Nurses' Management of Thai Children's Postoperative Pain: A Holistic Case study

Sudaporn Payakkaraung, Jariya Wittayasooporn, Wanlaya Thampanichawat, Suwannee Suraseraniwonge

Abstract: Nurses, due to caring for children 24 hours a day, play a vital role in the management of children's' postoperative pain. However, little is known, holistically, about how nurses manage children's postoperative pain, including interactions among fellow nurses, other healthcare professionals and caregivers. Thus, this study aimed to describe how nurses manage children's postoperative pain in the real-life context of a pediatric surgical intensive care unit and a pediatric surgical unit.

A descriptive case study was conducted using a multiple-case (holistic) design. The case study focused on how selected nurses managed Thai children's postoperative pain. Data were collected from multiple sources, including: 1) observations of nurses' pain management activities and interactions with physicians, children and family caregivers; 2) review of children's medical records, i.e. documents related to pain management policies, physicians' prescriptions, and nurses' pharmacological and non-pharmacological interventions; and, 3) interviews with nurses, physicians and family caregivers.

Three nursing strategies used to manage children's postoperative pain found were: 1) analgesic administration; 2) providing alternative care or non-pharmacological interventions; and, 3) family caregiver involvement. The nurses' pain management model revealed nurses had interactions with physicians and caregivers that impacted the nurses' decisions regarding management of the children's postoperative pain. In addition, the nurses' patterns used in management of children's postoperative pain were identified and described. The findings imply the need for clinical practice guidelines, as well as an educational program for children's postoperative pain management.

Pacific Rim Int J Nurs Res 2010 ; 14(4) 330-345

Key words: Nurses' pain management; Children's postoperative pain; Thailand

Background

Although treatment of postoperative pain has improved, research has revealed that children continue to experience unrelieved moderate to severe postoperative pain.[1, 2, 3] Children with postoperative pain are known to experience difficulty coughing, deep breathing and ambulating, thereby leading to them experiencing increased postoperative complications, hospital stays and healthcare expenditures.[4, 5]

Nurses, as principal members of the healthcare team, are required to assess the level of pain one experiences, as well as administer ordered

Correspondence to: Sudaporn Payakkaraung, *RN, PhD (Candidate) Department of Pediatric Nursing, Faculty of Nursing, Mahidol University, Bangkok Noi, Bangkok, Thailand.* ***E-mail:*** *nsspy@mahidol.ac.th*
Jariya Wittayasooporn, *RN, DNS. Assistant Professor, Department of Nursing, Faculty of Medicine Ramathibodi Hospital, Mahidol University, Bangkok, Thailand.*
Wanlaya Thampanichawat, *RN, PhD. Faculty of Nursing, Mahidol University, Bangkok, Thailand.*
Suwannee Suraseraniwonge, *MD. Professor, Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand.*

analgesics.[6] However, often it is not easy for nurses to interpret the pain responses of children, as they must distinguish restlessness and/or crying as secondary to pain versus being evidence of hunger or fear.[7, 8] This especially is problematic when assessing children less than 3 years of age who have not yet developed cognitive skills needed to describe their pain intensity.[5]

Prior studies of postoperative Thai children have focused on the effectiveness of non-pharmacological pain-relief interventions (i.e. touch with school-aged children, [9] swaddling with premature infants,[10, 11] and positioning with infants[12]). Although non-pharmacological interventions have been shown, in Thailand, to more effectively reduce postoperative pain among infants [13, 14] and young children [15] than does routine care, as well as provide postoperative pain relief among term and preterm infants, [11] little is known about how nurses use non-pharmacological interventions in management of children's postoperative pain.

Nurses have been found to: not use a pain assessment tool when making decisions in pain administer less than recommended and prescribed doses of analgesia to children;[15, 18] refuse to give analgesics because it is either too early for another dose or the medication has not been prescribed;[19, 20] and, neglect to record pain intensity in patients' charts.[20] Thus, valid and reliable pain assessment tools are needed to identify those who require intervention, and to evaluate the effectiveness of administered pain management.[21] However, little is known about how nurses manage postoperative pain in children, particularly in regard to pain management decision-making strategies, in the context of the post-surgical unit, and their interactions with physicians and other caregivers. Thus, to holistically describe how nurses manage postoperative pain in children within a clinical setting, a descriptive case study was conducted.

Method

Design: This descriptive research used a multiple case (holistic) study design (six registered nurses-RNs) for the purpose of answering "how" and "why" questions about a contemporary set of events (i.e. children's post-operative pain management), over which the investigator had little or no control.[22] Such a design uses replication logic (literal or theoretical) to increase external validity and identify consistencies when selecting cases.[22, 23] The three literal replication cases were selected due to having similar characteristics to the model (first) case regarding management of children's postoperative pain. The two remaining cases served as theoretical replication cases and were selected in an attempt to obtain contrasting findings. Replication cases, in accord with Yin's replication logic technique,[22] were selected until saturation was reached and the primary investigator (PI) understood how the nurses managed children's postoperative pain.

Data were collected from multiple sources, including: 1) observation of the six RN's (cases) pain management activities and their interactions with 2 physicians, 20 children and 13 family caregivers; 2) interviews with the six RN cases, 2 physicians and 13 family caregivers; and, 3) review of medical records of 20 children receiving care from the six RN (i.e. documents related to pain management policies, physicians' prescriptions, and nurses' pharmacological and non-pharmacological interventions).

Sample: Prior to conducting the study, three pilot cases were investigated. Each pilot case included one RN who: a) worked in the post-operative section of the pediatric surgical intensive care unit (PSICU); b) was conveniently selected; and, c) was assumed to have experience in managing children's postoperative pain. The PSICU was selected because children in the unit received

various pain treatments, including: continuous, intravenous or epidural catheter, analgesic infusions; intermittent intravenous injections; and, oral analgesics. Although the pilot cases, including review of three children's record and interview of one physician and two family caregivers, were conducted in the same manner as those in the actual study, none of them were included in the actual study. Results of the pilot cases helped in understanding the routine practices of nurses' management of children's postoperative pain, and resulted in modification of the data collection procedures and propositions of the study's protocol.

