Nurses' Caring Behavior in Pain Management as Perceived by Nurses and Patients with Postoperative Pain in Medan, Indonesia

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Abstract

Inadequate pain management is a major problem in caring for patients after surgery. This descriptive study was conducted in two selected hospitals in Medan, North Sumatra Province of Indonesia to examine the perception of nurses and patients regarding nurses' caring behaviors in management of patients with postoperative pain, and the differences of perception between patients and nurses.

Convenient sampling recruited 78 patients with postoperative pain and 72 nurses who were taking care of these patients in surgical wards. The number of subjects involved satisfied the minimum sample sizes required using power analysis for testing the equality of means between the two groups. Two identical sets of questionnaires were used to measure the perceptions of patients and nurses independently. The questionnaires were analyzed for content validity by three experts, and back-translated to the Indonesian language.

The findings showed that the differences of perception scores between subjects were significant in pain assessment-evaluation, pain intervention, and the overall pain management of NCB-PPP ($p < .01$). Analyses per item showed that the proportional differences between subjects in perceiving all items of pain assessment-evaluation and fifteen items of pain intervention were significant ($p < .05$). All patients experienced moderate to severe pain during 24 – 48 hours after surgery. The majority of nurses were

educated with only a lower degree from the nursing school, and none of them had attended a course or continuing education program related to pain management practices or care of patients after surgery during the past twenty years. The findings suggest that inadequate knowledge regarding pain management practices may be prominent among nurses in this study and the differences of perception between patients and nurses may have contributed to patients' pain-related outcomes. Further study is recommended to examine the relationship between nurses' pain management practices and patients' pain-related outcomes, and nurses' knowledge of pain management practices. Continuing education should be provided for nurses and pain education in basic nursing should be evaluated. Repeated used of the NCBQ, the questionnaire developed in this study is suggested.

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Erniyati

CONTENTS

CONTENTS (Continued)

CONTENTS (Continued)

LIST OF TABLES

LIST OF TABLES (Continued)

LIST OF TABLES (Continued)

LIST OF FIGURE

CHAPTER 1

INTRODUCTION

Background and Significance of the Problem

Pain remains a major problem in a large proportion of hospitalized patients, including postoperative patients. In spite of many treatments to alleviate pain, which have been reported in many studies, patients' pain continues to be ineffectively managed. A majority of surgical patients significantly underestimated the pain that they would experience after surgery and did not ask for pain medication until their pain was severe (Carr, 1990; Owen, McMillan & Rogowski, 1990).

Studies have found that considerable pain experienced after surgery impacts negatively on the patients' functional ability (Abbott et al., 1992; Paice, Mahon & Callahan, 1991; Yates et al., 1998). Unrelieved pain discourages patients from adequate deep breathing and coughing, so retention of bronchial secretions and risk of developing pulmonary infections increase. Patients may fear to move, increasing their immobility, and the possibility of complications. Postoperative pain in general leads to other health problems and delays recovery (Cousin & Power, 1999).

Although available treatments for postoperative pain nowadays can reduce or relieve pain after a period of time, such pain is often still not effectively treated. Studies have found that available pain medications prescribed during the postoperative period do not mean the patients will be free from severe pain (Carr,

1990; Owen, McMillan & Rogowski, 1990; Pasero & McCaffery, 1996). All of these problems challenge nurses to find the best practices in caring for patients with postoperative pain during their hospital stay.

Nurses are expected to play a major role in effective pain management (Ashburn & Staats, 1999). Nurses spend more time with their patients, therefore actions taken by nurses determine the result of pain management and patients' satisfaction with pain management (Jacob, 2000). Nurses' caring is identified as a quality indicator in patients' satisfaction with nursing care (Gilliard & Read, 1998).

Findings from studies focusing on the perception of nurses' caring behavior suggest that nurses' perceptions and patients' perceptions are not always in congruence (Kyle, 1995; Von Essen & Sjoden, 1991a, 1991b; 1995). Such congruence of perception between patient and nurse is important in that it may help facilitate the satisfaction of patients with the effectiveness of nursing care (King, 1981, Meleis, 1997). Despite the problems encountered in pain management practices among postoperative patients described formerly, no known study has focused on examining the perceptions between patients and nurses regarding nurses' caring behavior in management of patients with postoperative pain.

Until now, there are only a few nursing studies that have been done on Indonesia, and no known study is related to nurses' pain management practices. Variation in educational background of nurses is another reason to examine nurses' caring behavior in pain management of patients with postoperative pain since previous study have identified nurses' knowledge as a factor influencing nurses' pain management practices (Coyne et al., 1999). This study was undertaken to examine the differences of perception between patients and nurses, and to identify patients'

perceptions and nurses' perceptions regarding nurses' caring behavior in pain management of patients with postoperative pain.

Objectives of the Study

The objectives of the study were:

1. To identify patients' perceptions of nurses' caring behavior in pain management of patients with postoperative pain

2. To identify nurses' perceptions of nurses' caring behavior in pain management of patients with postoperative pain

3. To examine the differences between patients' perceptions and nurses' perceptions regarding nurses' caring behavior in pain management of patients with postoperative pain

Research Questions

The following research questions were posed:

1. What are nurses' caring behaviors in pain management of patients with postoperative pain as perceived by patients with postoperative pain?

2. What are nurses' caring behaviors in pain management of patients with postoperative pain as perceived by nurses who are taking care of patients with postoperative pain?

3. Are there differences of perception between patients with postoperative pain and nurses who are taking care of these patients regarding nurses' caring behaviors in pain management of patients with postoperative pain?

Theoretical Framework and Related Concepts

The conceptual framework of this study was constructed based on the conceptualization of perception in nurse-patient interaction, the nursing process, and pain literature.

1. Nurse-Patient Interaction and Perceptions

King (1981, p. 148) described interaction as "a process of perception and communication between persons, which are represented by verbal and non-verbal behavior." In health care, interaction is directed to help patients resolve health problems, which is in this study it is determined as pain. In nurse-patient interactions, communication is needed to set the goal of care and explore the actions toward alleviation of patients' problems. In this interaction, nurses and patients also share each other's perceptions about the situation within which they are interacting. The processes of communication and perception are expected to influence the outcomes of the interaction.

According to King (1981) communication and perception are essential concepts in nurse-patient interaction. However, Leddy (1998) stated that communication between persons is possible because each person has the capacity for interpretation, which involves the process of perception. Perception is commonly described as a person's way of seeing of something that can be heard, seen, and felt (Hornby, 2001). Leddy (1998, p. 120) cited Taylor's definition of perception as "the selection and organization of sensations so they are meaningful." According to King (1981, p. 20), perception is defined as "an awareness of persons, objects, and events." King's

proposition related to the concept of perception and nurse-patient interaction states that "if perceptual accuracy is present in a nurse-patient interaction transaction will occur" (King, 1981, p. 149). Based on this proposition, it can be assumed that the presence of perceptual congruity in the nurse-patient interaction may result in satisfaction of patients with care and the effectiveness of nursing care (Meleis, 1997). However, King also stated that perceptual incongruity in the nurse-patient interaction might exist, and, if so, it could be assumed that the presence of perceptual incongruity may lead to dissatisfaction of patients with care and ineffectiveness of care provided by nurses. King (1981) identified the factors that may influence the process of perception as biological aspects, past experiences, socioeconomic groups and education. These will be described in more detail in reviewing literature related to perception.

2. Nursing Process in Pain Management

The nursing process is a framework for organizing nursing care. It consists of five steps or sub-processes that are cyclical in nature and interrelated systematically. These include the processes of assessment, nursing diagnosis, planning, intervention, and evaluation. In this study, this framework was directed to organize the care of patients in pain. To be perceived by patients and nurses, this framework was modified and redefined.

The second and third steps of the nursing process were eliminated in this study because these sub-processes are imperceptible for the patients. The fourth step consisted of pharmacological and non-pharmacological intervention. The first and the fifth steps were grouped together because in this study evaluation was meant as the

step of reassessment or an ongoing assessment. The process used to organize care of patients in pain in this study was composed of two sub-processes, which were pain assessment-evaluation, and pain intervention including pharmacological and/or non-pharmacological intervention. These processes were considered and named as nurses' caring behavior in pain management. The descriptions of each sub-process will be presented in more detail as part of the theoretical framework of the study.

3. Theoretical Framework to Study the Difference between Patients' Perceptions and Nurses' Perceptions Regarding Nurses' Caring Behavior in Pain Management of Patients with Postoperative Pain

Synthesizing the concept of perception in the nurse-patient interaction, the nursing process, and collaborating knowledge from pain literature, the conceptual framework of nurses' caring behavior in pain management was constructed. As shown in Figure 1, it was proposed that nurses' caring behavior in pain management of patients with postoperative pain was composed of two sequential behaviors: pain assessment-evaluation, and pain intervention (pharmacological and non-pharmacological interventions).

These behavior are perceived by nurses who take care of patients in pain and by patients who are currently experiencing pain. The perceptions between nurses and patients can be congruous or incongruous. This congruity or incongruity may influence patient outcomes. This conceptual framework was used to guide the design of this study, especially to determine a measurement model of the study variables. Patient outcomes were not explored in this current study because there are many factors affecting such outcomes that are not included in this framework.

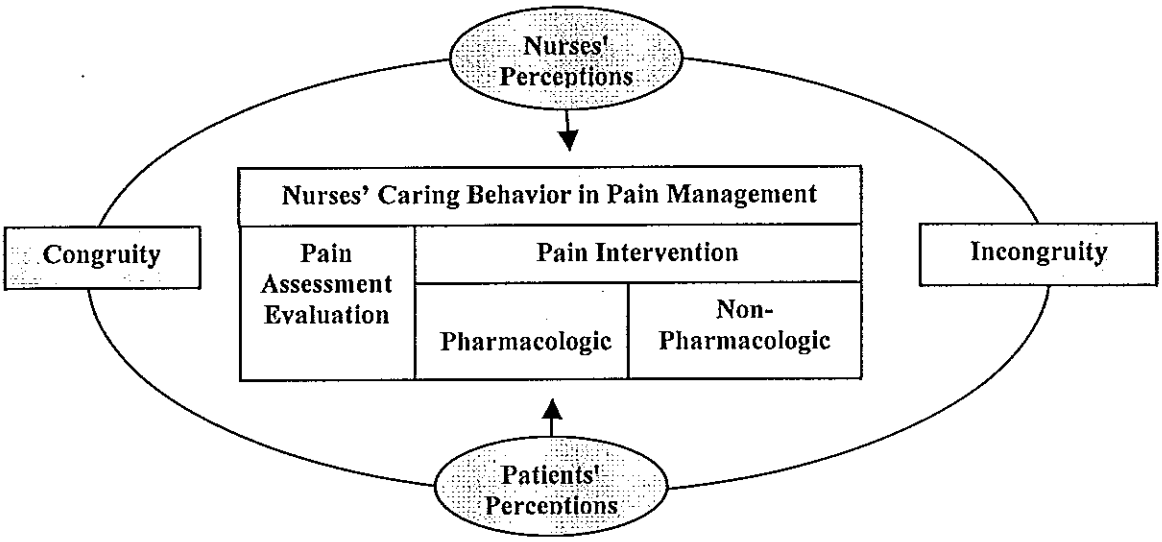

Figure 1 Theoretical framework to study the difference between patients' perceptions and nurses' perceptions regarding nurses' caring behavior in pain management of patients with postoperative pain

To determine the measurement model for the study variables, the major behavior of nurses in pain management were identified as follows:

3.1 Pain assessment-evaluation

The process of assessment is the most important part of a nurse's role when caring for a patient in pain (Caroll, 1993). The basic principles of pain assessment are accuracy and continuity. It is necessary to fully understand a patient's pain experience and to give effective pain intervention, which in turn is reflected in the patients' outcomes regarding the problem of pain. The accuracy of pain assessment is enhanced if a patient's subjective feeling is expressed or not ignored, whatever the patients say about their pain is believed, and their pain experience and their need for intervention

are attended (Caroll, 1993). Frequent assessment facilitates the continuity of assessment.

Pain assessment should include determining the location of pain, intensity or severity of pain, pattern of pain, factors that increase or decrease the pain, patients' comments concerning pain, non-verbal indicators of patient's pain, and symptoms associated with the pain (Meinhart & McCaffery, 1980 cited in Camp, 1987). The patient's statement is the best source of information about the effectiveness of pain management. The focus in this process is how the nurse can evaluate directly with the patient about the result of the intervention given. The nurse should examine the effectiveness of pain intervention, noting the pain medication and the patient's satisfaction with the intervention.

3.2 Pain intervention

3.2.1 Pharmacological intervention

Nurses provide pharmacological intervention in collaboration with physicians. Analgesic or non-analgesic drugs prescribed for the patient should be given in response to patient's need to relieve or reduce pain, also in consideration of any factors that may aggravate pain. Therefore, the nurse must be aware of the patient's medication needs in the right way and at the right time. Around-the-clock scheduling of pain medication, especially during the first 24 - 48 postoperative hours, can help maintain a stable analgesic blood level that can provide a sense of security for the patient (Pasero & McCaffery, 1996). Patients with parenteral medication should be cautioned to inform the nurse of their pain before it becomes severe. Patients with oral doses need to understand that they will be awakened if they sleep to maintain scheduled doses and prevent them being awakened by severe pain. Nurses

should monitor the effectiveness of prescribed pain medication by asking the patients directly and reporting to the physician when it is not effective.

3.2.2 Non-pharmacological intervention

Effective pain management is not just a matter of giving the right medication at the right time. It is a combination of pharmacological and non-pharmacological intervention that gives the patients the greatest possible degree of comfort for the longest possible time. Nurses can provide many types of pain relief without prescription. The interventions include cognitive behavioral techniques, therapeutic relationship, therapeutic touch, cutaneous stimulation, hypnosis, music, or many other possible and available interventions.

Definition of Terms

1. Postoperative Pain

Postoperative pain in this study was defined as patients' self-reporting of pain during 24 - 48 hours after surgery based on a numerical rating scale from 0 to 10, with 0 rated as no pain and 10 being the most severe pain that the patient experiences.

