessing a child in pain? Please number those your choices according to which is most important (1) to the least important (6).

(1)____physical signs and symptoms (2)____verbal indications

(3)____parental input (4)____pain scale score

(5)____non-verbal behaviors (6)____observing activity

36. How often do you use pain scales when assessing a child in pain?

(1) never.

(2) 25% of the time.

(3) 50% of the time.

(4) 75% of the time.

(5) > 90 % of the time.

36. How accurate do you feel pain scales are in assessing a child's pain?

0.....1.....2.....3.....4.....5.....6

completely inaccurate — very accurate

THE END

THANK YOU for your time and cooperation. Please enclose the questionnaire in the accompanying self-addressed stamped envelope and return to Kathy Campbell by November 5, 1998. Surveys may be returned by the U. S . Postal System or through the envelopes posted in the PCCU's modified breakroom or General Pediatrics 7th floor locker room.

APPENDIX C

Scored Responses of the Modified Pediatric Nurses' Pain Relief Questionnaire

Part II: Questionnaire Vignettes

For the purpose of brevity, the following clinical vignettes have been made concise. Please consider the following:

a. All patients are in good health except for the conditions mentioned.
b. No complications exist except those specifically described.
c. None of the patients has an idiosyncratic response or allergy to the drug.
d. All patients are N.P.O.
e. All ordered dosages follow Harriet Lane (1993) recommendations for pediatric patients.

MSO4: 0.1-0.2 mg/kg/dose SC, IV, or IM every 2-4 hours PRN.

Tylenol: 10-15 mg/kg/dose PO or PR every 4-6 hours.

9. A six year old 25 kg. (55 lb.) boy, two days post-operative after abdominal surgery, with no complications, indicates he "hurts bad" and points to his surgical site. He does not move around much in bed, won't cough and deep breathe when instructed to and his heart rate is 116 / minute. He has Morphine 1.25 - 2.5 mg. I.V. q 3 hours PRN and Tylenol 300 mg. pr. q 4 - 6 hours PRN for pain. He received Morphine 2.0 mg. three hours ago. At this time you would:

3 (1) Immediately give a medication.

1 (2) Wait an hour before giving any medication.

1 (3) Other nursing intervention: reposition, distraction, provide favorite comfort object or toy, play with the patient.

10. If you chose to medicate the patient in the above question, what medication and dosage would you administer? (If you did not choose to medicate the patient please skip to question 10).

1 (1) Morphine 1.25 mg. I.V.

2 (2) Morphine 2.0 mg. I.V.

3 (3) Morphine 2.5 mg. I.V.

0 (4) Morphine _____mg. I.V. (specify dose).

1 (5) Tylenol 300 mg. pr.

11. Three more hours have elapsed since your nursing intervention and it is noted that the preceding patient again complains of incisional pain. No other signs of complications are present and he is having no side effects from the medication. At this time you would:

3 (1) Immediately give a medication.

1 (2) Wait an hour before giving any medication.

1 (3) Other nursing intervention: reposition, distraction, provide favorite comfort object or toy, play with the patient.

12. If you chose to medicate the patient in the above question, which medication and dosage would you give? (If you did not choose to medicate the patient, please skip to question 12).

1 (1) Morphine 1.25 mg. I.V.

2 (2) Morphine 2.0 mg. I.V.

3 (3) Morphine 2.5 mg. I.V.

0 (4) Morphine _____mg. I.V. (specify dose).

1 (5) Tylenol 300 mg. pr.

13. A 12 kg. (26 lb.), two year old girl, one day post-operative after a left thoracotomy for removal of a benign mass develops pneumonia. She cries when you perform chest physiotherapy, especially when you clap on her left side. She has been treated with Morphine 1.0 mg. I.V. q 4 hours for two days and coughs and deep breathes after her pain medication. Morphine 0.6 - 1.2 mg. q 3 hours I.V. PRN pain and Tylenol 120 mg. pr. PRN 4-6 hours is ordered. She does sleep after you medicate her with Morphine, but begins to become irritable about three hours after each Morphine dose. At this point you:

1 (1) Continue Morphine 1.0 mg. I.V. q 4 hours PRN.

3 (2) Change to Morphine 1.0 mg. I.V. q 3 hours PRN.

3 (3) Change to Morphine 1.2 mg. I.V. q 4 hours PRN.