Names of the two units that provided care for children post-operatively were obtained from the director of the Surgical and Orthopedic Surgery Nursing Division of the hospital. The head nurse of each unit provided names of potential subjects, who then were contacted and informed about the study during a ward meeting. Thirty RNs who: a) worked in a pediatric surgical intensive care unit (PSICU) or a pediatric surgical unit (PSU) in a university hospital; b) had experience providing care for children, one day to 15 years of age, who had undergo surgery; and, c) were assumed to have experience managing children's postoperative pain were considered potential study subjects. Six RNs were conveniently selected from the 30 RNs. These six RNs provided sufficient data to meet the requirement of saturation,[22] as well as an understanding of how nurses manage children's postoperative pain.

As recommended by Yin,[20] a case study protocol was used as a means of increasing the reliability of the findings, as well as a guide to promote triangulation and maintenance of a chain of evidence during data collection. The protocol included: a) an overview of the study; b) study objectives, questions and initial propositions; e) field procedures; and, f) a data analysis method. A chain of evidence was maintained, via observation, interview and re-interview, regarding the: 1) nurses' administration of analgesics; 2) nurses' provision of alternative care and non-pharmacological interventions; and, 3) family caregivers' involvement.

The first (model) case was selected after the: a) RN's involvement in managing children's postoperative pain was observed; b) head nurse was informally interviewed about RN's postoperative pain management abilities and, c) patients' medical records were reviewed regarding the RN's postoperative pain management abilities. This process lead to determination that the RN: a) had 10 years of PSICU work experience; b) had experienced a variety of pain management situations; and, c) was skilled in analgesic administration, interaction with physicians and caregivers, providing non-pharmacological interventions and allowing family caregivers to become involved in management of their loved one's postoperative pain.

The model case findings served as a guide for selection of the second to fourth (literal replication) cases that were used to confirm and compare findings to the model case. Findings from the four literal replication cases served as a guide in selection of the two theoretical replication cases, while maintaining the chain of evidence, so as to better understand the processes and patterns nurses used in management of children's postoperative pain. Understanding of this process was enhanced using information gathered via observation and interview of 2 physicians, 20 children (10 were asked about their feelings and pain intensity) and 13 family caregivers.

For the purpose of confidentiality and preservation of the nurses' anonymity, pseudonyms were used. Three of the RNs (Yindi, Prida and Prani) worked in the PSICU, and three (Vina, Waree and Mina) worked in the PSU. Both units provided postoperative care for children. Yindi,

Prida, Prani and Vina had more than 10 years experience providing care to postoperative children and being charge nurses. Waree and Mina never worked as charge nurses, but had three years experience providing care to postoperative children.

Ethical Considerations: Prior to data collection, approval to conduct the study was obtained from the Institutional Review Board (IRB) of the PI's university and the hospital where data were gathered. The PI provided the 6 RNs and 2 physicians a written description of the study prior to asking them to sign a consent form to participate. Family caregivers, who consented to allow their children to participate, also were asked to sign a consent form. Children, who were old enough to understand and were cared for by the six RNs and their respective family caregivers, received a verbal description of the study from the PI. Those over age 5, whose family caregivers consented for them to participate, were asked to provide written or verbal assent.

Procedure: As shown in **Figure 1**, each step in the data collection process was repeated for each nurse-child pain management pair. The first step in the process involved observing the nurses' pain management activities with each child for 2 to 4 hours. The children receiving pain management were 6 hours to 2 days postoperative. This time period was selected because pain tends to peak two days after recovery from anesthesia. Each RN was observed with 2 to 4 children in an attempt to determine how and why the nurses made decisions regarding pain management.

During each observation, the PI sat about 3-4 meters from the child's bed, so as to be able to observe the nurses' activities and their interactions with the child, physicians and family caregiver, but not disrupt the child's behavior. To minimize the effect of the PI's presence on the nurses' behavior, the PI built rapport with each nurse by spending time on site before data collection. During each observation, core elements were noted, including

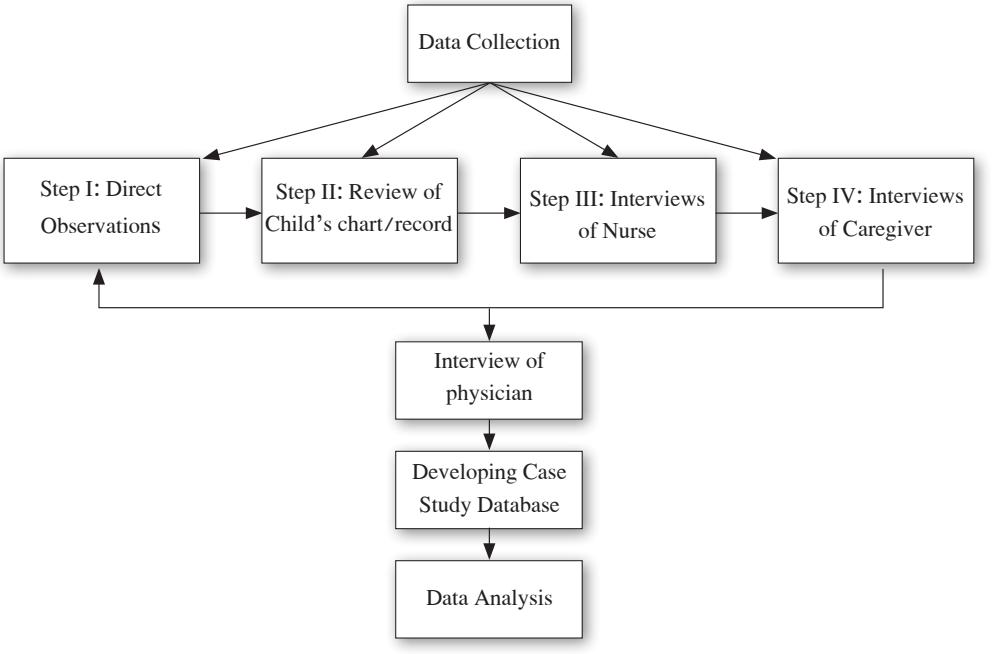

Figure 1 Flow chart of data collection

the: a) child's appearance and ability to communicate verbally and non-verbally, including expressions related to pain; b) organizational culture and work atmosphere of the clinical setting; c) nurse's activities related to pain management (pain assessment, pharmacological and non-pharmacological interventions, reassessment of pain and documentation); d) time the nurse visited the child, assessed the analgesic administered and re-assessed the analgesic's effectiveness; and, e) interactions among the nurse, physician, child and family caregivers. Content related to observation of core elements were recorded in field notes, as well as were direct quotes of conversations, related to pain management, nurses had with the children, physicians and family caregivers.