2. Nurses' Caring Behavior in Pain Management

Nurses' caring behaviors in this study were defined as actions performed by nurses in order to alleviate patients' pain in two sequential behaviors of pain management. The two sequential behaviors are named as pain assessment-evaluation and pain intervention, which include pharmacological intervention and non-pharmacological intervention. The actions of nurses' caring behavior in pain

management were reflected in the items of the questionnaire developed in this study named as the nurses' caring behavior questionnaire (NCBQ).

3. Nurses' Perception of Nurses' Caring Behavior in Pain Management of Patients with Postoperative Pain

Nurses' perception was defined as nurses' self-reports of actions they performed to alleviate patients' pain during 24 - 48 hours after the patients experienced surgery. Nurses' perception of nurses' caring behavior in pain management of patients with postoperative pain was measured using the nurses' caring behavior questionnaire (NCBQ).

4. Patients' Perception of Nurses' Caring Behavior in Pain Management of Patients with Postoperative Pain

Patients' perception was defined as patients' reports of actions that nurses had performed to alleviate their pain during 24 - 48 hours after they experienced surgery. Patients' perception of nurses' caring behavior in pain management of patients with postoperative pain was measured using the nurses' caring behavior questionnaire (NCBQ).

Benefits of the Study

Findings of this study describe the perception of patients and nurses, and the differences of perception, regarding nurses' caring behavior in management of patients with postoperative pain. This information is useful as initial view of nursing care of hospitalized patients with pain after surgery. In addition, it will provide

information for future research related to nurses' pain management practices or actions of nurses in caring of patients with postoperative pain especially in Indonesia, where no known nursing studies are related to nurses' pain management practices.

Limitations of the Study

1. Method of sampling and collecting data

This study used convenient sampling, thus generalization of the results is restricted because homogeneity of subjects to population cannot be assumed. The results of this study are limited because it relied on a single method of data collection to assess perception of the subjects' involved, namely a structured interview.

2. Response biases of the subjects

The findings are subject to the risk of response bias that caused by subjects' preferences or interests in giving the responses. For instance, a nurse might have given what she felt to be a "good" response, rather than reporting her actual behavior; or a patient might have been critical of a nurse without knowing her actual behavior.

CHAPTER 2

LITERATURE REVIEW

The literature review in this study covers postoperative pain, pain management or nurses' caring behavior in pain management, and patients' perception and nurses' perceptions of nurses' caring behaviors.

Postoperative Pain

The international Association for the Study of Pain (IASP) defines pain as "an unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in term of such damage" (Merskey, Lindblom, Mumford, Nathan & Sutherland, 1994, p. 210). As one type of acute pain, postoperative pain is simply defined as pain occurring following surgery, happening as an immediate consequence of surgical injury (Browser, 1993). Another definition states postoperative pain is a result of mechanical, thermal, or chemical stimulation of certain part of the body involved in surgery (Burokas, 1985).

Studies found that considerable postoperative pain occored during the first 24 - 72 hours following surgery. Ferguson, Gilroy, and Puntillo (1997) reported that the intensity scores of patients' worst pain increased over time during the first 48 hours following surgery. Paice, Mahon, and Callahan (1991) reported that 91.2% (N = 34) of postoperative patients were still in considerable pain on the third day after surgery. Owen, McMillan, and Rogowski (1990) found that moderate to unbearable pain was experienced by 74% of patients in the first 24 hours and 60% of patients in the first 72

hours after elective surgery (N = 259). Carr (1990) reported pain score among postoperative patients were high during the first 24 hours after surgery. Seers (1989) reported that 43% of patients undergoing abdominal surgery experienced quite a lot of pain and 22% rated the pain as very bad on the first postoperative day (as cited in Tempest, 1993).

Improvement in pain management has been the subject of many studies in the nursing literature. Various therapeutic modalities are available for the relief of postoperative pain, including pharmacological and non-pharmacological intervetion (Tempest, 1993). However, inadequate pain relief after surgery has been well documented in many studies. Many patients still experience unnecessary postoperative pain despite available analgesia during the postoperative period (Abbott et al., 1992; Cohen, 1980; McDonald et al., 2000; Paice, Mahon & Callahan, 1991; Winefield, Katsikis, Hart & Rounsefell, 1990; Yates, et al., 1998). The following section dicusses nursing studies related to management of pain.

Nurses' Caring Behavior in Pain Management

Review of pain management described in the nursing literature related to nurses' caring behavior was previously described in the theoretical framework. It covers nurses' actions to alleviate patients' pain or nurses' caring behavior in pain management. Pain mangement was conceptualized as two sequential behaviors of nurses, i.e. pain assessment-evaluation and pain inetervention, including pharmacological and/or non-pharmacological intervention). In addition, the findings from pain studies, especially those related to nurses' considerations in addressing the

problems of pain management practices, will provide information used in the development of the questionnaire of this study. Most studies presented here were conducted in the United States, where knowledge of effective pain management, including pain assessement and pain intervention, has been available for the past two decades in numerous reported studies (McCafferry & Ferrel, 1997).

1. Pain Assessment-Evaluation

The process of pain assessment-evaluation is important in caring for patients in pain. Information is obtained corncerning patients' pain-related experiences, and verifying nurses' observations of patients' pain experience. In this process, nurses are also evaluating the effectiveness of pain treatment, which is conducted by comparing the severity or intensity of patients' pain before and after treatment. Usually, nurses believe that pain assessment is important in pain management. All nurses felt that pain assessment was an important factor in management of patient's pain (Nash et al., 1999). However, in that study nurses involved were educated in at the university level, and they were also licensed and had practiced as registered nurses for more than five years. That condition is in contrast to the educational background of nurses in Indonesia. A national health survey in 1996 found that more than 80% of nurses in hospitals in Indonesia were educated from nursing school only, equivalent to general senior high school (Rustina, 1999).

Knowledge and treatment of pain are available in those countries where nurses' education and pain management practices are more advanced than Indonesia. However, it was reported in many studies that nurses still provided inadequate pain assessment. Camp and O'Sullivan (1987) reported that in groups of surgical, medical,

and oncology patients, nurses documented significantly less than fifty percent of the patient's complaint. Camp (1988) reported that nurses' notes of pain assessment ranged from null to seventy percent compared to the patient's description. Another study reported that in nurses' pain care plans during a patient's hospitalization, 44% did not evaluate the patients' pain (Carr, 1997).

Moreover, studies that examined nurses' assessement of patients' pain intensity using a pain scale found inadequacy of nurses' assessement as well. Choiniere et al. (1990), using a visual analog scale and verbal rating scale, found inadequacy of pain assessment among nurses in measuring pain intensity among patients with severe burn injuries. Zalon (1993) found that nurses overestimated the intensity of mild pain and underestimated the intensity of severe pain among postoperative patients. Others found that nurses consistently rated pain intensity lower than patients did (Field, 1996a; Lloyd, 1994).

There are some studies that try to explore the causes of inadequate pain assessment among nurses. Inadequate preparation of nurses to care in caring for patients in pain during their basic nursing education was found in some studies as the cause of inadequate pain assessment among nurses. Faye (1992) found that nurses' education did make a difference in pain assessment. Fothergill and Wilson (1992) found that 86% of nurses (N = 48) felt that their basic education had not prepared them adequately to care for patients in pain. These findings suggest that knowledge should be considerated as an important contributing factor to inadequate nurses' pain assessment practices.

A poor attitude towards performing pain assessement was also revealed as a contributing factor to inadequate nurses' pain assessement practices. A study reported

that nurses often assessed a patient's need of pain relief based on nursing priorities, rather than patient's priorities (Burokas, 1985). A qualitative study showed that nurses had a tendency to categorize patients according to symptoms or overt pain behaviors (Wakefield, 1995). This attitude essentially resulted in patients not being believed when they signaled the pain was becoming a distressing symptom. Another study found that some possible causes of inadequate pain assessment among nurses were lack of perceived control and minimal intention to perform pain assessment (Nash, Edward & Nebauer, 1993). Field (1996b) reported that nurses in her study had adequate knowledge of pain assessment tools but only few of them used it to assess patients' pain. Rond et al. (1999) found that surgical nurses had a less positive attitude toward pain and pain assessment than medical nurses.

A broader view of contributing factors to inadequate pain assessment was summarized in a review of nursing literature. Allock (1996) summarized factors affecting the assessment of postoperative pain into two different characteristics, patients' characteristics and nurses' characteristics. Patients' characteristics included socio-economic status, illness severity, gender, age, and evidence of pathology and ethnic variation. Nurses' characteristics included experience, age, ethnic background, personal experience with pain, and educational experiences.

From the studies above, it can be summarized that many nurses still have inadequate knowledge of pain assessment despite available knowledge of pain assessment and evidence of effective methods of pain assessment as presented in studies on pain management, and even nurses who claim knowledgeable of pain assessment often do not apply this knowledge consistently in pain mangement.

2. Pain Intervention

2.1 Pharmacological intervention

In this review, pharmacological intervention refers to the nurses' actions to provide effetive and therapeutic analgesics to alleviate a patient's pain after surgery. AHCPR (1992) stated that opioids are the cornerstone pain medications to relieve moderate to severe postoperative pain. However, all patients vary in the analgesic dose requirement and response to opioids as well as their ability to cope with their pain medication need. The following section reviews studies, which report nurses' action related to pain medication prescribed for their patients in pain.

One study examined the effect of specific information on demand for pain mediaction between two groups of patients who underwent transurethral resection of the prostate (N = 30). The findings showed that postoperative demand for pain medication did not significantly differ between groups of patients who received information and who did not receive information (Callaghan, Yuk-Lung, Ida & Siu-Liung, 1998). Another study found that among patients (N = 115) who reported postoperative pain as the major cause of night-time sleep disturbance, pain mediaction helped them to get back to sleep again better than other interventions (Closs, 1992). Kuperberg, and Grubbs (1997) found that patients (N = 20) with postoperative pain after undergoing coronary artery bypass surgery reported undesired side effects from pain medication.

In order to provide adequate pain control, nurses must be aware of factors which prevent patients receiving adequate relief, including patients' reluctance to complain and health-care professionals' lack of recognition of the severity of the pain experience (Carr, 1997).

Field (1996b) examined which methods were used by nurses to monitor pain relief and which factors influenced their decision to give or withhold pain mediaction. It was found that the most influential factors in the nurses' decision whether or not to give analgesia were the dosage, type, and frequency of drug prescribed. The main reason for withholding analgesia was that the patient reacted adversely to the medication. Nurses' empathic responses (N = 94) did not significantly influence their analgesic administration to their patients (N = 225) who underwent CABG surgery (Watt-Watson, Garfinkel, Gallop, Stevens & Streiner, 2000).

In some studies inadequate knowledge of pain medication was revelaed as a contributing factor in nurses' pain intervention practices. Fothergill and Wilson (1992) have identified and compared nurses' knowledge and their perceived adequacy to the theoretical pharmacological aspects of pain and its management. The results showed that the current work environment was perceived as the most influential factor (78% of 100 subjects) in learning about nursing interventions for pain relief (the expert and hospice nurse perceived this as more influential than beginner or intensive therapy nurses). However, in general, nurses were not confident about their knowledge of pain medications, nor did they believe that their basic nursing education had prepared them adequately to care for patients in pain. Another study identified evidence of inappropriate care of patients with pain that was related to nurses' weaknesses in many areas of advanced pharmacological treatment (Clarke et al., 1996).

In summary, inadequate pharmacological intervention done by nurses was caused by inadequate knowledge that they had from their basic nursing education as well as inadequate pain assessment.

2.2 Non-pharmacological intervention

Non-pharmacological intervention involves methods to help reduce patients' pain that nurses can provide without relying on a physician's judgment. It may include ways to help patients understand more about pain and take an active part in their pain assessement and pain control. The following studies report some non-pharmacological interventions that have been practically provided by nurses.

Jacob (2000) found that information about pain management given by nurses to patients was perceived as important and it was satisfying for the patients in that it made them involved with and have some control over their own pain. Wilder-Smith and Schuler (1992) found that pain education regarding the aims and risks of pain medication led to an improvement of postoperative analgesia in that it could be given in time (when patients were in pain). McDonald et al. (2000), based on findings in their study, suggested that communication between nurses and patients requires nurses to be aware of the presence of barriers that cause their patients did not ask pain medication when they were in pain. Good et al. (2000), based on their experimental study among abdominal surgery patients, recommended the use of relaxation and music in combination with pain mediaction for greater relief of postoperative pain in the first 2 days after surgery, and also during ambulation and rest, rather than the use of pain medication alone. In addition, Seers & Carrol (1998) systematicaly reviewed the effectiveness of relaxation techniques for management of acute pain after surgery. Seven randomized controlled trial studies involving 362 patients were examined. They recommended the clinical use of relaxation in combination with pain medication to reduce acute postoperative pain. Finally, AHCPR, (1992) based on a review of numerous studies, recommended cognitive behavioral interventions and the use of

physical agents for postoperative pain. Patient education, relaxation, imagery, and music distraction are some examples of cognitive behavioral interventions. Application of heat or cold, massage, exercise, and immobilization are some physical agents that can be used to help reduce postoperative pain.

Many studies discuss how nurses practically apply and integrate non-pharmacological methods in a pain education program.

A pilot study reported that pain interventions provided by nurses were focused on analgesia and actions to relieve the physical cause of the pain; no non-pharmacological interventions were mentioned (Field, 1996a). Another survey found that nurses used routine procedures as their non-pharmacological intervention, i. e. the use of emotional support, help with daily activities and creating a comfortable environment, whereas the cognitive behavioral and physical methods were less frequently used and less well known (Polkki, Vehvilainen-julkunen & Pietila, 2001). A review of 12 nursing pain education programs found that most of them focused on pain medication or pain assessment. Only two programs paid attention to non-pharmacological interventions (Francke, Garssen & Abu-Saad, 1996).

The effectiveness of various non-pharmacological interventions are reported in numerous studies, but practically, nurses did not much use non-pharmacological interventions as a method of choice to enhance the effectiveness of pharmacological intervention. The Nursing education program also palyed a part in this weakness.