0 (4) Change to Morphine _____mg. I.V. q _____ PRN.
(specify dosage and time interval)

1 (5) Change to Tylenol 180 mg. pr.

2 (6) Continue giving Morphine at the same interval and dose and give Tylenol 120 mg. pr. q 4 hours PRN.

1 (7) Other nursing intervention: reposition, distraction, provide favorite comfort object or toy, play with the patient.

13. A four year old 18 kg. (39 lb.) girl has had an exploratory laparotomy for a malignant end-stage tumor. An intra-abdominal abscess and a hematoma have been evacuated. She has been receiving Morphine 1.8 mg. I.V. q 3 hours PRN for pain for the last three days. Three hours after the last dose, she is still very irritable, has not slept and guards her abdomen. Assuming that you have the approval of the physician for any of the following, you would:

2 (1) Give Morphine 1.0 mg. I.V. and repeat q 2 hours PRN.

3 (2) Give Morphine 1.8 mg. I.V. and repeat q 2 hours PRN.

3 (3) Give Morphine 2.0 mg I.V. and repeat q 3 hours PRN.

0 (4) Give Morphine _____mg. I.V. and repeat q ____hours PRN (specify dosage and time interval)

1 (5) Obtain an order for Tylenol.

1 (6) Other nursing intervention: reposition, distraction, provide favorite comfort object or toy, play with the patient.

15. A 5.2 kg. (11 lb. 8 oz.) three month old baby girl, diagnosed with intussussception has had a right hemi-colectomy and appendectomy with resultant left colostomy and right mucus fistula. It is one day post-operative. She has not slept for the last eight hours, has a weak shallow cry, is very irritable. Her respiratory rate is 62 and heart rate is 158. No medication is ordered for pain. It is 5 a.m. At this time you would:

3 (1) Notify the physician on call for medication orders.

1 (2) Bundle the baby and give her a nipple to suck on and wait until the doctors round in the morning to ask for a pain medication.

1 (3) Bundle the baby and give her a nipple to suck on in hopes that she'll settle down.

1 (4) Other nursing intervention: reposition, distraction, provide favorite comfort object or toy, play with the patient.

16. A one year old, 11.3 kg. (25 lb.) boy is first day post-operative after a repair of an inguinal hernia. His mother has gone home and he is not pacified with his favorite toy. He continues to cry despite all your efforts to pacify him and draws up his legs whenever you attempt to calm him down. Morphine 0.7-1.2 mg. I.V. q 3 hours

PRN and Tylenol 100 mg. q 4 hours pr. PRN pain is ordered. The child has received no previous medications. You would:

1 (1) Give Tylenol 120 mg. pr.

1 (2) Give Morphine 0.7 mg. I.V.

2 (3) Give Morphine 0.9 mg. I.V.

3 (4) Give Morphine 1.2 mg. I.V.

1 (5) Not give any medication.

17. A five year old 27 kg. (60 lb.) girl on her second post-operative day after abdominal surgery, cries that "her stomach hurts around the bandage". Her heart rate is 118, she has been crying softly for the past hour and tenses up when you try to look at her incision. The physician has ordered Morphine 1.5 - 2.7 mg. I.V. q 3 hours PRN and Tylenol 400 mg. pr q 4 hours PRN pain. The patient received Morphine 2.5 mg. I.V. for pain two hours ago. No post operative complications are present. At this time you would:

3 (1) Give a medication.

1 (2) Wait an hour before giving a medication.

3 (3) Contact the physician on call.

1 (4) Other nursing intervention: reposition, distraction, provide favorite comfort object or toy, play with the patient.

18. If you chose "1", or "2" to the above question, which medication would you give? (If you did not choose to medicate the patient in the above question, please skip to question 18).

1a (1) Tylenol 400 mg. pr.

1 (2) Morphine 1.5 mg. I.V.

2 (3) Morphine 2.0 mg. I.V.

3 (4) Morphine 2.7 mg. I.V.

0 (5) Morphine ____mg. I.V. (specify dosage).

19. A seven year old 30 kg. (66 lb.) boy fractured his femur in a playground accident. He was placed in skeletal traction. Twelve hours later he has an increased heart rate, shallow and fast respirations, is crying and lying stiffly in bed making sure his leg does not move. He received MSO4 3 mg IV five hours ago. His orders state MSO4 1-3 mg IV every 2 - 4 hours PRN pain. He denies his leg hurts when you ask him. At this time you would:

1 (1) Not administer a pain medication because he denies pain.