The second step in the data gathering process occurred after each observation and involved reviewing the respective child's chart for information related to the: child's age and gender; type of surgical procedure; physician's prescribed pain medications; and, nurse's documentation related to pain management, pain assessment, and pharmacological and non-pharmacological interventions. Based upon the medication information retrieved, the nurse's performance of analgesic administration was calculated (i.e. amount of analgesic administered by the nurse in relationship to amount of analgesic ordered by the physician).

The third data collection step involved unstructured, tape-recorded interviews with the nurse. In order to maintain confidentiality, interviews were conducted, at the nurse's convenience, in an unoccupied conference room. Prior to beginning each interview, the PI reminded the nurse about the purpose of the study and asked her to provide demographic information (i.e. age, education and years of nursing experience). Each initial interview began with a broad, open-ended statement, "Please tell me about your experiences in managing children's postoperative pain," to allow the nurse to express her story in her own words. More focused questions (i.e. "How do you know a child is having postoperative pain?" "How do you administer analgesics?" and, "How do you make a decision to administer an analgesic?") were asked to elicit detailed information about the nurse's pain management decisions. Subsequent interviews were conducted in order to clarify information obtained from the first interview and observations. Each nurse was interviewed 2 to 4 times (see **Table 1**). Each interview lasted approximately 30-60 minutes. At the end of each interview, the RN was asked if she had any questions or wanted to share any other insights. Note taking did not occur during the interviews. Immediately following each interview, field notes were written addressing the: interview environment; RN's general appearance and non-verbal behaviors; and, PI's perceptions regarding the interview process.

Table 1 Number of observations/interviews of each nurse and number of interviews of family caregivers of children under each nurse's care

Case	Observations (Times)	Interviews of Nurse (Times)	Interviews of Caregivers (Times)
Yindi	2	4	2
Prida	4	3	2
Prani	4	3	3
Vina	3	3	2
Waree	5	2	2
Mina	2	3	2

The fourth step in the data collection process involved interviewing, in a private location, the family caregiver who looked after the child for more than one hour, during the PI's observation of the nurse. As a result, the number of family caregivers interviewed (n =13) was less than the number of children (n = 20) receiving pain management from the nurse participants (n = 6). The purpose of the 2 to 3 family caregiver interviews (see Table 1) was to obtain each caregiver's perception of the RN's management of the respective child's postoperative pain. Each interview was tape-recorded and lasted 30 to 45 minutes. Each caregiver's initial interview began with a broad, open-ended statement, "Please tell me about your experiences in dealing with postoperative pain in your child." More focused questions then were posed (i.e. "What do you think about the nurse's pain management for your child?" and "What problems or barriers does the nurse face in alleviating your child's pain?") to elicit information regarding the caregiver's perception about the nurse's performance in managing the child's pain. Immediately after each interview, field notes were written addressing the family caregiver's responses to the interview questions.

After the four data collection steps were completed on the six nurse cases, two physicians were interviewed for the purpose of describing their pain treatment practices and collaborative efforts with each of the six RNs regarding management of the children's postoperative pain. The physician interviews addressed how each physician controlled or alleviated children's postoperative pain, as well as what each physician thought about each of the six nurse's management of children's postoperative pain. Each interview lasted approximately 45 to 60 minutes and was tape recorded. Immediately following each interview, field notes were written addressing the physician's responses to the interview questions.

Data Analysis

Observation data, recorded in the field notes, and interview data, transcribed from the tape-recordings, were analyzed using content analysis achieved by way of four stages: 1) analysis of separate data sets; 2) individual case analysis; 3) cross-case analysis; and, 4) final overall analysis. Coding, discussion and summarization of the qualitative data were conducted with the assistance of one qualitative inquiry and one case study research expert. The six RNs were asked to review the accuracy of the interpretations of the findings.

Descriptive statistics were used to calculate the number of times each nurse was observed and interviewed; the number of times each family caregiver was interviewed; and, the maximum/minimum amount of analgesics ordered by the physicians and administered by the nurses. Analgesics administered by the RNs were converted to morphine equianalgesic doses to provide a standard of comparison among the cases.

Results

Nurses used three strategies in management of children's postoperative pain: a) analgesic administration; b) alternative care or non-pharmacological interventions; and, c) family caregiver involvement. As shown in **Figure 2**, nurses' interactions with physicians and family caregivers were found to impact their decisions regarding management of the children's pain due to the fact that while analgesic administration was the most common strategy the nurses used for alleviating pain, the nurses also interacted with the physicians' to obtain permission to administer analgesics. The more experienced nurses were better able to interact with the physicians than were those with less experience.