Perception of Patients and Nurses regarding Nurses' Caring Behavior

This section reviews the literature related to patients' perceptions and nurses' perceptions regarding nurses' caring behavior, including related factors that influence the perception in nurse-patients interactions.

King (1981), in describing the concept of perception in nurses-patients interactions, also mentions that there are some factors that may influence these perceptions. They were identified as biological aspects, past experiences, socioeconomic groups and educational background. The following review presents findings from previous studies related to factors that influence the perception of nurses and patients regarding nurses' caring behavior.

Findings related to gender and age as factors influencing patients' and nurses' perception of nurses' caring behaviors are inconclusive. Some studies found that gender influenced what and how important nurses' caring behaviors are perceived by nurses or patients (Greenhalgh, Vanhanen & Kynges, 1998; Ekstrom, 1999). Others found that gender and age did not influence what or how important nurses' caring behaviors are perceived by nurses (Cronin & Harison, 1988; Nahas, 1997; Parson, Kee & Gray, 1993). Patients' educational level, and number of admissions to hospital or length of hospital stay did not significantly influence their perceptions of what and how important nurses' caring behaviors were for them (Cronin & Harison, 1988; Huggins, Gandy & Kohut, 1993; Mullins, 1996; Nahas, 1997; Parson, Kee & Gray, 1993). But Carruth et al. (1999), who examined the perceptions of patients of nurses' caring behavior in the cognitive, affective and psychomotor domains, using a caring perception index, found that length of hospital stay was the only factor that influenced patients' perception of how nurses' caring behaviors were performed. The longer

patients stay, the more likely they were to have a more positive perception of nurses' caring behaviors. While other factors revealed a non-significant influence, i.e. nursing care delivery systems (modular and primary), type of nurses (RN or LPN), nurses' workload (number of patients assigned in ward), number of times hospitalized, or patients' diagnosis category.

Additionally, factors that influence perception may be identified from the various components which form a person's perception. According to Corbett (1995) there are three interrelated components of a person that form their perception. These are self-awareness, personal factors and situational factors. Self-awareness is learned and intimately bound up in interaction with others. Anxiety is identified as a condition that may interfere with self-awareness (Leddy, 1998), as anxiety limits the ability to be attentive in the communication process, interferes with validation of the individual's perspective, and decreases physical capacities. Personal factors are identified as gender, age, and physical appearance, and situational factors are purpose, roles, and rules. Corbett (1995) also highlighted that a person' perception might not be formed solely based on observed things but it may also be formed subjectively because attribution is made to understand why such things are present.

In summary there were only a few studies that examined factors related to patients' or nurses' perceptions. Some factors showed inclusivetion result in their influence to the perception of nurses or patients of nurses' caring behaviors. Additional variables that should be identified as factors influencing patients' and nurses' perceptions were biological aspects, past experiences, socioeconomic groups, and educational background (King, 1981).

There have been few studies examining nurses' and patients' perceptions of nurses' caring behavior, and no known focus on NCB-PPP. The following review presents those nursing studies which identify the importance of nurses' caring behavior as perceived by nurses and patients, especially those who exeperienced postoperative pain.

The four studies used the same instrument to examine what are nurses' caring behaviors as perceived by patients and how important nurses' caring behavior for them. The nurses' caring behaviors were assessed based on a caring behaviors assessement (CBA), which was constructed based on Watson's ten carative factors. The first study was conducted by Cronin and Harrison (1988) among patients (N = 22) with myocardial infarction in the critical care unit (CCU). The other three studies were conducted by Parson, Kee and Gray (1993) among surgical patients, followed by Huggins, Gandy and Kohut (1993) among ambulatory patients in emergency care, and the last by Mullins (1996) among patients living with acquired immunodeficiency syndrome/human immunodeficency virus. Comparing the findings of these three studies, it was found that the perception of patients in surgical wards had some similarities and differences with other group of patients. Patients in surgical wards perceived that the most important nurses' caring behaviors for them were reassuring presence, verbal reassurance, expression of concern, attention to physical comfort, teamwork, provision of relaxed amosphere, provision of information, use of humor, explanation of safety measures, close monitoring, professional demeanor, and using the preferred patients name.

The final study aimed to identify perceived barriers to effective pain management in nursing practices. Using a survey of 180 nurses in 14 different

hospitals, barriers of nurses' pain management practices and the reason of unperformed behaviors of nurses' pain management practices in a surgical ward were identified. The five most common reasons for suboptimal pain mangement practices were lack of time, staff shortages and increased workload, perceived inadequacy in analgesic prescribing, and need for a second nurse to check all controlled drugs and parenteral analgesia. The four most common reasons for not asking patients pain-related questions were patients were sleeping, on epidural or PCA, had recently had an analgesic, and patients' general appearance and mobility based on the nurse's judgement. This survey also asked the nurses to qualify their pain management practices as very good, good, fair, and poor.

CHAPTER 3

RESEARCH DESIGN AND METHODOLOGY

This descriptive comparative study examines the differences of perception between patients and nurses regarding nurses' caring behavior in pain management of patients with postoperative pain (NCB-PPP).

Population and Setting

The target populations in this study were patients with postoperative pain and surgical nurses who took care of these hospitalized patients in surgical wards in Medan, North Sumatra Province of Indonesia. Two hospitals were purposively selected based on the following conditions:

1. They were the two biggest public hospitals in Medan, the capital of North Sumatra Province.
2. They had the highest levels of case referrals among all public hospitals in North Sumatra Province.
3. They were teaching hospitals for nursing students in North Sumatra University, where the researcher works.

As assumed before, these considerations allowed the researcher to interview a number of patients and nurses that satisfied the minimum sample size needed for this study.

The first hospital (named as Hospital-1) is located in the southern part and the second hospital (named as Hospital-2) is in the western part of Medan. They were qualified as teaching hospitals for undergraduate, graduate, and post-graduate students by the Ministry of Health, Republic of Indonesia. They were different in terms of facilities and capacity for medical services. The classification of patients was the same according to their medical problem. Patients with surgical problems were admitted to a surgical ward. The surgical treatments were differentiated similarly as major, moderate, or minor surgery, and emergency or elective surgery. Surgical reports were documented in the patients' medical record, including medical diagnosis before and after surgery, type of surgery, procedures of anesthesia and surgery, patients' medication after surgery, date and time of surgery, and specific precautions for nurses to consider.

The nursing care delivery system was similar since both hospitals were under the provincial government of North Sumatra. In each ward, there was a head nurse who took responsibility for the nursing care provided by the nursing staff and the organization of work in each ward. In these hospitals, nurses' assignments in providing direct care for patients (such as administration of medication, wound care, etc.) were not differentiated by type of license. Besides performing direct care, nurses did a number of things that were not related to direct care, such as preparing "gauze" to be sterilized, receiving patients' medication from the pharmacist counter of the hospital, and even sweeping the floor. Nursing process forms and nurses' notes documented the nursing care performed by a group of nurses for each patient, including assessment, nursing care plan, implementation of care and evaluation form.

Sample

1. Sample Size

In this study the estimated number of patients and nurses recruited were determined by using power analysis. In a quantitative study comparing differences between groups, power analysis is useful to ascertain the significance of the study findings. It is a statistical method to estimate a minimum required sample size using alpha ("α", level of significance), 1- beta ("1-β", the power of the test), and gamma ("γ", population effect or effect size).

The necessary sample size was estimated at the .05 level of significance, the power of .80 and with estimated effect size of .50, which was categorized as medium effect size. Alpha of .05 is the accepted minimum level of significance, 1- beta of .80 is the accepted minimum the power of the test, and gamma of .50 is the medium estimated effect size that is usually found in nursing studies. For studies that use a new instrument the effect size can be estimated based on previous related studies. (Polit & Hungler, 1999). Analyzing results from previous studies that compare the intensity of patients' pain between nurses and patients, the estimated effect size in this study was saturated at a medium level of .50 (Baker, Ferguson, Roach & Dawson, 2001; Zalon, 1993). The estimated sample size to examine the difference between two groups using independent t-test for each group was 63 patients and 63 nurses (Polit & Hungler, 1999).

The number of subjects involved in this study was 78 postoperative patients and 72 nurses. These numbers satisfied the minimum sample sizes determined using

power analysis to compare the patients' perceptions and nurses' perceptions regarding NCB-PPP.

2. Sampling Design

Subjects in this study were recruited using convenient sampling from two hospitals. However, a number of inclusion criteria were used to control the homogeneity of patients and nurses recruited for the study. The criteria of inclusion were as follows:

2.1 Patients' inclusion criteria

(1) adult patients (defined by hospital policy as aged more than 15 years)

(2) be willing and able to participate and communicate with researcher

(3) had experienced moderate or major surgery as written on patients' surgical report or stated by the patients' medical doctor

(4) had experienced postoperative pain during 24 – 48 hours after surgery scoring at least 4 based on numerical rating scale of 0 to 10

(5) fully conscious on the third day after surgery

(6) did not have pain from other causes (e.g., back pain)

2.2 Nurses' Inclusion Criteria

Potential subjects from nurse population were nurses who were assigned in surgical wards where postoperative patients were admitted. In addition, they had to meet the following criteria:

(1) be willing to participate in the study

(2) have at least 6 months of experience in caring for surgical patients

Instrument

1. Nurses' Caring Behavior Questionnaire

The nurses' caring behavior questionnaire (NCBQ) was the instrument used in this study. There were two different forms of NCBQ, and each consisted of two different parts. Form 1 was a questionnaire for nurses and form 2 was a questionnaire for patients. Part 1 of each form was used to assess demographic data, while part 2 of the two forms was an identical questionnaire used to assess nurses' perceptions (Appendix A) and patients' perceptions (Appendix B) of NCB-PPP.

1.1 Form 1: Questionnaire for Nurses

1.1.1 Part 1: Assessment of Nurses' Demographic Data

This part consisted of 8 items to assess the nurses' demographic data. They identified the nurses' gender, age, religion, education, and marital status. There were additional questions to identify nurses' experience in taking care of surgical patients and attendance at a pain management course or any continuing education related to care of patients after surgery or patients in pain.

1.1.2 Part 2: Assessment of Nurses' Perceptions of NCB-PPP

This part was designed to assess nurses' perceptions about the actions that they had performed or not performed in caring for patients with postoperative pain or to alleviate postoperative pain during 24 – 48 hours after surgery. There were 37 items, consisting of 18 items related to pain assessment-evaluation, 18 items related to pain intervention, and an open ended question that asked about alternative activities that nurses performed to alleviate patients' pain. Each item was paired with two-response options of yes or no. Nurses were directed to say "yes" if the action

was perceived as "performed" and "no" if the action was perceived as "not performed", except for the last item in pain intervention which was the open-ended question. The interpretation of nurses' responses to each item was conducted by scoring 1 for each "yes" response and 0 for each "no" response. The number of nurses' responses to each item was categorized into 4 levels of how many nurses perceived that they performed the actions to assess or alleviate patients' pain. These were as follows:

(1) less than 25% was considered "small"

(2) 26% - 50% was considered "fairly small"

(3) 51% - 75% was considered "fairly high"

(4) more than 75% was considered "high"

1.2 Form 1: Questionnaire for Patients

1.2.1 Part 1: Assessment of Patients' Demographic Data

This part consisted of 15 items to assess the patients' demographic data. They identified the patients' gender, age, religion, education, marital status, occupation, and income per month. There were additional questions to identify pain experience before surgery (time, cause and length), medical diagnosis, type of surgery, pain experience after surgery, pain medication after surgery, and side effect of pain medication experienced after surgery. The experience of pain during 24 – 48 hours after surgery in this study included the intensity of pain for the worst, average, and least; the location of pain; and the duration of pain.

1.2.2 Part 2: Assessment of Patients' Perceptions of NCB-PPP

This part was designed to assess patients' perceptions of nurses' caring behavior that nurses had performed or not performed to alleviate their pain during

24 – 48 hours after surgery. This questionnaire was identical with that used to assess nurses' perceptions except for rewording of the items. Rewording of the items was performed to be used in assessing patients' perceptions. The interpretation of patients' responses to each item was identical to nurses' responses as previously described.

2. Validity and Reliability

2.1 Validity of the instrument

The instrument in this study was analyzed for content validity by three Thai experts. The instrument they examined was the English version of the NCBQ. Each item was evaluated for degree of relevance with its related construct variable of nurses' caring behavior in pain management, pain assessment-evaluation and pain intervention. A scale of 1 to 4 with 1 meaning not relevant and 4 meaning very relevant determined the degree of relevance. The content validity index was .99, which was considered good (Polit & Hungler, 1999). One out of 37 items of NCBQ, was rated not relevant by an expert, and was modified based on the suggestions of an experienced nurse and the back translators. The item "talk to reduce pain" was modified to "spend time talking to patients to reduce pain" (Indonesian version: "berbincang dengan pasien untuk membantu mengurangi nyeri" was modified to "meluangkan waktu bercakap dengan pasien untuk membantu mengurangi nyeri").

2.2 Reliability of the instrument

Reliability of this instrument was analyzed for internal consistency using Kuder Richardson 20 (KR-20) by processing the study result of 36 NCBQ items using Statistical Package for Social Sciences (SPSS) version 10.0 for Windows. The KR-20

was considered as satisfactory for all variables being measured for pain assessment-evaluation and pain intervention. The coefficient reliability of NCBQ for patients' perceptions was .93 (pain assessment-evaluation was .89 and pain intervention was .91) and for nurses' perceptions was .78 (pain assessment-evaluation was .75 and pain intervention was .72).

2.3 Translation of the instrument

The original instrument was developed in the English language. To be used in the data collection process, the English version of the instrument was translated into the Indonesian language. The method of translation was conducted using back translation techniques and decentering. According to Brislin (1980 as cited in Petpichetchian, 2001) back translation techniques and decentering are a translation process which ensures accuracy and a culturally equivalent version of an instrument translated to another language. The process of back translation was conducted as follows:

(1) The researcher translated the English version of the instrument that had been validated for content into the Indonesian language

(2) Two bilingual translators who had the ability to use both English and Indonesian languages back translated the translated Indonesian version of the instrument into the English language

(3) Discrepancies revealed in some items between the two versions were found, but it was felt that the Indonesian version of the instrument conveyed the same meaning as the English version

In the Indonesian language, some English words have been with a similar meaning; however, for those Indonesian patients with little education, or who were

non-health professionals, some terms such as "observation," "intensity," and "factor" (Indonesian term: observasi, intensity, faktor) were not understandable. Therefore, some sentences were added in the Indonesian version of the instrument to clearly explain some Indonesian terms that were adopted from the English language. According to Brislin (1980 as cited in Petpichetchian, 2001) changing, modifying, or even adding words in the translation process are allowed as culturally appropriate and decentering. It was accepted because the truth could be symmetrically translated (Brislin, 1980 cited in Petpichetchian, 2001).