3 (2) Administer a pain medication to relieve his pain.

2 (3) Call the physician for a Tylenol order.

20. A parent of a three year old, 15 kg. (33 lb.) who is 48 hours post motor vehicle accident states that her son continues to be suffering from pain and would like him to receive a pain medication now. It's been three hours since his last pain medication. Morphine is ordered q 3 hours PRN. This is the first day that you have cared for this child. You would:

3 (1) Take her concern into consideration and assess the child before choosing to medicate.

1 (2) Confirm her concern, but wait one more hour before medicating the child.

1 (3) Other nursing intervention: reposition, distraction, provide favorite comfort object or toy, play with the patient.

Part III: Questionnaire Survey

21. Inadequate pain relief post-operatively after abdominal surgery is often the cause of inadequate or depressed patient respirations.

3 (1) Agree

1 (2) Disagree

22. A five year old, 25 kg. (55 lb.) boy has been receiving Morphine 2.5 mg. I.V. q 4 hours PRN for five days for severe pain. The source of pain is eliminated, and the medication is abruptly stopped. In your estimation, the chances that this five year old has become addicted to narcotics is:

3 (1) Less than 1%.

2 (2) 1 - 10%

1 (3) greater than 10 %

24. The goal of giving narcotic analgesics during the first 48 hours post-operative or post traumatic injury is to:

3 (1) Completely relieve the pain.

2 (2) Relieve enough pain for the patient to function.

3 (3) Relieve as much pain as possible.

1 (4) Relieve pain to a level where the patient can tolerate it.

25. In my opinion, the administration of narcotic analgesics to post-operative and traumatic injury pediatric patients for the relief of acute pain on my clinical unit:

1 (1) Is greater than the real need of the patient.

3 (2) Meets the real need of the patient.

3 (3) Is less than the real need of the patient.

28. Assuming that the narcotic is within a safe dosage range and that all side effects can be controlled, how hesitant are you in administering an epidural narcotic to a four year old patient with post-operative or traumatic injury pain?

2 (1) A little hesitant.

1 (2) Very hesitant.

3 (3) Not hesitant at all.

30. Have the side effects of I.V. narcotics ever stopped you from medicating a pediatric patient in pain:

1 (1) Yes.

3 (2) No.

APPENDIX D

Staff Cover Letter

Dear Colleague,

You are being asked to participate in a research study I am conducting as a part of my graduate thesis requirement through Grand Valley State University. The purpose of the study is to explore what factors influence pediatric nurses' interventions for pain experienced by post-operative or traumatic injury patients. Much research has been done in the last two decades showing various opinions as to which factors influence the nurse in deciding to initiate a pain management intervention. Research continues to explore pain management issues to acquire further clarity and improve patient care.

The extent of your participation involves filling out the attached questionnaire, placing it in the enclosed self-addressed envelope, and returning it to me in the envelopes provided in your respective units or the U.S. Postal System. The questionnaire should take 30 minutes to complete. Answer the questions candidly. There are no right or wrong answers to the items in the questionnaire. Please do not discuss your answers with other co-workers.

Your decision to participate is completely voluntary. Do not put your name on your questionnaire so that your responses will be anonymous. Only group data will be reported.

Any questions concerning this study may be directed to:
Kathy Campbell (243-5181)
Grand Valley State University, the approving institution for this study, Dr. Paul Huizenga (895-6611), Chairperson of the Human Subjects Committee, GVSU.
Michele Pietras, RN, MSN, MBA sponsor of Spectrum Health Downtown Campus, 391-2640.

Thank you for your time and participation. (The return of the questionnaire indicates your consent to participate.)

Sincerely,

Kathleen Campbell RN, BSN

APPENDIX E

University Permission

1 CAMPUS DRIVE • ALLENDALE, MICHIGAN 49401-9403 • 616/895-6611

August 12, 1998

Kathleen Campbell
1230 Seneca SW
Wyoming, MI 49509

Dear Kathleen:

Your proposed project entitled "***Factors in Pediatric Pain Medication Administration***" has been reviewed. It has been approved as a study which is exempt from the regulations by section 46.101 of the Federal Register 46(16):8336, January 26, 1981.