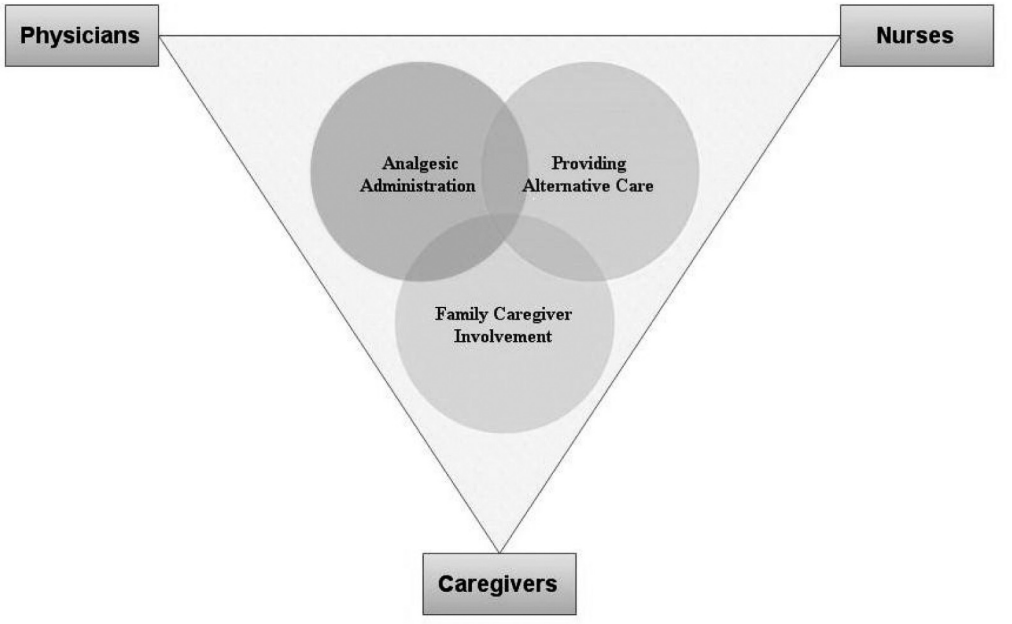

Figure 2 Nurses' pain management model

A. Analgesic Administration

The nurses' decision making processes, regarding analgesic administration, fell into three patterns. These patterns included: 1) following pain treatment; 2) advocating that a child receive pain medication; or, 3) collaborating with physicians to adjust pain treatment.

Pattern 1 – Following pain treatment: The dominant characteristics Waree and Mina used, when following pain treatment regarding administration of analgesics, involved doing: 1) as they learned from experienced nurses; and, 2) only as was indicated in the pain treatment prescriptions. Although they had learned to administer analgesics via acute pain management courses, they practiced as they had learned from the experienced nurses. They could not make decisive decisions regarding their practice and feared making independent decisions. If they encountered problems or were unable to alleviate a child's pain, they sought advice from the charge, or more experienced, nurses. They believed any wrong decision would cause trouble for their colleagues, and rarely worked in collaboration with the physicians to plan analgesic administration. For example, even though both of them had attended a training course and workshop on acute postoperative pain management within the past year, they were uncertain about, and fearful of, making decisions when faced with a complicated pain management problem. Rather, they asked more experienced nurses for advice, explained their uncertainty about making a decision to administer an analgesic and perceived they had less experience.

Pattern 2 – Advocating that a child receive pain medication: The dominant characteristics that Prida and Prani used with respect to advocating that a child receive pain medication included: 1) making decisions to administer analgesics based on knowledge learned from experienced nurses, their training or practical experiences in managing children's pain; and, 2) advocating children receive

pain relief. When they found the physicians' had not prescribed a pain medication, they immediately asked the physicians about the pain medication. Unlike Waree and Mina, Prida and Prani independently made decisions to re-administer pain medication when needed. Prior to the time for re-administration of pain medication, Waree and Mina asked the children whether they could tolerate the pain. If a child was having difficulty tolerating pain, they consulted the physicians about administering more pain medication. Both Prida and Prani worked closely with and had good relations with the physicians, as well as believed the physicians trusted them regarding analgesic administration. Prida remarked: *"We don't have any problem with doctors about administering analgesics. I think they believe, from our experience, that children will be fine with our decisions regarding analgesic administration."*

Prida and Prani were observed interacting with the physicians, giving them information about the children and advocating they receive pain relief. Upon each child's return from the recovery room, Prida and Prani would check the medical orders and ask the physician about analgesic administration when no pain treatment had been prescribed. In addition, upon assessing a child as having pain, they would report the pain score to the physician and ask about analgesic administration. Prida explained: *"If the doctor did not prescribe a pain medication, I would ask to confirm the reason just to make sure he had not unintentionally neglected to order the pain killer."*

Although Prida and Prani appeared to have experience managing children's pain, and demonstrated confidence in making decisions, they became frustrated and discouraged and sought the charge nurses' or physicians' advice when faced with more complicated pain management situations. Regarding a child who continued to experience pain after they had tried everything they knew to decrease the child's pain, Prida commented: *"The case was so complex that I told the senior nurse I had never seen a situation like this. We gave a lot of pain killers, but the child still had severe pain. I didn't know what to do."*

Pattern 3: Collaborating with physicians to adjust pain treatment: The dominant characteristics of the nurses (Yindi and Vina) who used collaboration with physicians to adjust pain treatment included: 1) advocating for the children's receipt of pain medication; and, 2) collaborating with the physicians to adjust the dosage or rate of analgesic administration. The interactions between the nurses and physicians were dependent on their working relationship and trust of each other.

Even though Yindi and Vina had extensive experience providing care for postoperative children (14.5 & 23.5 years, respectively), they collaborated with physicians to adjust pain treatment. They believed pain medication should be administered as soon as a child started to feel mild pain. Thus, they checked the physician's orders carefully to see if they needed to consult with the physicians and did not wait until a child could not tolerate the pain. When Yindi and Vina believed the analgesic dosage prescribed was not enough to control a child's pain, or the analgesic was not ordered to be re-administered within specific a time frame, they negotiated with the physicians to adjust the pain treatments. Yindi noted: *"If a child feels more pain before the time of the re-administration of the analgesic, I will discuss with the doctor and ask permission to give the analgesic before the spacing time in the order."*

When a child received continuous analgesic administration via an epidural catheter, the anesthetist was responsible for prescribing the pain treatment, indicating the minimum and maximum rate of analgesic administration, and solving pain management problems. The nurses were responsibility for administering the analgesic at the

indicated rate. However, Yindi was observed to occasionally adjust the analgesic infusion based on the reactions and changes of the children. For example, she administered the analgesic flow rate to the maximum rate when children experienced severe pain and decreased it to the minimum rate when they had mild pain. If a physician failed to indicate the minimum and maximum rate or bolus dose of continuous analgesic intravenous infusion to be administered for breakthrough pain, Yindi would decide and administer an additional dosage if she could not contact the physician. She said, "*I decide to administer additional doses at half of the dosage rate for a child. For example, if a child has been prescribed to receive 0.6 cc./hr, I will administer approximately 0.3 cc. via infusion and assess pain intensity again.*"