Data Collection Procedures

The researcher collected the data from both patients and nurses. From November 10th, 2001 – February 11th, 2002 the researcher recruited 78 patients and 72 nurses from four surgical wards of the two selected hospitals in Medan. With permission from the director of each hospital, the researcher visited the head of the nursing department or the head of the installation unit of the hospital, was then introduced to the head nurses of each surgical ward in both hospitals. Four of fifteen surgical wards were selected for the actual data collection after conducting a pilot study. Each day of data collection the researcher approached potential subjects that might be interviewed. Subjects who meet the inclusion criteria were recruited and then interviewed at a convenient time, based on agreement between the researcher and the participants. For patients, the time of data collection was the third postoperative day (48 - 72 hours after surgery). For nurses, it was a convenient time during their assigned shift. In this study the patient interviews were conducted during the morning

shift (09.00 – 14.00) and for the nurses it was either morning or evening shift (11.00 – 18.00). No nurse or patient was interviewed twice.

Ethical Considerations

1. Permission for data collection in this study was provided from the Directors of the two selected hospitals.

2. Patients and nurses verbalization of willingness to be interviewed was used as a preliminary sign of their consent. A form of consent was given, based on a subject's interest (Appendix C). Only a few patients and nurses signed the form of consent.

3. Potential subjects were told the purpose of the study and how they would be involved. They were also informed that they had a right to stop or discontinue the interviewing process based on their own reason without fear of any negative consequence to the care provided to them during their hospitalization. Anonymity for all information given and the use of such information for the purpose of this study only was stated verbally.

Data Analysis

1. Descriptive Statistics

Descriptive statistics were used for presentation of demographic and other characteristics, including patients' perceptions and nurses' perceptions of NCB-PPP. They were described in frequencies, percentages, means, and standard deviations.

2. Inferential Statistics

Inferential statistics were used to determine the differences of demographic and perception characteristics within and between groups. The statistical analyses used in this study were independent t-test and chi-square test. Independent t-test was used for testing mean differences of perception scores between patients and nurses, and nurses' perception scores between hospitals. Chi-square test was used for testing the differences of proportion between groups (proportion of nurses' characteristics between hospitals, proportion of patients and nurses who perceived the action was performed for each item of NCBQ).

CHAPTER 4

RESULTS AND DISCUSSION

Results

A descriptive study of nurses' caring behavior in pain management was conducted in Medan, North Sumatra Province of Indonesia. This study was designed to examine the difference of perception between nurses and patients regarding nurses' caring behavior in management of patients with postoperative pain. In this chapter, the study results will be presented as follows:

1. Subjects' characteristics
2. Patients' perceptions of nurses' caring behavior in management of patients' with postoperative pain (NCB-PPP)
3. Nurses' perceptions of NCB-PPP
4. The differences between patients' perceptions and nurses' perceptions of NCB-PPP

1. Subjects' Characteristics

Seventy-eight postoperative patients and seventy-two nurses from four surgical wards of two teaching hospitals were recruited for this study. They were from surgical wards admitting general surgical patients including patients who underwent digestive, urologic, nose-throat-ear, orthopedic, and thoracic surgery.

1.1 Patients' Characteristics

1.1.1 Patients' demographic characteristics

Thirty-nine patients were recruited from each hospital. The mean age was 34.41 years (SD = 13.90), ranging from 16 to 65 years. Table 1 shows patients' demographic characteristics. Majorities of patients were male, Islam and married (61.5%, 60.3%, and 67.9%, respectively). More than three-quarter of patients had completed lower degree education, that is elementary or junior high school (55.1% and 28.2%). Patients' occupations were grouped in three major categories as laborers, self-employed, and employee (29.5%, 21.8%, and 12.8%, respectively). Nearly forty percent of patients' incomes were "less than standard minimum salary" or "none."

Table 1 Patients' demographic characteristics (N = 78)

Characteristic	Frequency	Percentage
1. Gender		
- Female	30	38.5
- Male	48	61.5
2. Marital Status		
- Single	31	39.7
- Married	47	60.3
4. Religion		
- Islam	53	67.9
- Christian	25	32.1
5. Education		
- Elementary school	43	55.1
- Junior high school	22	28.2
- Senior high school or higher	13	16.7

Table 1 (Continued)

Characteristics	Frequency	Percentage
6. Occupation		
- Laborers		
- Self-employed	23	29.5
- Employee	17	21.8
- Unemployed	10	12.8
	28	35.9
7. Income per month		
- None	28	35.9
- Less than minimum standard salary (*)	29	37.2
- Equal to minimum standard salary or more	21	26.9

(*) The minimum standard salary of labor stated by the city government of Medan the year 2002 was approximately 460,000 rupiahs.

1.1.2 Patients' Medical Characteristics

All patients involved in this study had just experienced the first surgery in their lives. They experienced pain because of the surgical treatment and the location of their pain was the surgical incision or the area close to the surgical sutures. The mean number of patient hospitalization days prior to surgery was 5.32 days (SD = 5.06), ranging from 4 to 46 days. Table 2 shows patients' medical and pain-related characteristics. Half of the patients underwent surgery as a result of appendicitis, followed by hernia, and ileum obstruction (50.0%, 17.9%, and 9.0%, respectively). Nearly 70% of patients underwent appendicitis or laparatomy (34.6% and 35.9%). Most patients (92.3%) had experienced pain before surgery due to pathological conditions. The duration of pain after surgery for most patients were no more than 10 minutes, but there were some patients that experienced pain continuously. A review of patients' medical and medication records found that most patients were prescribed for and received a weak opioid for pain relief on a fixed schedule (91.0 %). Few patients

experienced side effects from their pain medication; those who did reported mainly nausea and drowsiness (3.8 % and 1.3%).

Table 2 Patients' characteristics according to medical diagnosis, type of surgery, and pain-related (N = 78)

Medical Characteristics	Frequency	Percentage
1. Medical diagnosis		
- Appendicitis	39	50.0
- Hernia	14	17.9
- Ileum obstruction	7	9.0
- Abdominal trauma	5	6.4
- Abdominal tumor	4	5.1
- Other	9	11.5
2. Type of operation		
- Appendectomy	27	34.6
- Exploratory laparatomy	28	35.9
- Herniorrhaphy	14	17.9
- Other	9	11.5
3. Pain experience before surgery		
- No pain	6	7.7
- Have pain	72	92.3
4. Pain medication during 24 - 48 hours after surgery		
4.1 Prescribed pain medication		
- Weak opioid*	71	91.0
- NSAIDs**	7	9.0
4.2 Received pain medication		
- Weak opioid*	71	91.0
- NSAIDs**	5	6.4
- None	2	2.6
5. Side effects from pain medication experienced during 24-48 hours after surgery		
- Nausea	3	3.8
- Drowsiness	1	1.3
- None	70	94.9

Note: * Intravenous, 50 mg every 8 hours or 100 mg every12 hours. All patients in this category were prescribed tramadol hydrochloride

** Intravenous or intramuscular, 1 ampule/8 hours or 1 ampule/12 hours

The intensity of patients' pain was assessed using a numerical rating scale of 0 - 10, in which 0 meant no pain and 10 meant the most severe pain that patients had ever experienced. Table 3 shows the characteristics of patients' pain intensity before and after surgery. More than seventy-nine percent of patients experienced severe pain and the mean pain intensity score was 7.88 (SD = 3.59) before surgery. The intensity of the worst pain was moderate for 42.3% of patients and was severe for 57.7% of patients during 24 – 48 hours after surgery. The intensity of the average pain during 24 - 48 hours after surgery for more than 71% of patients was also moderate and severe (67.9% and 3.8%). For the least pain during 24 – 48 hours after surgery, the scores of pain intensity for nearly 25% of patients were moderate and severe (20.5% and 2.6%).

Table 3 Mean, standard deviation, and range of patients' pain intensity scores, and number of patients with moderate pain and severe pain before and after surgery (N = 78)

	Mean (SD)	Range	Moderate pain		Severe pain	
			n	%	n	%
1. Before Surgery	7.88 (3.59)	0 - 10	4	5.1	62	79.5
2. After surgery						
- The worst pain	6.78 (1.60)	4 - 10	33	42.3	45	57.7
- The average pain	4.28 (1.22)	3 - 10	53	67.9	3	3.8
- The least pain	2.67 (1.39)	1 - 8	16	20.5	2	2.6

1.1.3 Additional analyses for examining the differences of patients characteristics between hospital-1 and hospital-2

The chi-square test was conducted to examine the proportional differences of patients' characteristics between hospital-1 and hospital-2. Table 4 shows that the proportion of patients' gender, marital status, and religion between hospital-1 and hospital-2 were not significantly different ($p > .05$).

Table 4 Chi-square test for examining proportional differences of patients' demographic characteristics according to gender, marital status, and religion between hospital-1 and hospital-2

Variable	Hospital-1	Hospital-2	$\chi 2$	p
1. Gender				
- Male	15	15	.000	1.000
- Female	24	24		
2. Marital status				
- Single	16	15	.054	.817
- Married	23	24		
3. Religion				
- Islam	24	29	1.472	.225
- Christian	15	10		

The difference of patients' ages and pain intensity reports between hospital-1 and hospital-2 was examined using the independent t-test. Table 5 shows that patients' pain intensity between hospital-1 and hospital-2 was significantly different before surgery ($p < .05$). But, there were no significant differences of mean

patients' age, pain intensity after surgery, and days of hospitalization between hospital-1 and hospital-2 ($p > .05$).

Table 5 Independent t-test for examining equality of mean patients' age, pain intensity, and days of hospitalization between hospital-1 and hospital-2

Variable	Hospital-1	Hospital-2	t	p
1. Age	33.72	35.10	- .438	.663
2. Pain intensity before surgery	9.00	7.21	2.421	.018
3. Pain intensity during 24 – 48 hours after surgery:				
- The worst pain	6.59	7.08	-1.436	.182
- The average pain	4.31	4.36	- .179	.858
- The least pain	2.62	2.85	.715	.477
4. Days of hospitalization prior to surgery	4.28	6.18	-1.685	.096

1.2 Nurses' characteristics

1.2.1 Nurses' demographic characteristics

Twenty six-nurses from hospital-1 and forty-six nurses from hospital-2 were recruited from the same wards as the patients were recruited. From Table 6 shows the frequency and percentage of nurses' characteristics. It shows that the majority of nurses was female, married, Christian, and educated to a lower degree of nursing school (87.5%, 88.9%, 78.8%, and 56.9%, respectively).

Table 6 Nurses' demographic characteristics (N = 72)

Characteristic	Frequency	Percentage
1. Gender		
- Female	63	87.5
- Male	9	12.5
2. Marital Status		
- Single	8	11.1
- Married	64	88.9
3. Religion		
- Muslim	16	22.2
- Christian	56	78.8
4. Education		
- Lower degree of nursing school	41	56.9
- Higher degree of nursing school	31	43.1

1.2.2 Characteristics of nurses' experiences

Most nurses had not attended a pain management course (98.7%, n = 71). One nurse stated that she had attended a one-day in-service training in 1980, but it was related to management of chest pain. Most nurses who did not have any experience in pain management explained that it was because there was no pain management course or any continuing education program related to care of patients with pain available since they had worked in the hospital. The characteristics of nurses' age and years of experience in caring of surgical patients are presented in Table 7. The mean age of nurses was 35.08 years with 10.75 years in caring for surgical patients.

Table 7 Nurses' characteristics according to age and years of experience (N = 72)

Characteristic	Mean	SD	Range
1. Age	35.08	6.04	23 - 50
2. Year of experience in caring for patients in surgical ward	10.75	5.87	3 - 26

1.2.3 Additional analyses for examining the differences of nurses' characteristics between hospital-1 and hospital-2

The chi-square test was used to examine if there were any differences in nurses' characteristics between hospital-1 and hospital-2. The results of the chi-square test are presented in Table 8. It was found that the distribution of nurses' demographic characteristics was not significantly different between the two hospitals for marital status, religion, and education but it was significantly different for gender ($p < .01$). That is, there were more male than female nurses from hospital-1 as opposed to more female than male nurses from hospital-2.

Table 8 Chi-square test for examining the proportional differences of nurses' characteristics between hospital-1 and hospital-2 (N = 72)

Variable	Hospital-1 (n = 26)	Hospital-2 (n = 46)	χ^2	p
1. Gender				
- Male	8	1	12.415	.000
- Female	18	45		
2. Marital Status				
- Single	1	7	2.175	.140
- Married	25	39		
3. Religion				
- Islam	8	8	1.720	.190
- Christian	18	38		
4. Education				
- Lower degree	15	26	.005	.923
- Higher degree	11	20		

A test for equality of means of nurses' age and years of care experience was performed using a t-test as shown in Table 7. It was found that nurses' characteristics between hospitals with regard to age and years of care experience were significantly different ($p < .01$). That is, nurses from hospital-1 were older and had more years of experience in caring for surgical patients than nurses from hospital-2.

Tables 9 Independent t-test for examining equality of nurses' age and years of experience between hospital-1 and hospital-2

Variable	Hospital-1		Hospital-2		t	p
	Mean	SD	Mean	SD		
1. Age	39.27	5.28	32.72	5.08	5.180	.000
2. Years of experience in caring for surgical patients	13.88	7.60	8.89	3.64	3.095	.004

2. Patients' Perceptions of NCB-PPP

2.1 Patients' perceptions of pain assessment-evaluation

Table 10 shows that only two nurses' actions in pain assessment-evaluation were perceived as performed by a fairly high number of patients. These included "use observation to determine pain" and "ask to determine pain" (51.3% and 50.0%). The twelve actions of NCB-PPP in pain assessment were perceived by only a small number of patients (less than 25%), in which 8 out of these 12 actions were perceived only by less than 5% of patients. None of the actions related to pain assessment was perceived as high.