Sincerely,

[redacted]

Robert Hendersen, Chair
Human Research Review Committee

APPENDIX F

Institutional Permission Research Committee

August 19, 1998

Kathy Campbell, BSN, RN
PICU

Dear Kathy,

The Nursing Research Committee and review subcommittee have completed the review of your research proposal *Factors in Pediatric Pain Medication Administration* at our August 18, 1998 meeting. I am pleased to inform you that your proposal has received approval from our committee. You are now ready to proceed to the Hospital Research and Human Subjects Committee. Contact Linda Pool at the Cook Institute for those arrangements.

As per Nursing Research Committee policy, you will be assigned a sponsor who will serve as resource to you during this study. Michelle Pietras MSN, RN will serve in that capacity for your study. Please contact her at 391-2640 when you are ready to begin data collection, and keep her informed of your progress during the study.

Upon completion of your research study, we will look forward to an oral presentation in a format appropriate to the topic and in timing with other educational offerings.

Please feel free to call me if you have any questions or need further clarification. I can be reached at 391-1625.

Sincerely,

Linda D. Urden, DNSc, RN, CNA
Director, Quality, Research & Advanced Practice
Chairperson, Nursing Research Committee

c: Linda Pool, Research Office
Michelle Pietras, Pediatrics
Dr. Patricia Underwood, KSON, GVSU

Spectrum Health

Downtown Campus
100 MICHIGAN STREET NE GRAND RAPIDS MI 49503-2560
616 391 1774 FAX 391 2745 *www.spectrum-health.org*

September 4, 1998

APPENDIX G

Kathleen Campbell
1230 Seneca, SW
Wyoming, MI 49509

Dear Ms. Campbell:

By means of the expedited review process your project, "Factors in Pediatric Pain Medication Administration", was given approval by the Spectrum Health - Downtown Campus Research and Human Rights Committee (fka, Butterworth Hospital Research & Human Rights Committee.

Please be advised this does not include any budgetary items. Should you require funds from the Research and Human Rights Committee at any time, you will need to present the entire project to them. The Spectrum Health Downtown Campus number assigned to your study is #98-103.

Please be advised that any unexpected serious, adverse reactions must be promptly reported to the Research and Human Rights Committee within five days; and all changes made to the study after initiation require prior approval of the Research and Human Rights Committee before changes are implemented.

The Research and Human Rights Committee and the F.D.A. requires you submit in writing, a progress report to the committee by August 1, 1999, and you will need reapproval should your study be ongoing at that time. Enclosed are some guidelines, entitled "Protocol Points", for your convenience in working with your study.

If you have any questions please phone me or Linda Pool at 391-1291\1299.

Sincerely,

[redacted]

Jeffrey Jones, M.D.
Chairman, Spectrum Health - Downtown Campus Research and Human Rights Committee
(fka, Butterworth Hospital Research & Human Rights Committee)

JJ/jfn

c: File

APPENDIX H

Table 7 Data

Table 7a

Most Important Factor Influencing Pain Medication Selection

Factor	f	%
severity of pain	32	62.7%
overall condition	8	15.7%
vital signs	3	5.9%
patient wt.	2	3.9%
nonverbal. behavior.	2	3.9%
type pain	2	3.9%
age	1	2.0%
time since surgery.	1	2.0%

Table 7b

Second Most Important Factor Influencing Pain Medication Selection

Factor	f	%
nonverbal behavior	12	23.5%
VS	11	21.6%
severity of pain	8	15.7%
type of surgery	4	7.8%
medication response	4	7.8%
type of pain	4	7.8%
overall condition	3	5.9%
time since surgery	2	3.9%
patient weight	1	2.0%
post-op complications	1	2.0%

Table 7c

Third Most Important Factor Influencing Pain Medication Selection

Factor	f	%
medication response	13	25.5%
nonverbal behavior	9	17.6%
VS	7	13.7%
type of surgery	7	13.7%
severity of pain	3	5.9%
type of pain	3	5.9%
overall condition	3	5.9%
time since surgery	2	3.9%
post-op complications	2	3.9%
activity	1	2.0%
side effects	1	2.0%

Table 7d

Fourth Most important Factor Influencing Pain Medication Selection

Factor	f	%
VS	11	21.6%
medication response	9	17.6%
overall condition	7	13.7%
type of surgery	6	11.8%
time since surgery	5	9.8%
type of pain	4	7.8%
post-op complications	3	5.9%
severity of pain	2	3.9%
nonverbal behavior	2	3.9%
activity	1	2.0%
patient weight	1	2.0%

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REFERENCES

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