Even though the physicians were responsible for planning the children's pain treatment, the nurses, due to their postoperative pain management knowledge and experience, appeared confident making decisions regarding when to administer analgesics. Thus, the physicians trusted them and supported their decisions. The nurse-physician interactions revealed their collaborative relationship and facilitated determination and administration of mutually agreeable pain treatment. The physicians expressed satisfaction with, and confidence in, Yindi and Vina because of their experience managing children's postoperative pain. One physician stated: *When the nurses assess the children's pain intensity and record their pain scores in their charts, I examine this information. Sometimes, when I am on rounds, I just ask the nurses how much pain the children are having. The nurses then approach me and tell me the children's pain scores. The nurses' reports about pain intensity and analgesic administration are helpful to me regarding adjustment of analgesic dosages.*

Each child's maximum analgesic dosage ordered by the physicians, as well as the amount administered by the nurses, is shown in **Table 2.** The mean percent of analgesic administered by the nurses was used to confirm the pattern of the nurses' decision-making regarding analgesic administration. Yindi's, Prida's and Prani's mean percent of analgesic administered was more than 50, while Vina's, Waree's and Mina's mean percent of analgesic administered was less than 50. Most of the children in the PSICU underwent major operations. Thus, the physicians ordered continuous analgesic infusions, via intravenous or epidural catheter, or intermittent intravenous injection, to control their pain. Not surprisingly, the PISCU nurses, compared to those in the PSU, gave the largest percentage of analgesics. This probably was due to the fact that since the children in the PSU underwent minor operations, the physicians prescribed oral or intravenous intermittent analgesic. Thus, it was rare to find a child with a continuous analgesic infusion in the PSU. Although Vina appeared to be capable of making excellent decisions regarding administration of analgesics, children with minor surgery experienced less pain intensity than did those who had major surgery and, therefore, did not require analgesic administration. Thus, she used non-pharmacological interventions for their pain control.

B. Providing Alternative Care or Non-pharmacological Interventions

When providing alternative or non-pharmacological interventions, the nurses independently made decisions, based on their experiences and knowledge, regarding management of the children's postoperative pain. They provided the younger children pacifiers, as well as held, rocked, bundled, touched, stroked, rubbed and repositioned them, including placing them in a baby rocker seat with their head elevated 45 degrees and

Table 2 Maximum dosage of analgesics ordered, and actual dosage and percentage of analgesics administered

Nurse		Pain Treatment	Analgesic Administration			
Case	Child No.		Max. dose (MSEQ)	Administered by nurse (MSEQ)	% of analgesic administration	Mean percent of analgesic administered
Yindi	1	prn via intravenous	1	1	100%	70.84 %
	2	Drip via epidural catheter	0.36	0.15	41.67%	
Prida	1	prn via intravenous	2	1	50%	75 %
	2	prn via intravenous	0.16	0.8	50%	
	3	Drip via intravenous	12.6	12.6	100%	
	4	Drip via intravenous	2.64	2.64	100%	
Prani	1	Drip via intravenous	12.6	12.6	100%	100 %
	2	No analgesic treatment	-	-	-	
	3	No analgesic treatment	-	-	-	
	4	Drip via epidural catheter	110.48	110.48	100%	
Vina	1	prn via intravenous & prn via oral	9	-	0%	19.33 %
	2	drip via intravenous & prn via oral	11.9	6.9	57.98%	
	3	prn via intravenous & prn via oral	10.5	-	0%	
Waree	1	prn via intravenous & prn via oral	11.4	10	87.72%	43.43 %
	2	prn via intravenous & prn via oral	8.5	-	0%	
	3	prn via intravenous & prn via oral	6.25	6.25	100%	
	4	prn via intravenous & prn via oral	21.25	6.25	29.41%	
	5	prn via intravenous & prn via oral	13	-	0%	
Mina	1	prn via intravenous & prn via oral	11.4	10	87.72%	43.86 %
	2	prn via intravenous & prn via oral	8.5	-	0%	

Note: MSEQ = Morphine Equianalgesic Doses

their knees slightly lifted. For the older children, the nurses touched, talked to and repositioned them, as well as held their hands. In addition, the nurses distracted the children by playing with, reading and listening to them, as well as encouraging them to listen to the radio or watch television. They provided the children psychological support both before and after administering analgesics, especially when the analgesics did not sufficiently control the children's pain. Yindi explained: *After the children are given pain medication, they will not sleep right away. They need consoling, comforting and distracting from their pain for about 5-10 minutes before they will fall asleep. Both giving pain medication and psychological care are needed.*

Mina perceived that psychological support was an important pain relief intervention because pain cannot be divorced from its psychological aspect. She said: *Sometimes, children feel pain, but they do not need the pain killer; they need psychological support. Sometimes, they need both pain medication and psychological support, including talking and comforting.*

When the children had severe pain, alternative care alone often was not effective in reducing the intensity of the pain. In such cases, both analgesics and alternative care needed to be provided. Yindi stated: *There must be a combination of many interventions like talking, comforting or distracting a child's attention from pain. All of these must be done together. We also have to give enough time to each child.*

Since there were no guidelines regarding implementation of alternative care or non-pharmacological interventions, on either the PSICS or the PSU, the nurses evaluated, based on each child's response, the effectiveness of the interventions. Therefore, the nurses had close interactions with and provided alternative care suggestions to the family caregivers involved in supporting and consoling the children.

No distinct pattern of providing alternative care emerged, in this study, among the six nurse cases investigated. However, the more experienced nurses were found to have more skills providing alternative care than did the less experienced nurses.

C. Family Caregiver Involvement

The nurses paid attention to the family caregivers and gave them opportunities to participate in the care of their respective child. The nurse-caregiver interactions were found to fit four patterns of involvement, wherein the family caregiver: 1) plays a passive role; 2) follows the nurses' suggestions; 3) plays an active role; or, 4) makes demands.