Table 10 Frequency, percentage, and quantity of number of patients' perceptions of pain assessment-evaluation (N = 78)

Item No.	Actions	Perform		Not Perform		Quantity
		n	%	n	%	
1	Use observation to determine pain	40	51.3	38	48.7	Fairly High
2	Ask to determine pain	39	50.0	39	50.0	Fairly High
3	Use pain scale to describe pain intensity	17	21.8	61	78.2	Small
4	Ask to evaluate pain	26	33.4	52	66.7	Fairly Small
5	Ask to locate area of pain	20	25.6	58	74.4	Fairly Small
6	Ask frequency of pain	16	20.5	62	79.5	Small
7	Ask to describe pain by words	12	15.4	66	84.6	Small
8	Ask the most severe pain	2	2.6	76	97.4	Small
9	Ask the average pain	1	1.3	77	98.7	Small
10	Ask the least pain	1	1.3	77	98.7	Small
11	Ask the presence of other symptoms when in pain	25	32.1	53	67.9	Fairly Small
12	Ask pain intensity before giving pain medication	23	29.5	55	7.1	Fairly Small
13	Ask pain intensity after giving pain medication	15	19.2	63	80.8	Small
14	Ask factors aggravating pain severity	2	2.6	76	97.4	Small
15	Ask factors reducing pain severity	2	2.6	76	97.4	Small
16	Ask the symptoms worsening pain	3	3.8	75	96.2	Small
17	Ask non-drug method to reduce pain	2	2.6	76	97.4	Small
18	Ask side effect of pain medication	3	3.9	75	96.2	Small

2.2 Patients' perceptions of pain intervention

Table 11 shows that "give pain medication on a fixed schedule" was the only action that was perceived by a high number of patients as performed by nurses (97.4%, n = 76). Nine actions of NCB-PPP in pain intervention were perceived by only a small number of patients, of which 5 out of 9 were patients' pain education related actions. These were "teach alternative methods to reduce pain, explain side effects of the pain medication, discuss to reduce fear of drug addiction, teach importance of pain evaluation, and teach to support pain area" (2.6%, 10.3%, 7.7%, 5.1%, and 20.5%, respectively).

Table 11 Frequency, percentage, and quantity of number of patients' perceptions of pain intervention (N = 78)

Item No.	Actions	Perform		Not Perform		Quantity
		n	%	n	%	
1	Give pain medication on a fixed schedule	76	97.4	2	2.6	High
2	Give pain medication as necessary ("prn")	4	5.1	74	94.9	Small
3	Explain pain experience after surgery	31	39.7	47	60.3	Fairly Small
4	Teach alternative methods to reduce pain	2	2.6	76	97.4	Small
5	Explain side effects of pain medication	8	10.3	70	89.7	Small
6	Help to reduce fear of drug addiction by discussion	6	7.7	72	92.3	Small
7	Teach the importance of pain evaluation	4	5.1	74	94.9	Small
8	Provide comfort after surgery	29	37.2	49	62.8	Fairly Small
9	Help to position comfortably	28	35.2	50	64.1	Fairly Small

Table 11 (Continued)

Item No.	Actions	Perform n	Perform %	Not Perform n	Not Perform %	Quantity
10	Help when needed	57	73.1	21	26.9	Fairly High
11	Help to have adequate sleep	49	62.8	29	37.2	Fairly High
12	Spend time to reduce pain	19	24.4	59	75.6	Small
13	Teach to perform distracting activities	37	47.4	41	52.6	Fairly Small
14	Help to ambulate after surgery	23	29.5	55	70.5	Fairly Small
15	Teach to support pain area	16	20.5	62	79.5	Small
16	Help to support pain area	16	20.5	62	79.5	Small
17	Take care of surgical wound and its drainage	26	33.4	52	66.7	Fairly Small
18	Provide alternative activities/things	15	19.2	63	80.8	Small

3. Nurses' Perceptions of NCB-PPP

Seventy-two nurses were interviewed during their work shift. The findings are presented in the same way as the findings of the patients' perceptions.

3.1 Nurses' perceptions of pain assessment-evaluation

Table 12 shows that nine actions of pain assessment-evaluation were perceived as performed by a high number of nurses that they performed the actions (> 75%), of which 4 out of 9 were perceived by all nurses participating in the study. These four actions included "use observation to determine pain, ask to determine pain, ask to evaluate the pain, and ask to locate the pain area". None of nurses' actions in pain

intervention was perceived by a small number of nurses. Interestingly, six actions of pain assessment-evaluation were perceived by a fairly small number of nurses (25% - 30%). These were "use pain scale to describe pain intensity, ask frequency of pain occurrence, ask the most severe pain, ask the average pain, ask the least pain, ask side effects of pain drug" (41.7%, 40.3%, 30.6%, 33.3%, 29.2%, and 36.1%, respectively).

Table 12 Frequency, percentage, and quantity of number of nurses' perception of pain assessment-evaluation (N = 72)

Item No.	Actions	Perform		Not Perform		Quantity
		n	%	n	%	
1	Use observation to determine pain	72	100.0	-	-	High
2	Ask to determine pain	72	100.0	-	-	High
3	Use pain scale to describe pain intensity/severity	30	41.7	42	58.3	Fairly Small
4	Ask to evaluate pain experience	72	100.0	-	-	High
5	Ask to locate area of pain	72	100.0	-	-	High
6	Ask frequency of pain	29	40.3	43	-	Fairly Small
7	Ask to describe pain by words	70	97.2	2	2.8	High
8	Ask the most severe pain	22	30.6	50	69.4	Fairly Small
9	Ask the average pain	24	33.3	48	66.7	Fairly Small
10	Ask the least pain	21	29.2	51	70.8	Fairly Small
11	Ask the presence of other symptoms when in pain	71	98.6	1	1.4	High
12	Ask pain intensity before giving pain medication	65	90.3	7	9.7	High

Table 12 (Continued)

Item No.	Actions	Perform		Not Perform		Quantity
		n	%	n	%	
13	Ask pain intensity after giving pain medication	63	87.5	9	12.5	High
14	Ask factors aggravating pain severity	51	70.8	21	29.2	Fairly High
15	Ask factors reducing pain severity	56	77.8	16	22.2	High
16	Ask the symptoms worsening pain	52	72.2	20	27.8	Fairly High
17	Ask non-drug method to reduce pain	49	68.1	23	31.9	Fairly High
18	Ask side effects of pain medication	26	36.1	46	63.9	Fairly Small

In order to determine the frequency within a shift of some key pain assessment-evaluation actions that nurses performed (4 out of 18 actions), additional analysis was conducted. For those nurses who responded that they did not perform such actions, they were asked to give the rationale. Table 13 demonstrates that nearly three-quarters of nurses who performed "ask to evaluate pain" did it only 1 time a shift (73.6%, n = 53). Although most nurses who responded that they assessed pain intensity before and after giving pain medication (item 12 and 13, Table 10), none of them did it every time. The reasons were that they were too busy and were occupied by routine work. The reason given by the majority of nurses who did not "ask the presence of side effect of pain medication" was that they thought the patients might have fears about it if asked (69.6%, n = 32).

Table 13 Frequency and percentage of some pain assessment-evaluation actions performed per shift and reasons if not performed (N = 72)

Item No.	Actions	Frequency	Percentage
1	Ask to evaluate pain		
	- The frequency of action was performed (n = 72)		
	1 time/shift	53	73.6
	2 -3 times/shift	14	19.4
	4 times/shift or more	5	6.9
2	Ask pain intensity before giving pain medication		
	- The frequency of action was performed (n = 65)		
	Sometimes	19	29.2
	Frequently	46	70.8
	Every time before giving medication	-	-
	- The reason if action was not performed (n = 7)		
	Being occupied by routine work	7	100.0
3	Ask pain intensity after giving pain medication		
	- The frequency of action was performed (n = 63)		
	Sometimes	17	27.0
	Frequently	46	73.0
	Every time after giving pain medication	-	-
	- The reason if action was not performed (n = 9)		
	Being occupied by routine work	9	100.0
4	Ask side effect of pain medication		
	- The frequency of action was performed (n = 26)		
	Sometimes	-	-
	Frequently	-	-
	Every time after giving pain medication	26	100.0
	- The reason if action was not performed (n = 46)		
	Never think to ask about it	9	19.5
	Patients might fear to know it	32	69.6
	Have no knowledge about it	5	10.9

3.2 Nurses' perceptions of pain intervention

Table 14 shows the thirteen actions of pain intervention as perceived by a high number of nurses that they had performed the actions, of which 9 out of these 13 actions were perceived by all nurses involved. Only four actions in pain intervention were perceived by a small number of nurses that they had performed them. These included "give pain medication as necessary, explain side effects of pain medication, discuss to reduce fear of drug addiction, and teach importance of pain evaluation" (23.6%, 15.3%, 15.3%, and 25.0%, respectively).

Table 14 Frequency, percentage, and quantity of number of nurses' perceptions of pain intervention (N = 72)

Item No.	Actions	Perform		Not Perform		Quantity
		n	%	n	%	
1	Give pain medication on a fixed schedule	72	100.0	-	-	High
2	Give pain medication as necessary ("prn")	17	23.6	55	76.4	Small
3	Explain pain experience after surgery	70	97.2	2	2.8	High
4	Teach alternative methods to reduce pain	34	47.2	38	52.8	Fairly Small
5	Explain side effect of pain medication	11	15.3	61	84.7	Small
6	Help to reduce fear of drug addiction by discussion	11	15.3	61	84.7	Small
7	Teach the importance of pain evaluation	18	25.0	54	75.0	Small
8	Provide comfort after surgery	72	100.0	-	-	High
9	Help to position comfortably after surgery	72	100.0	-	-	High
10	Help when was needed after surgery	72	100.0	-	-	High

Table 14 (Continued)

Item No.	Actions	Perform n	Perform %	Not Perform n	Not Perform %	Quantity
11	Help to have adequate sleep	72	100.0	-	-	High
12	Spend time to reduce pain	72	100.0	-	-	High
13	Teach to perform distracting activities	72	100.0	-	-	High
14	Help to ambulate after surgery	70	97.2	2	2.8	High
15	Teach to support pain area	68	94.4	4	5.6	High
16	Help to support pain area	69	95.8	3	4.2	High
17	Take care of surgical wound and its drainage	72	100.0	-	-	High
18	Provide alternative activities/things	72	100.0	-	-	High

Similar to pain assessment-evaluation actions, additional analysis was conducted to examine how often nurses performed some key pain interventions during a shift and the reason if they did not perform the action. Table 15 shows that all nurses perceived that they gave prescribed pain drug on a fixed schedule. But for giving "prn" pain medication, a nurse performed this action every time the patients asked. Major reasons that nurses did not give "prn" pain medication were because the medication was not prescribed or there was no available "prn" medication, or the patients did not ask, or the patients rejected the prescribed pain medication (64.8%, 33.3%, and 1.9%, respectively). Most nurses "spend time to reduce pain, teach to perform distracting activities, teach to support pain area, or help to support pain area" only 1 time in each shift (92.2%, 91.7%, 94.1%, and 97.2% respectively).

Table 15 Frequency and percentage of some pain intervention actions performed per shift and reasons if not performed (N = 72)

Item No.	Actions	Frequency	Percentage
1	Give pain drug on a fixed schedule		
	- The frequency of action was performed (n = 72)		
	Sometimes	-	-
	Frequently	-	-
	Every time as schedule	72	100.0
2	Give pain drug as necessary		
	- The frequency of action was performed (n = 17)		
	Sometimes	17	100.0
	Frequently	-	-
	Every time patients ask	-	-
	- The reason if action was not performed (n = 55)		
	It was not prescribed/available	35	64.8
	Patients did not ask	18	3.3
	Patients rejected	1	1.9
	Unknown	1	1.9
3	Spend time to reduce pain		
	- The frequency of action was performed (n = 72)		
	1 time	70	97.2
	2 -3 times	2	2.8
	4 times or more	-	-
4	Teach to perform distracting activities		
	- The frequency of action was performed (n = 72)		
	1 time	66	91.7
	2 -3 times	6	8.3
	4 times or more	-	-
5	Help to support pain area		
	- The frequency of action was performed (n = 68)		
	1 time	64	94.1
	2 -3 times	4	8.9
	4 times/shift or more	-	-
	- The reason if action was not performed (n = 4)		
	They had already taught the patients' own family to help the patient	4	100.0

Table 15 (Continued)

Item No.	Actions	Frequency	Percentage
6	Take care of surgical wound and its drainage		
	- The frequency of action was performed (n = 72)		
	1 time	70	97.2
	2 -3 times	2	2.8
	4 times or more	-	-

All nurses mentioned at least one alternative activity that they performed when patients were still in pain. When analyzed, four such activities had been mentioned in the questionnaire. These were positioning comfortably (45.8%, n = 33), giving pain medication as necessary (38.9%, n = 28), distracting patients from pain (38.9%, n = 28), and encouraging deep breathing (37.5%, n = 27). However, four other alternative activities were revealed from the nurses' descriptions as shown in Table 16.

Table 16 Type, frequency and percentage of alternative methods performed by nurses when patients were still in pain (n =72)

Activities	Frequency	Percentage
1. Suggesting that pain is normal/common	32	44.44
2. Suggesting to be patient	25	34.72
3. Asking patients to pray to Allah or Jesus	22	30.56
4. Allowing family members to be with patients	20	27.78

Note: Each nurse mentioned more than one activity

3.3 Additional analysis for examining the different nurses' perceptions of NCB-PPP between hospital-1 and hospital-2

As significant differences of nurses' characteristics according to gender, age, and years of care experience were found between hospital-1 and hospital-2, additional analyses were performed to examine if there were any differences of nurses' perception scores between these hospitals. The test equality of means in Table 17 shows that nurses' perception scores for pain assessment-evaluation, pain intervention, and overall pain management were significantly different between hospitals ($p < .05$). In all instances, mean perception scores of nurses from hospital-1 were higher than nurses from hospital-2.