Pattern 1 - Caregiver plays a passive role: At times the family caregivers were noted to play a passive role or were less involved in managing the children's pain, especially when the nurses were assessing the children's pain intensity and making decisions regarding administration of analgesics. The caregivers did not have much of a role in such situations. They only provided information regarding the children's complaints. For example, one of the mother's was concerned about potential side effects from the pain medications and reluctant to let her child receive an analgesic. However, she did not express her concerns, even though Yindi, after assessing the child's pain intensity, told her the child was experiencing pain and needed pain medication.

Pattern 2 - Caregiver follows the nurses' suggestions: Family caregivers were observed following the nurses' suggestions, regarding the caregivers' provision of alternative care, before and after analgesia administration. For example, Vina, while providing care to a crying three year old, encouraged the child's mother to talk to and comfort the child.

Pattern 3 - Caregiver plays an active role: The family caregivers showed ability, based on their past pain relief experiences, to assess the children's pain and provide them alternative care. However, their assessment of the children's pain appeared to be dependent upon their perceptions and attitudes. One mother remarked: *When my child felt hurt, I wanted her to be relieved and didn't know what to do. I only held her hands and it helped a bit. Like last time when she said that she hurt, she asked me to hold her hands.*

Caregivers, who were identified as using this pattern of involvement, actively assessed their child's pain and provided alternative care when needed. Their involvement appeared effective in alleviating mild pain. However, this method was not effective in relieving pain among those with severe pain.

Pattern 4 - Caregiver makes demands: Family caregivers were likely to make demands and become over-protective of their respective child when they had to stay in a special room. At such times, the family caregivers continually sought the nurses' assistance in the care of the children. Such

situations lead the nurses to feel frustrated, discouraged and uncertain about their decisions regarding pain management. When the family caregivers showed interest in what the nurses were explaining, the less experienced nurses were more likely to be certain regarding their decisions regarding pain management.

When the caregivers were loud or aggressive when making demands, the less experienced nurses were noted to become worried and stressed about their decisions regarding pain management. On the other hand, the more experienced nurses would explain what they were doing and tell the family caregivers how they could participate in their children's pain management. Mina said: *My actions or words may not be enough for the parents to trust me. Therefore, I will ask more experienced nurses to take over, because I am still a young nurse and sometimes the parents will not believe me. But if a more experienced nurse speaks with them, the parents will listen even though what is explained is the same thing that I just told them. I have to be careful about this situation and not make decisions alone.*

Discussion and Conclusions

This study outlines the patterns of nurses' decision making in analgesic administration. The findings were categorized into three patterns: 1) following pain treatment; 2) advocating that a child receive pain medication; and, 3) collaborating with physicians to adjust pain treatment. The less experienced nurses, although they had attended a course in acute pain management, were found to follow the routine pain treatment regimen and demonstrate low self-confidence when making decisions about contending with a child's uncontrollable pain. In addition, they often consulted the charge nurses before administering analgesics and resorted to learning about effective analgesic administration from the more experienced senior nurses on the units. As a result, the more experienced nurses, on the two units used as data gathering sites, served as role models for other nurses regarding effective analgesic administration. The findings of this study are similar to the findings of an ethnographic multiple-case study conducted by Willson[24] that showed the pattern of care demonstrated on a unit has an effect on the pattern of care administered by individual nurses, such as decisions about assessing pain and administering analgesics.

Nurses who are experienced in pain management may not necessarily be those who have many years of experience providing care for postoperative children. The definition of experienced nurses was illustrated by the nurses' characteristics. The dominant characteristics of experienced nurses were having: 1) knowledge related to pain management, 2) their own practical experiences in managing children's pain, 3) advanced skills in providing alternative care, and 4) good relationships with physicians and family caregivers.

In this study, experienced nurses made better decisions and had higher self-confidence in analgesic administration than the less experienced nurses. Prior studies[25, 26, 27, 28] have suggested that experienced nurses make better patient care decisions than do less experienced nurses. Hamers and colleagues [29] found experienced nurses tended to be more confident and more likely to administer analgesics than novice nurses. However, Twycross and Powls [30] found both experienced and less experienced nurses use similar strategies when planning nursing interventions to alleviate pain in children. This finding difference, most likely, was due to the fact that, as part of the research design, only "think aloud" scenarios were used, which may not have reflected an accurate picture of the nurses' practice in a clinical setting.

The interaction of healthcare professionals through teamwork, especially nurse-physician interaction, is an important factor in nurses' decision-making in pain management.[31] The nurses, in this study, had good interactions with the physicians when they worked together to manage the children's postoperative pain. The nurses shared information related to the children's pain and made joint decisions with the physicians to administer analgesics. Compared to less experienced nurses, the more experienced nurses more effectively interacted with physicians, and were able to negotiate and collaborate with physicians regarding adjustment of dosages and rates of analgesic administration.

Effective pain management in children requires both administering analgesics and providing non-pharmacological interventions. It has been suggested that children's postoperative pain can be alleviated by using non-pharmacological interventions as an adjunct to analgesics.[32] In this study, after administering analgesics, the experienced nurses provided non-pharmacological intervention for 10-15 minutes to help reduce the children's suffering from pain, while the less experienced nurses provided non-pharmacological interventions based upon past experience or at the suggestion of more experienced nurses. In addition, although all of the nurse cases were familiar with many non-pharmacological interventions for pain relief, they tended to use them inconsistently because no guidelines were available for clinical implementation.

Interactions between the nurses and family caregivers were found to have an influence on the outcome of pain management in the children. This finding is consistent with the work of Woodgate and Kristjanson, [33] and Carter, McArthur and Cunliffe, [34] wherein parents, as caregivers, were found to play a pivotal role in monitoring their children's pain and comforting them via use of activities, such as reading, holding and stroking.

The findings of this research provide information related to the patterns nurses use in making decisions regarding analgesic administration among postoperative children. The development of educational programs and workshops that focus on these patterns of practice could prove beneficial in facilitating effective use of pharmacological and non-pharmacological interventions to alleviate and manage children's pain.