Tables 17 Independent t-test for examining mean perception scores of nurses between hospital-1 and hospital-2

Variable	Hospital-1		Hospital-2		t	p
	Mean	SD	Mean	SD		
1. Pain assessment-evaluation	13.73	2.75	12.15	2.70	2.37	.021
2. Pain intervention	14.88	2.41	13.61	1.13	2.55	.016
3. Overall pain management	28.62	4.19	25.76	2.89	3.09	.004

4. The Difference between Patients' Perceptions and Nurses' Perceptions

The difference of perceptions between patients and nurses was examined using two inferential statistical test, independent t-test and chi-square test. Independent t-test

was used to examine the equality of mean perception scores between patients and nurses. Chi-square test was used to examine proportional differences of subjects in perceiving each item of NCB-PPP.

Table 18 shows the discrepancies between nurses' perception and patients' perceptions as revealed in pain assessment-evaluation, pain intervention, and overall pain management. In all aspects of NCB-PPP, nurses' perception scores were significantly higher than patients' perception scores ($p < .001$)

Tables 18 Independent t-test for examining the difference of mean perception scores between patients and nurses in hospital-1 and hospital-2

Variable	Patients		Nurses		t	p
	Mean	SD	Mean	SD		
1. Pain assessment-evaluation	3.19	3.66	12.47	2.87	- 17.67	.000
2. Pain intervention	5.73	4.56	14.11	1.81	- 14.99	.000
3. Overall pain management	8.92	7.31	26.85	3.71	- 19.14	.000

Since it was found that nurses' perception scores were significantly different between hospitals, additional analyses were conducted to examine whether the discrepancies of perceptions between patients and nurses were affected by the differences of nurses' characteristics between hospitals. Table 19 and 20 show that the discrepancies between nurses' perceptions and patients' perceptions in the two hospitals for pain assessment-evaluation, pain intervention, and overall pain

management were also significant. In each hospital and all categories of NCB-PPP, nurses' perception scores were significantly higher than patients' perception scores ($p < .001$).

Tables 19 Independent t-test for examining the difference of mean perception scores between patients and nurses in hospital-1

Variable	Patients		Nurses		t	p
	Mean	SD	Mean	SD		
1. Pain assessment-evaluation	4.15	3.92	13.73	2.75	-10.79	.000
2. Pain intervention	6.21	5.16	14.88	2.41	- 9.13	.000
3. Overall pain management	10.36	8.28	28.62	4.19	-10.42	.000

Tables 20 Independent t-test for examining the difference of mean perception scores between patients and nurses in hospital-2

Variable	Patients		Nurses		t	p
	Mean	SD	Mean	SD		
1. Pain assessment-evaluation	2.23	3.14	12.15	2.70	- 15.66	.000
2. Pain intervention	5.23	3.87	16.61	1.13	- 13.06	.000
3. Overall pain management	7.46	5.99	5.99	2.89	- 18.35	.000

Chi-square test was used to examine the proportional differences of patients' perceptions and nurses' perceptions for each item of NCB-PPP. For pain assessment-evaluation, it was found that all actions of pain assessment-evaluation were significantly different ($p < .01$), as shown in Table 19. For pain intervention, it was found that 15 out of 18 actions of pain intervention were significantly different ($p < .01$), as shown in Table 20. For all significant items, a greater number of nurses perceived that they performed these actions than patients.

Table 19 Chi-square test for examining proportional differences between patients and nurses in perceiving actions of pain assessment-evaluation

No	Actions		Frequency		p
			Patients	Nurses	
1	Use observation to determine pain	P	40	72	.000
		NP	38	-	
2	Ask to determine pain	P	39	72	.000
		NP	39	-	
3	Use pain scale to describe pain intensity/severity	P	17	30	.009
		NP	61	42	
4	Ask to evaluate pain	P	26	72	.000
		NP	52	-	
5	Ask to locate area of pain	P	20	72	.000
		NP	58	-	
6	Ask frequency of pain	P	16	29	.008
		NP	62	43	
7	Ask to describe pain by words	P	12	70	.000
		NP	66	2	
8	Ask the most severe pain	P	2	22	.000
		NP	76	50	
9	Ask the average pain	P	1	24	.000
		NP	77	48	
10	Ask the least pain	P	1	21	.000
		NP	77	51	
11	Ask the presence of other symptoms when in pain	P	25	71	.000
		NP	53	1	

Table 19 (Continued)

No	Actions		Frequency		p
			Patients	Nurses	
12	Ask pain intensity before giving pain medication	P	23	65	.000
		NP	55	7	
13	Ask pain intensity after giving pain medication	P	15	63	.000
		NP	63	9	
14	Ask factors aggravating pain severity	P	2	51	.000
		NP	76	21	
15	Ask factors reducing pain severity	P	2	56	.000
		NP	76	16	
16	Ask the symptoms worsening pain	P	3	52	.000
		NP	75	20	
17	Ask non-drug method to reduce pain	P	2	49	.000
		NP	76	23	
18	Ask side effect of pain drug	P	3	26	.000
		NP	75	46	

Note: P = perform, NP = Not perform

Table 20 Chi-square test for proportional differences between patients' perception and nurses' perception of pain intervention

No	Actions		Frequency		p
			Patients	Nurses	
1	Give pain drug on a fixed schedule	P	76	72	.171
		NP	2	0	
2	Give pain drug as necessary ("prn")	P	4	17	.001
		NP	74	55	
3	Explain pain experience after surgery	P	31	70	.000
		NP	47	2	
4	Teach alternative method to reduce pain	P	2	34	.000
		NP	76	38	
5	Explain side effect of pain drug	P	8	11	.356
		NP	70	61	
6	Help to reduce fear of drug addiction by discussion	P	6	11	.143
		NP	72	61	
7	Teach importance of pain evaluation	P	4	18	.001
		NP	74	54	

Table 20 (Continued)

No	Actions		Frequency		p
			Patients	Nurses	
8	Provide comfort after surgery	P	29	72	.000
		NP	49	-	
9	Help to position comfortably	P	28	72	.000
		NP	50	-	
10	Help when was needed	P	57	72	.000
		NP	21	-	
11	Help to have adequate sleep	P	49	72	.000
		NP	29	-	
12	Spend time talked to reduce pain	P	19	72	.000
		NP	59	-	
13	Teach non-drug methods to reduce pain	P	38	72	.000
		NP	40	-	
14	Help to ambulate after surgery	P	23	70	.000
		NP	55	2	
15	Teach to support pain area	P	16	68	.000
		NP	62	4	
16	Help to support pain area	P	16	69	.000
		NP	62	3	
17	Take care of surgical wound and its drainage	P	26	72	.000
		NP	52	-	
18	Provide alternative activities/things	P	15	72	.000
		NP	63	-	

Note: P = perform, NP = Not perform

Discussion

This study aimed to identify patients' perceptions and nurses' perceptions and the differences between patients' and nurses' perceptions regarding NCB-PPP. Seventy-eight patients and seventy-two nurses participated in this study, from four surgical wards of two hospitals in Medan, North Sumatra Province of Indonesia. Patients experienced severe pain before surgery and moderate to severe pain during

their second postoperative day. The findings of this study support what was found in the previous studies. An available prescribed analgesic does not mean that postoperative patients will be free from considerable pain (Abbott et al., 1992; Paice, Mahon & Callahan, 1991; Winefield, Katsikis, Hart & Rousenfeld, 1990; Yates et al., 1998). The pain medication received by most patients during 24 - 48 hours after surgery was tramadol hydrochloride, a type of non-steroid anti-inflammatory drug (Katz, 1998). This drug is equivalent to a weak-strength opioid (APS, 1999; Katz, 1998). The drug list monograph year 2002 stated that in an initial dose tramadol 50 or 100 mg might be adequate for the treatment of moderate to moderately severe pain. It also stated that for the treatment of painful conditions, tramadol 50 mg or 100 mg could be administered as needed every four to six hours. Thus, the dose of 50 mg every 8 hours or 100 mg every 12 hours might not be adequate to maintain an effective pain relief during 24 - 48 hours after surgery. As a result, patients reported moderate to severe pain for the worst pain and the average pain scores during 24 - 48 hours after surgery.

The majority of nurses were female, married, and Christian. The highest nursing education was a diploma in nursing and the lowest was equivalent to general senior high school. More than half of the subjects had completed a lower degree in nursing education. The nurses' educational background in this study was quite similar to most public hospitals in North Sumatra Province of Indonesia (Rustina, 1999). Only one nurse had had in-service training regarding pain management. This finding supports what was claimed by the chairman of the Indonesian National Nursing Association in a nursing seminar in Jakarta, 2001 who said, "Most Indonesian nurses have not enough chance to continue their nursing education." Moreover, a national health

survey in 1996 found that more than 80% of nurses in hospitals in Indonesia were educated from nursing school equivalent to general senior high school only (Rustina, 1999).

Additional analyses found that the differences of nurses' characteristics between hospitals were significant for gender, age, and years of experience in the surgical ward ($p < .01$) and test equality of mean nurses' perception scores between hospitals were also significantly different ($p < .05$). This means that nurses' perception of NCB-PPP may be affected by the differences of nurses' characteristics (gender, age, and year experience) across hospitals. Considering that the differences of nurses' characteristics between hospitals may result in a perceptual discrepancy between patients' perceptions and nurses' perceptions, subsequent analysis was conducted. The result of this analysis will be discussed later.

1. Patients' Perceptions of NCB-PPP

1.1 Patients' perceptions of pain assessment-evaluation

The results showed that: (1) use observation to determine pain and (2) ask to determine pain were the only two actions perceived by a fairly high number of patients. This finding was explained by the fact that nurses might perform these actions when they performed other routine activities, as found by a previous study that daily pain assessments were performed as part of other routine activities such as measuring vital signs, checking intravenous lines, or giving injections (Rond et al., 1999). But this explanation was contradictory with some other studies, which found that many nurses in hospitals did not perform pain assessment as part of their routine care (Choiniere et al., 1990; Francke et al., 1996). However, the results were

supported by previous studies, which reported that determining patients' pain using observation or asking questions indicated nurses' favorable actions in pain assessment. Wakefield (1995) found that nurses tend to categorize patients' pain based on "how did the patients look" and "how did the patients talk about their pain." Schafheutle, Cantrill, and Noyce (2001) found that the nurses assessed patients' pain by observing patients' non-verbal behaviors. Ferrell, McCaffery, and Grant (1991) found that most nurses in their study determined patients' pain by asking the patients directly.

Although these two actions of pain assessment-evaluation were perceived a by fairly high number of patients, the other results showed that eight nurses' actions in pain assessment-evaluation were perceived by only a very small number of patients (less than 4%, Table 10). This means that most patients perceived that most pain assessment-evaluation actions were not performed by nurses. This might be due to inadequate knowledge of pain management, including pain assessment and evaluation, as Faye (1992) found that nurses' education did make a difference in pain assessment. Moreover, Dalton (1989) found that nurses with a higher degree and continuing education experience were more comprehensive in their assessment of patients' pain experience. As presented previously, most nurses did not have any continuing education regarding pain management and the majority of them had only a lower degree of nursing education. In this study the relationships between nurses' pain knowledge and nurses' education was unknown. However, inadequate nurses' knowledge and misbeliefes about pain medication might be partly assumed from a given reason that nurses indicated that they did not ask their patients about side effects

of pain medication. This was probably because they had no knowledge about it, never thought about it, or believed that patients might fear learning about it.

The results of patients' perceptions of pain assessment-evaluation suggest that the nurses have performed inadequate pain assessment and evaluation. Nurses' pain assessment-evaluation was limited in action, and focused on determining patients' pain. As a consequence, the patients' pain experiences might not have been explored accurately and thus effectiveness of pain intervention not evaluated properly. According to Matassarin-Jacob (1997), effective pain management should be initiated by performing a comprehensive pain assessment, covering and including assessment of pain-related characteristics/factors and past experience with pain, and including methods used to alleviate pain (Matassarin-Jacob, 1997).

1.2 Patients' perceptions of pain intervention

Patients' perceptions of "give pain medication on a fixed schedule" was the only action of NCB-PPP in pain intervention that was perceived by high number of patients (Table 9), while 5 out of 9 actions of NCB-PPP in pain intervention were perceived only by a small number of patients, concerning pain education related actions. These were: (1) teach alternative method to reduce pain, (2) explain side effects of pain medication, (3) help to reduce fear of drug addiction, (4) teach importance of pain evaluation, and (5) teach to support pain area.

Patients' perception that nurses "give pain medication on a fixed schedule" may be because they usually did not know the type or the name of medication given to them. During data collection, the researcher found that only a few patients could name the prescribed medication given to them. Thus it was possible that whatever medication was given by nurses, the patients might assume that it was pain

medication. However, a review of patients' records regarding patients' pain medication supported the perception of patients regarding nurses' action in giving pain medication. It was found that most patients received pain medication during 24 - 48 hours after surgery. This finding was confirmed by the findings from previous studies. Administration of pain medication on a fixed schedule was considered as the most favorable intervention among a majority of nurses to relieve their patients' pain (Field, 1996a; Hasting, 1995; Webb & Hope, 1995).

Unlike the use of pain medication, patients' perceptions of pain education-related actions were perceived by only a small number of patients, meaning a high number of patients perceived that nurses did not perform these actions. Interestingly, three out of these five actions were also perceived by a small number of nurses compared to the other actions. These were: (1) explain side effect of pain drug, (2) help to reduce fear of drug addiction, and (3) teach importance of pain evaluation, which might be grouped as patients' pain education related actions. According to Craven and Hirnle (2000), patients' education, if it is performed effectively, may enhance the effectiveness of pain intervention in reducing/alleviating pain. Possible explanations of patients' pain education related actions which were less perceived by patients is presented following.

Simply, based on probability, it can be said that these three actions were less likely to be perceived by patients since the number of nurses performing such actions was also small. Moreover, using attribution theory, it could be concluded that nurses' consensus in performing such actions was low because the number of nurses who performed such actions was small (Corbett, 1995). As nurses' consensus for patients'

pain education related action was low, patients were less likely affected by these actions, and therefore the actual actions might not be perceived.