Limitations and Recommendations for Future Research

This study has major limitations that need to be taken into consideration when interpreting and applying the findings. Even though the information was gained from direct observations, and other sources supported the findings from the interviews and document reviews, some views may not have been represented (i.e. the nurses' roles in using patient control anesthesia equipment in pain management, since this equipment was not used among children in this study).

Although the researcher worked to make the nurses (cases) comfortable while being interviewed, the fact they were being observed, by the PI, could have influenced their performance and behavior. In addition, the children cared for by the nurses may also have been influenced by the fact they were being observed. This, in turn, could have affected their behavior.

Due to the fact that limited investigation of the role of family caregiver involvement in children's pain management has been conducted, further research should be carried out in this area. Such research should focus on the development and implementation of programs focused on improving family caregivers' involvement in children's pain management.

Acknowledgement

The authors gratefully acknowledge the support provided by the Thai Commission on Higher Education and the Thai Council of Nursing and Midwifery.

References

1. Gauthier JC, Finley GA, McGrath PJ. Children's self-report of postoperative pain intensity and treatment threshold: Determining the adequacy of medication. Clin J Pain. 1998; 14: 116-20.
2. Vincent CVH, Denyes MJ. Relieving children's pain: Nurses' abilities and analgesic administration practices. J Pediatr Nur. 2004; 19: 40-50.
3. Twycross A. Children's nurses' postoperative pain management practices: An observational study. Int J Nurs Stud. 2007; 44: 869-81.
4. Ball J, Bindler R. Pediatric nursing: Caring for children. Norwalk (CT): Appleton & Lange; 2003.
5. Schechter NL, Berde CB, Yaster M. Pain in infants, children and adolescents. 2nd ed. Baltimore (MD): Williams & Wilkins; 2003.
6. Society AP. Principles of analgesic use in the treatment of acute pain and cancer pain. Glenview (IL): American Pain Society; 1999.
7. Gehdoo RP. Post operative pain management in pediatric patients. Indian J Anesth. 2004; 48: 406-14.
8. Hill KJ, Anderson CTM. Pediatric pain management: Clinical aspects for the nineties. Semin Anesth. 1997; 16: 136-51.
9. Suwantawakup S. Effects of touch on the pain level of school-age children following abdominal surgery [thesis]. Bangkok (Bangkok): Mahidol Univ.; 1991.
10. Tantapong A. The effects of swaddling on pain response related to heel stick in premature infants [thesis]. Bangkok (Bangkok): Mahidol Univ.; 2000.
11. Prasopkittikun T, Tilokskulchai F. Management of pain from heel stick in neonates: An analysis of research conducted in Thailand. J Perinat Neonatal Nurs. 2003; 7:304-12.
12. Payakkaraung S, Wittayasooporn J, Sathornkit C. The effects of positioning on oxygen saturation and pain response in infants after abdominal surgery. Thai J Pediatr Nurs. 2003; 2: 41-51.
13. Goodenough B, Addicoat L, Champion GD, Perrott D, Taplin JE, von Baeyer CL, et al. Pain in 4- to 6- year-old children receiving intramuscular injections: A comparison of the Faces Pain Scale with other self-report and behavioral measures. Clin J Pain. 1997; 13: 60-73.
14. Romsing J, Moller-Sonnergaard J, Hertel S, Rasmussen M. Postoperative pain in children: Comparison between ratings of children and nurses. J Pain Symptom Manage. 1996; 11: 42-6.
15. Tesler MD, Wilkie DJ, Holzemer WL, Savedra MC. Postoperative analgesics for children and adolescents: Prescription and administration. J Pain Symptom Manage. 1994; 9(2): 85-95.
16. Simons JM, Macdonald LM. Pain assessment tools: Children's and nurses' views. J Child Health Care. 2004; 8: 264-78.
17. Salantera S. Finnish nurses' attitudes to pain in children. J Adv Nurs. 1999; 29: 727-36
18. Jacob E, Puntillo KA. Pain in hospitalized children: Pediatric nurses' beliefs and practices. J Pediatr Nurs. 1999; 14: 379-91.
19. Sanansilp V, Anotharom C, Potranan S, Lertkyananee J, Udompanturak S, editors. Pain in Siriraj hospital: Data from doctors and nurses. The Siriraj Scientific Congress: The centenary celebrations of the birth of Her Royal Highness Princess Srinagarindra, the princess mother. Bangkok (Bangkok); 2000.
20. Yenbut J, Aeraumnouy M, Meesukko J, Worrakitpunpon P, Fupinwong S, Mungmai B. Pain assessment and management among pediatric patients in the hospital [thesis]. Chaing Mai (Chaing Mai): Chaing Mai Univ.; 2004.

21. O'Rourke D. The measurement of pain in infants, children and adolescents: From policy to practice. Phys Ther. 2004; 84: 560-70.

22. Yin RK. Case study research: Design and methods. 3rd ed. Thousand Oaks (CA): Sage; 2003.

23 Yin RK. Applications of case study research. 2nd ed. Thousand Oaks (CA): Sage;

2003.

24. Willson H. Factors affecting the administration of analgesia to patients following repair of a fractured hip. J Adv Nurs. 2000; 31: 1145-54.

25. Benner P. From novice to expert: Excellence and power in clinical nursing practice. Menlo Park (CA): Addison-Wesley; 1984.

26. Benner P. The wisdom of our practice. Am J Nurs. 2000; 100: 99-105.

27. Lauri S, Salantera S. Decision-making models of Finnish nurses and public health nurses. J Adv Nurs. 1995; 21: 520-7.

28. Watson S. An exploratory study into a methodology for the examination of decision-making by nurses in the clinical area. J Adv Nurs. 1994; 20: 351-60.

29. Hamers JPH, van den Hout MA, Halfens RJG, Abu-Saad HH, Heijltjes AEG. Differences in pain assessment and decisions regarding the administration of analgesics between novices, intermediates and experts in pediatric nursing. Int J Nurs Stud. 1997; 34: 325-34.

30. Twycross A, Powls L. How do childrens' nurses make clinical decisions? Two preliminary studies. J Clin Nurs. 2006; 15: 1324-35.