Other explanations of why pain education related actions were perceived by a small number of patients may be related to the characteristics of patients in this study. A study previously showed that male and younger patients, patients with little education, and those with low socioeconomic status, perceived education related actions with higher scores than other groups. Since in that study the scores reflected the importance of such actions to those patients, it could be assumed that their expectation of such actions resulted in relatively higher scores than other groups. The findings in this study showed that a majority of patients were male, younger adults, with low education and income. It might be that nurses could not meet patients' expectations for pain education related actions, and as expectation of such actions could not be met, they were less likely to perceive the actual patients' pain education related actions.

A study conducted by Leinone, Leino-Kilpi, Stahlberg and Lertola (2001) showed quite similar findings in that patients' age was considered as a factor that influenced their perception of nurses' education related actions. That study aimed to identify surgical patients' perceptions about the quality of perioperative care received during hospitalization, and supports this explanation. They found that younger patients had more comments in evaluating perioperative care provided by nurses than older patients (over 60 years old) did. Moreover, patients' education along with other two perioperative activities, supporting initiative and encouragement, were identified as three nursing care activities that were most commented on by younger adult patients (Leinone et al., 2001). It was found that patients would like nurses to give

more information (continuous, comprehensive and sufficient), encourage them to ask about unclear matters, and participate in their own care. As expectations of such actions could not be met, younger adult patients were less likely to perceive, or did not perceive, the actual patients' pain education related actions.

The results of patients' perceptions of pain intervention were quite similar with patients' perceptions of pain assessment, as presented previously. It suggests that nurses had performed inadequate pain intervention. The pain intervention, that those nurses performed were also limited in action, and mostly focused on administering analgesia on a fixed schedule. According to Matassarin-Jacob (1997), administration of analgesia as prescribed can be more effective when combined with other pain relieving techniques.

2. Nurses' Perceptions of NCB-PPP

2.1 Nurses' perceptions of pain assessment-evaluation

The following discussion highlights the six actions of pain assessment that were perceived by a fairly small number of nurses compared to other actions (Table 12). Three of these actions were related to nurses' assessment of the intensity of patients' pain for the worst, average, and least pain. The other three actions were (1) use pain scale to describe pain intensity, (2) ask frequency of pain, and (3) ask side effects of pain drug.

Previously it was mentioned that nurses "ask to determine pain" was one of the common methods nurses used in determining patients' pain. However, usually nurses do not rely on their judgment of patients' pain based only on patients' description about their pain (Ferrell, McCaffery & Grant, 1991; Schafheutle, Cantrill & Noyce,

2001; Wakefield, 1995). Gorman, Sultan, and Raines (1996) stated that nurses relied more on physiological changes or signs such as vital signs, body movement, facial gestures, and other nonverbal behaviors than on patients' own verbal reports. This attitude may lead nurses to have less attention in assessing patients' pain thoroughly. In other words, nurses may ask about the pain but may not further ask about it extensively, especially asking about the worst, average, or least pain. They might perceive that these detailed questions are not necessary because they would not be used to judge the patients' pain. The problem of patients' pain as encountered in daily practice accustoms nurses to be aware of the importance of assessment of pain intensity (Gorman, Sultan & Raines, 1996). Moreover, Rond et al. (1999) found that surgical nurses had less intention to perform pain assessment than non-surgical nurses did.

Using a pain scale to describe patients' pain was another action perceived by a fairly small number of nurses. A possible explanation was that nurses might not perceive the usefulness of a pain scale for effective pain management. The head of nursing the departments of the selected hospitals recommended utilizing a numerical pain scale of 0 to 10 as part of the nursing assessment that should be completed in the initial history taking for every patient admitted to the surgical wards. It was also included and written in the patients' records and as part of the documentation of nursing process for each patient. However, during data collection it was observed that nurses sometimes asked or let nursing students to complete this assessment without evaluating the information thoroughly.

A fairly small number of nurses perceived that they had performed "ask side effect of pain drug". This might suggest that nurses felt unconfident with their own

knowledge of pain medication. It was explicated by their reason that they had no knowledge about it and never though about it (Table 13). Another reason was that patient might fear learning about it. This last reason may entail the negative attitude towards pain medication suggested in many studies. Field (1996b) reported that the main reason nurses withheld pain medication was fear of adverse reactions to it..

2.2 Nurses' perceptions of pain intervention

Four pain intervention actions were perceived by a small number of nurses (less than 25%, Table 12). These were: (1) give pain medication as necessary, (2) explain side effects of pain medication, (3) teach the importance of pain evaluation, and (4) help to reduce fear of drug addiction. These results confirmed that nurses in this study were not confident of their pain medication knowledge. Moreover, the basic nursing education of a majority of nurses in this study indicated that nurses might not have adequate knowledge to perform pain medication related actions. Nurses' knowledge of patients' pain medication has not been examined in any recent studies. However, Beare and Myers (1997) supported this idea, they state that nursing education historically contained adequate information on how nurses can adequately perform effective pain treatment, especially using pain medication. Nurses often were given incorrect information about pain management, including pain medication (Beare & Myers, 1997). Additionally, Close (1988) and Noble (1991) confirmed that nurses such as in this study might not be confident in their pain medication knowledge. In order to be able to provide patient education, nurses must have the opportunity to be taught the related knowledge that they can then teach to their patients (Close, 1988; Noble, 1991). Nurse who had no knowledge about possible side effects of pain medication would not be able to explain this to their patients. They

would not even think to teach about possible side effects of pain medication to their patients if they did not know themselves how important it was. The nurses may feel extremely frustrated over what can be done to help their patients (Gorman, Sultan & Raines, 1996).

The findings showed that "give pain drug as necessary" as another pain intervention action was perceived as performed by only a small number of nurses. Similar to other pain medication related actions, this finding suggested that nurses in this study might not have adequate knowledge of pain medication. The given reasons of nurses who did not "give pain medication as necessary" were merely based on the physician prescription of pain medication, and the availability of pain medication that was prescribed by the physician. These reasons were quite similar to nurses' given reasons of their pain medication in the study that was conducted by Field (1996b). Another reason given by nurses for not giving pain medication was because patients did not ask for it.

3. The differences between patients' perceptions and nurses' perceptions of nurses' caring behaviors in management of patients with post operative pain

The findings demonstrated that nurses' perceptions were significantly different from patients' perceptions. Nurses' perception scores of pain assessment-evaluation, pain intervention, and overall pain management were significantly higher than the patients' perception scores. When analyzed separately for each hospital, mean scores of nurses' perceptions were still significantly higher than mean scores of patients' perceptions. Regardless of hospital settings and the differences in gender, age, and years of nurses' experience between the two hospitals, the differences between

patients' perceptions and nurses' perceptions were still significant across the hospitals.

There is no known previous study that could be compared with the results of current recent study. However, there was a parallel study conducted by another researcher that used the same theoretical framework and questionnaire but involved population of nurses and patients in public hospitals in Southern Thailand. The findings of the study conducted by Soonthornsawat (2002) confirm the findings of this study. In that study, it was also found that nurses' perception scores were significantly higher than patients scores ($p < .01$). Those scores of nurses' perceptions were significantly higher than patients' perceptions were not surprising. This was because for most actions of NCB-PPP, the proportion of nurses who perceived that such actions were performed was significantly greater than the patients.

By referring to the theoretical framework/concepts of the study, possible explanations of perceptual discrepancies between nurses and patients in perceiving whether actions of NCB-PPP were performed will be discussed. It was proposed that perceptual discrepancies occur because of the constituted barriers in nurse-patient interactions whether in the process of perception or in the process of communication.

3.1 The perceptual discrepancies occur because nurses' questions in pain assessment-evaluation were ineffective

This did not mean that nurses never ask patients those questions that related to pain assessment-evaluation. However, patients could not perceive the meaning because the questions that the nurses asked were ineffective. Actions in pain assessment-evaluation mostly are by asking question, which are needed to collect information about pain-related experiences, verifying nurses' observations of patients'

pain experience, and evaluating the effectiveness of pain intervention. Smith (2000) stated that asking questions is a highly complex skill, because nurses need to be able to create many questions that appropriately relate to the patients background. Unfortunately, the majority of nurses in this study had only a lower degree nursing education which was equivalent to general senior high school. This type of nursing education did not prepare the students with knowledge for skillful nursing activities, but focused more on how to perform basic vocational tasks. This suggests that the basic education of the nurses in this study may not have been adequate to prepare them to ask questions effectively for pain assessment-evaluation actions.

Smith (2000) also highlighted that if nurses want to ask pain assessment-evaluation questions they should know not only "why" she should ask a question, but also "what" and "how" the question should be asked. Some examples for pain assessment-evaluation questions were given as follows: (1) Nurses ask the location of pain area after surgery. A question such as: "Where is your pain?" will be more effective to help patients locate their pain area than a question such as: "Is it in the left side of your abdomen or the right side?' (2) Nurses ask patients to describe the nature of patients' pain experience after surgery using their own words. A question such as: "What is your pain like?" will be more effective in helping patient give a full description of their pain than a question such as: "Is it a squeezing pain?" (3) Nurses ask patients to evaluate their pain experiences after surgery. A question such as: "Does the pain ease up?" is suitable enough because nurses require a "yes" or "no" response, which provides a view of the effectiveness of pain intervention.

Assessment of patients' data, including pain assessment for those nurses who were not prepared enough with communication skill from their basic nursing

education can become a stressful task. During data collection, the researcher found that nurses needed to spend much time to complete assessment of patients' data, including pain assessment. For them the needed time was not only for questioning but also to think "why", "what", and "how" they would ask such questions.

3.2 Perceptual discrepancies occur because inappropriate time for NCB-PPP actions was planned by nurses

This means that patients did not perceive NCB-PPP actions because the time that nurses provided in performing NCB-PPP actions was inappropriate. Patients might have been in too much pain when the nurses were questioning them. They might have been to tired when the nurse was teaching them about the pain experience, alternative methods to reduce pain, the importance of pain evaluation, non-drug methods to reduce pain, or how to support the pain area. Some patients could not understand the question or teaching, because they were still drowsy from the residual effects of analgesia or disorientated after being transferring from a different ward.

3.3 Perceptual discrepancies occur because nurses and patients do not have the same expectations about what actions can be done to alleviate pain

According to Watt-Watson et al. (2001) nurses usually expect patients will voluntary communicate their pain rather than the nurse having to directly to observe or ask the patients. Nurses might believe that the patients would always report their pain when they had it. And they would come mainly to patients who complained about their pain. However, studies have reported that many patients pretend to be enduring the pain until it becomes severe (Carr, 1990; Owen, McMillan & Rogowski, 1990), or would not voluntarily ask their nurses for pain medication even though the

pain was severe (Watt-Watson et al., 2001). If nurses had come to them before the unbearable pain was felt, the patients would appreciate it more than if they came later.

3.4 Perceptual discrepancies occur because patients' perceptions were attributed by situational factors when NCB-PPP actions were performed

The theory of attribution explains that a person's perception is not formed merely based on the thing that they observed. It may also be subjectively formed because attribution is made to understand why such things are present. Distinctiveness, consensus, and consistency are three sources in nurse-patient interactions that cause attribution (Corbett, 1995).

Distinctiveness is concerned with the target of behavior that nurses have performed. It is high if the behavior is directed only at a certain patient and low if the behavior is directed towards a large number of patients in the ward. Consensus refers to the degree of nurses who behave in the same way in a particular situation. It is high if many nurses behave similarly for a certain behavior. Consistency refers to the frequency of the behavior occurring. Behavior that was performed or a thing that occurs on only a single occasion is less likely to be perceived than if it is repeatedly performed or occurs.

3.5 Perceptual discrepancies occur because anxiety led patients to perceive less NCB-PPP actions than were actually performed by nurses

Postoperative pain is not a pleasant experience and can be stressful also, especially for those who have first experienced this kind of pain. Pain and anxiety work in a circular pattern, therefore a moderate to severe pain tends to increase anxiety (Beare & Myers, 1997). Moreover, a previous study reported that pain intensity after surgery correlated positively to patient distress (Ferguson, Gilroy &

Puntillo, 1997). As Leddy (1998) stated that anxiety was a factor that might affect patients' perceptions, it could be assumed that the level of anxiety of patients in this study considerably affected their perception of NCB-PPP.

3.6 Perceptual discrepancies occur because individualization of care was substituted with routine and superficial care

Nurses, as health care providers realize that they should take actions related to their patients' pain (De Rond et al., 2001). However, they are often not prepared adequately with pain management practices so the actions that they perform are routine and superficial (Francke, Garssen, & Abu-Saad, 1996). Moreover, nurses' task oriented care and an overloaded of work that they perceived led nurses to be routine and superficial in providing care. An observational study conducted by Hewison (1995) reported that the superficial and routine actions, or those that related to tasks, constituted barriers in a majority of nurse-patient interactions. Actions that were routine, superficial, and task oriented led nurses to communicate ineffectively and non-therapeutically to their patients and be unaware of the need of individualization of care for their patients. And as the individualization of care was substituted, the care provided was less perceived by individual patients.

CHAPTER 5

CONCLUSION AND RECOMENDATIONS

This descriptive study aimed to identify patients' and nurses' perceptions of nurses' caring behavior in management of patients with postoperative pain, and to examine the differences of perception between nurses and patients with postoperative pain. Subjects were recruited from the surgical wards of two teaching hospitals in Medan, Indonesia from 10 November 2001 to 11 February 2002 using purposive sampling Seventy-eight postoperative patients experienced moderate to severe pain despite analgesia administered during 24 – 48 hours after surgery. Out of 72 nurses, the majority had completed a lower degree of nursing education and only one had had a one-day in-service training course about pain management. They were interviewed by the researcher based on two sets of questionnaires named as nurses' caring behavior questionnaires (NCBQ). The data gathered in this study were subsequently analyzed using Statistical Package for Social Sciences (SPSS) version 10.0 for Windows.