31. Van Niekerk LMV, Martin F. The impact of the nurse-physician relationship on barriers encountered by nurses during pain management. Pain Manage Nurs. 2003; 4: 3-10.

32. Acute Pain Management Guideline Panel. Acute pain management: Operative or medical procedures and trauma. Clinical Practice Guidelines. Rockville (MD): Agency for Health Care Policy and Research, Public Health Service, US Dept. of Health and Human Services (US); 1992 Feb. AHCPR publication No.: 92-0032.

33. Woodgate R, Kristjanson LJ. A young child's pain: How parents and nurses 'take care.' Int J Nurs Stud. 1996; 33: 271-84.

34. Carter B, McArthur E, Cunliffe M. Dealing with uncertainty: Parental assessment of pain in their children with profound special needs. J Adv Nurs. 2002; 38(5): 449-57.

การจัดการของพยาบาลต่อความเจ็บปวดหลังผ่าตัดในผู้ป่วยเด็กไทย: การวิจัยกรณีศึกษาแบบองค์รวม

สุดาภรณ์ พยัคฆเรือง, จริยา วิทยะศุภร, วัลยา ธรรมพนิชวัฒน์, สุวรรณี สุรเศรณีวงศ์

บทคัดย่อ : พยาบาลมีบทบาทที่สำคัญในการจัดการความเจ็บปวดหลังผ่าตัดของผู้ป่วยเด็ก เนื่องจากพยาบาลเป็นผู้ดูแลผู้ป่วยเด็กตลอด 24 ชั่วโมง จึงมีโอกาสในการประเมินและบรรเทาความเจ็บปวดของผู้ป่วยเด็ก อย่างไรก็ตาม ยังมีความรู้และความเข้าใจที่จำกัดว่าพยาบาลจัดการต่อความเจ็บปวดหลังผ่าตัดในผู้ป่วยเด็กอย่างองค์รวมอย่างไรและทำไมจึงปฏิบัติเช่นนั้น รวมทั้งปฏิสัมพันธ์ระหว่างพยาบาลกับแพทย์หรือผู้ดูแลเป็นอย่างไร การศึกษานี้จึงมีวัตถุประสงค์เพื่อบรรยายการจัดการของพยาบาลต่อความเจ็บปวดหลังผ่าตัดของผู้ป่วยเด็กในสถานการณ์ที่เกิดขึ้นจริงในบริบทของหอผู้ป่วยไอซียูศัลยกรรมเด็กและหอผู้ป่วยศัลยกรรมเด็ก

การวิจัยกรณีศึกษาเชิงบรรยายนี้ ได้ใช้รูปแบบการศึกษาแบบองค์รวมพหุกรณีศึกษาโดยมุ่งเน้นการจัดการของพยาบาลที่เป็นกรณีศึกษาต่อความเจ็บปวดหลังผ่าตัดในเด็กไทย ข้อมูลรวบรวมได้จากแหล่งต่างๆ ประกอบด้วย 1) การสังเกตกิจกรรมของพยาบาลในการจัดการต่อความเจ็บปวด และปฏิสัมพันธ์ของพยาบาลกับแพทย์ ผู้ป่วยเด็ก และผู้ดูแล 2) การทบทวนแฟ้มประวัติของผู้ป่วยเด็ก เช่น เอกสารที่เกี่ยวข้องกับนโยบายการจัดการความเจ็บปวด แผนการรักษาของแพทย์และบันทึกของพยาบาลเกี่ยวกับการจัดการความเจ็บปวดโดยใช้ยาแก้ปวดและไม่ใช้ยาแก้ปวด และ 3) การสัมภาษณ์พยาบาล แพทย์ และผู้ดูแล

ผลการศึกษาพบว่าพยาบาลได้ใช้วิธีในการจัดการความเจ็บปวดของผู้ป่วยเด็ก 3 วิธีการ คือ 1) การบริหารยาแก้ปวด 2) การดูแลทางเลือกหรือการบรรเทาความเจ็บปวดโดยไม่ใช้ยาแก้ปวด และ 3) การมีส่วนร่วมของผู้ดูแล รูปแบบจำลองของการจัดการความเจ็บปวดแสดงให้เห็นปฏิสัมพันธ์ของพยาบาล แพทย์ และผู้ดูแล ซึ่งมีผลต่อการตัดสินใจของพยาบาลในการจัดการความเจ็บปวดของเด็ก นอกจากนี้ยังมีการอธิบายแบบแผนของพยาบาลในการจัดการความเจ็บปวดของเด็ก ผลการศึกษานี้เน้นให้เห็นว่าแนวปฏิบัติการพยาบาลทางคลินิกและโปรแกรมฝึกอบรมการจัดการความเจ็บปวดในเด็กควรได้รับการพัฒนาต่อไป

Pacific Rim Int J Nurs. Res 2010 ; 14(4) 330-345

คำสำคัญ: การจัดการของพยาบาลต่อความเจ็บปวด, ความเจ็บปวดของเด็กหลังผ่าตัด, ประเทศไทย

ติดต่อที่ : สุดาภรณ์ พยัคฆเรือง, *RN, PhD (Candidate) ภาควิชาการพยาบาลกุมารฯ คณะพยาบาลศาสตร์ มหาวิทยาลัยมหิดล กรุงเทพฯ ประเทศไทย*
E-mail: *nsspy@staff1.mahidol.ac.th*
จริยา วิทยะศุภร, *RN, DNS. ผู้ช่วยศาสตราจารย์ ภาควิชาพยาบาลศาสตร์ คณะแพทยศาสตร์โรงพยาบาลรามาธิบดี มหาวิทยาลัยมหิดล กรุงเทพฯ ประเทศไทย*
วัลยา ธรรมพนิชวัฒน์, *RN, PhD. คณะพยาบาลศาสตร์ มหาวิทยาลัยมหิดล กรุงเทพฯ ประเทศไทย*
สุวรรณี สุรเศรณีวงศ์, *MD. ศาสตราจารย์ คณะแพทยศาสตร์โรงพยาบาลศิริราช มหาวิทยาลัยมหิดล กรุงเทพฯ ประเทศไทย*