In this chapter, the following topics are presented:

1. Summary of the Study Results
2. Implication and Recommendations

1. Summary of the Study Results

The population of patients with postoperative pain in this study experienced moderate to severe pain during 24 - 48 hours postoperative day despite treatments or interventions to alleviate pain, including pharmacological and non-pharmacological interventions provided by nurses. The highest degree of nurses in the surgical wards of this study was a three-years diploma in nursing, and the majority of nurses in these wards had a nursing education lower than a diploma. Most nurses from these two nursing education backgrounds did not have any continuing education regarding pain management.

Despite the evidence of "use observation and ask question to determine pain" and "give pain medication on a fixed schedule" as the nurses' favorable actions of NCB-PPP, most patients perceived that nurses did not performed many actions of pain assessment-evaluation and pain intervention.

Nurses perceived that they adequately performed most actions of NCB-PPP, including pain assessment and pain intervention, except for "give pain medication as necessary", "explain side effects of pain medication", "help to reduce fear of pain medication", and "teach importance of pain evaluation".

The discrepancy between patients' perceptions and nurses' perceptions was found in all categories of nurses' caring behavior in management of patients with postoperative pain. The difference of perception score between patients and nurses was significant ($p < .01$). The significant differences of patients' perceptions and nurses' perceptions were revealed in all actions of pain assessment-evaluation and most actions of pain intervention of NCB-PPP ($p < .01$). The presence of perceptual discrepancies between patients and nurses was also significant in each hospital. The

difference of nurses' characteristics, including education and care experience in the surgical ward between hospitals, did not affect the significance of perceptual discrepancies between patients and nurses.

Despite discrepancies revealed in most actions of NCB-PPP, patients and nurses had agreement in perceiving some actions of NCB-PPP. A high number of both patients and nurses perceived that nurses performed "give pain medication on a fixed schedule" and a small number of patients and nurses perceived that nurses performed "explain side effects of pain medication", and "help to reduce fear of drug addiction".

2. Implications and Recommendations

2.1 Nursing practice

The finding shows that the differences between patients' perceptions and nurses' perceptions of NCB-PPP may contribute to patients' pain related outcomes. This suggests that the discrepancies between patients' perceptions and nurses' perceptions may contribute to the outcome of pain management practices provided by nurses. Nurses need to be more concerned with their pain management practices. The actions that nurses perform are not always perceivable by their patients. Many factors may distort the perception of their patients toward the actions that they have performed. Knowledge about their patients' personal and situational factors that help form patients' perceptions may help nurses in improving their actions of pain assessment-evaluation and pain intervention. The words used for asking questions, explaining or teaching of such things/activities, which are related to NCB-PPP, should be appropriate for each individual patient.

1.2 Nursing education

The perception of patients was significantly different from the perception of nurses, most of whom had education lower than diploma and did not have any continuing education related to pain management. Inadequate knowledge regarding pain management practices may have been prominent among nurses involved in this study, which then led to inadequate pain management practices provided during 24 - 48 hours postoperation and were reflected in the presence of perceptual discrepancies between patients and nurses regarding NCB-PPP. In-service training or continuing education related to nurses' pain management practices or care of patients in pain after surgery should be provided for the nurses. The content of basic nursing education related to care of patients with pain and pain management practices should be reviewed.

1.3 Nursing research

Relationship of nurses' pain management practices with the patients' pain-related outcomes were not examined in this study, and neither was nurses' knowledge of pain management practices. Future research is suggested to examine this relationship.

Repeated used of instruments for future study and with more a representative sampling method are suggested. However, to be clearer with the outcome of nurses' pain management practices, patients' pain-related outcomes regarding nurses' pain management practices in the same population needs to be explored. These should be include pain intensity, patients' satisfaction, and pain interfere. Also, the study will be more representative for patients in North Sumatra Province or Indonesia if ethnic variability of the population is examined.

Nurses' knowledge regarding pain management practices in the same population needs to be studied further. The study will be more valid if the nurses involved are representative of the whole population of nurses in North Sumatra Province or Indonesia.

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APPENDICES

APPENDIX A
NURSES' CARING BEHAVIOR QUESTIONNAIRE
FOR NURSES

NURSES' CARING BEHAVIORS QUESTIONNAIRE

(Form 1: Questionnaire for Nurse)

Code: .....

Date : ..... Time: .....

Ward/Hospital: .....

Introduction: This instrument is divided into two parts. Part 1 is related to nurses' demographic data and part 2 is related to your perception of nurses' caring behaviors in pain management that you have done to alleviate postoperative pain.

A. Part 1: Assessment of Demographic Data

1. Gender

( ) 1 Female ( ) 2 Male

2. Age ..... years old

3. Marital Status

( ) 1 Single ( ) 2 Married ( ) 3 Divorce

4. Religion

( ) 1 Islam ( ) 2 Christian

( ) 3 Hinduism ( ) 4 Buddhism

5. Degree of education

( ) 1 Lower degree of nursing school (Sekolah Perawat Kesehatan)

( ) 2 Higher degree of nursing school (D-III Keperawatan)

6. How long have you been taking care of patient in surgical wards?

..... years.....months

7. Did you attend any course or continuing education regarding nursing care of patient in pain or pain management after finishing your basic nursing education?

( ) 0 No

If no, what is the reason .....

( ) 1 Yes

If yes, where/when, and for how many day? .....

What is the topic?.....

Part 2: Assessment of nurses' perceptions regarding nurses' caring behavior in pain management of patient with postoperative pain.

Introduction: *This part is asking you about the actions that you have done for your patients to relieve their pain during 24 - 48 hours after surgery*

2.1 Assessment of nurses' perceptions regarding pain assessment-evaluation

1. You used observation to determine patients' pain

( ) 0 No ( ) 1 Yes

2. You asked your patients to determine patients' pain

( ) 0 No ( ) 1 Yes

3. You asked your patients to describe the intensity of pain using pain scale

( ) 0 No ( ) 1 Yes

If yes, from the following options, which scales that you used?

( ) 1 description of pain severity using categorical verbal rating scale

( ) 2 description of pain severity using numeric scale from 0 - 10

( ) 3 description of pain severity using numeric scale from 0 - 100

( ) 4 description of pain severity by color

( ) 5 description of pain severity using figure of face expression

4. You asked patients to evaluate their pain during 24 - 48 hours after surgery

( ) 0 No ( ) 1 Yes

If no, what is the reason .....

If yes, how often did you do it in a shift?

( ) 1 time/shift ( ) 2 - 3 times/shift ( ) 4 times/shift or more

5. You asked patients to locate the area which felt pain

( ) 0 No ( ) 1 Yes

6. You asked patients about the frequency of pain experience after surgery

( ) 0 No ( ) 1 Yes

7. You asked patients to describe the pain using their own words, such as stabbing, cutting, hurting, and referring.

( ) 0 No ( ) 1 Yes

8. You asked patients to describe the most severe pain after surgery

( ) 0 No ( ) 1 Yes

9. You asked patients to describe the least severe pain after surgery

( ) 0 No ( ) 1 Yes

10. You asked patients to describe the average of pain after surgery

( ) 0 No ( ) 1 Yes

11. You asked patients about the presence of any other symptom that simultaneously occur with pain, such as nausea, vomiting, difficult to sleep, etc.

( ) 0 No ( ) 1 Yes

12. You asked patients about the intensity of pain before giving pain drug

( ) 0 No ( ) 1 Yes

If no, what is the reason .....

If yes, how often did you do it in a shift?

( ) 1 sometimes ( ) 2 frequently ( ) 3 all the time

13. You asked patients about the intensity of patients' pain after giving pain drug

( ) 0 No ( ) 1 Yes

If no, what is the reason .....

If yes, how often did you do it in a shift?

( ) 1 sometimes ( ) 2 frequently ( ) 3 all the time

14. You asked patients about factors that can increase the intensity of their pain

( ) 0 No ( ) 1 Yes

15. You asked patients about factors that can reduce the intensity of their pain

( ) 0 No ( ) 1 Yes

16. You asked patients about the cause their pain become worst

( ) 0 No ( ) 1 Yes

17. You asked patients about non pharmacological method used to reduce pain

( ) 0 No ( ) 1 Yes

18. You asked patients about the side effects of pain medication that they experienced such as drowsiness, nausea, vomiting, respiratory problem

( ) 0 No ( ) 1 Yes

If no, what is the reason .....

If yes, how often did you do it in a shift?

( ) 1 sometimes ( ) 2 frequently ( ) 3 all the time

2.2 Assessment of nurses' perceptions of pain intervention

1. You gave prescribed pain drug to patients on a fixed schedule, such as every 4 hours or every 6 hour during 24 - 48 hours after surgery

( ) 0 No ( ) 1 Yes

If no, what is the reason .....

If yes, how often did you do it in a shift?

( ) 1 sometimes ( ) 2 frequently ( ) 3 every time as schedule

2. You gave patients pain drug as necessary (prn)

( ) 0 No ( ) 1 Yes

If no, what is the reason .....

If yes, how often did you do it in a shift?

( ) 1 sometimes ( ) 2 frequently ( ) 3 every time patient ask

3. You explained to patients about the pain experience after surgery

( ) 0 No ( ) 1 Yes

4. You taught patients about alternative method that they could use to reduce pain

( ) 0 No ( ) 1 Yes

5. You explained to patients about the side effects of pain medication given to them such as nausea, vomiting, constipation

( ) 0 No ( ) 1 Yes

6. You suggested and explained to patients about drug addiction to reduce their fear of drug addiction and taught them how to evaluate and report it to you

( ) 0 No ( ) 1 Yes

7. You taught patients the importance of pain evaluation and suggested them to report any feeling of pain after surgery to you

( ) 0 No ( ) 1 Yes

8. You provided comfort to your patients after surgery

( ) 0 No ( ) 1 Yes

9. You helped patients to position comfortably after surgery

( ) 0 No ( ) 1 Yes

10. You helped patients when they need help

( ) 0 No ( ) 1 Yes

11. You helped patients to have enough sleep after surgery

( ) 0 No ( ) 1 Yes

12. You spent times talked to patients to reduce pain experienced after surgery

( ) 0 No ( ) 1 Yes

If no, what is the reason .....

If yes, how often did you do it?

( ) 1 time/shift ( ) 2 - 3 times/shift ( ) 4 times/shift or more

13. You taught patients to perform some distracted activity such as deep breathing, distraction, and relaxation when they felt pain.

( ) 0 No ( ) 1 Yes

If no, what is the reason .....

If yes, how often did you do it in a shift?

( ) 1 time/shift ( ) 2 - 3 times/shift ( ) 4 times/shift or more

14. You helped patients to ambulate such as sitting up from lying down, sitting with the leg hanging at the side of bed, or standing up

( ) 0 No ( ) 1 Yes

15. You taught patients to support their surgical wound when moved or cough

( ) 0 No ( ) 1 Yes

16. You helped your patients to support the pain area when they moved or cough

( ) 0 No ( ) 1 Yes

If no, what is the reason .....

If yes, how often did you do it?

( ) 1 time/shift ( ) 2 - 3 times/shift ( ) 4 times/shift or more

17. You took care of patients' wound and its drainage to alleviate patients' pain

If no, what is the reason .....

( ) 0 No ( ) 1 Yes

If yes, how often did you do it?

( ) 1 time/shift ( ) 2 - 3 times/shift ( ) 4 times/shift or more

18. You provided some alternative things/activities to alleviate patients' pain when they still felt pain

( ) 0 No ( ) 1 Yes

19. What other things/activities that you have done for your patients to alleviate their pain experience after surgery .....

.....

.....

APPENDIX B
NURSES' CARING BEHAVIOR QUESTIONNAIRE FOR PATIENTS

NURSES' CARING BEHAVIOR QUESTIONNAIRE

(Form 1: Questionnaire for Patient)

Code: .....

Date : ..... Time: .....

Ward/Hospital: .....

Introduction: This instrument is divided into two parts. Part 1 is related to patients' demographic data and part 2 is related to patients' perception of nurses' caring behavior in pain management that nurses have done to alleviate your pain.

Part 1: Assessment of Demographic Data

1. Gender

( ) 1 Female ( ) 2 Male

2. Age ..... years old

3. Marital status

( ) 1 Single ( ) 2 Married ( ) 3 Divorce

4. Religion

( ) 1 Islam ( ) 2 Christian

( ) 3 Hinduism ( ) 4 Buddhism

5. Degree of education

( ) 1 Elementary school ( ) 2 Junior high school

( ) 3 Senior high school ( ) 4 College/university

6. Patient's Occupation

( ) 1 None ( ) 2 Student

( ) 3 Farming/agricultural work ( ) 4 Government employee

( ) 5 Private employee ( ) 6 Self business

( ) 7 Labor ..... ( ) 8 Other .....

7. Income per month:

( ) none ( ) < Rp. 460.000,- ( ) Equal or > Rp. 460.000,-

8. Medical diagnosis as written on medical record .....

9. Type of surgery as written on medical record .....

10. Before surgery:

10.1. How long have you been in pain? ..... days ..... months .....years

10.1. Which part of your body felt pain .....

10.2. What is the cause of your pain .....

11. After surgery:

11.1. Which areas of your body feel pain? .....

11.2. How long you feel pain in area that mentioned on 11.1.? ..... minutes

11.3. What is the cause of your pain? .....

0	1	2	3	4	5	6	7	8	9	10
No pain										The worst pain that you ever experienced

12. From a scale of 0 to 10 above, which 0 means no pain and 10 means the worst pain that you ever experience:
    12.1. Please rate your pain before surgery .....
    12.2. Please rate the worst pain during the past 24 hour .....
    12.3. Please rate the average pain during the past 24 hour .....
    12.4. Please rate the least pain during the past 24 hour .....

13. How many times have you experienced hospitalization? ..... times.

14. In recent admission, how long have you been hospitalized? ..... days

15. How many times have you experienced surgery? ..... times

16. List of patient's pain medication after surgery: (patients' medical record)
    16.1. Prescribed:

Name	Dose	Route	Time
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....

    16.2. Administered:

Name	Dose	Route	Time
.....	.....	.....	.....
.....	.....	.....	.....
.....	.....	.....	.....

17. Which of the following side effect of pain drug that you experienced?

( ) 1 Nausea ( ) 2 Vomiting
( ) 3 Sleepy ( ) 4 Itchy
( ) 5 Muscle spasm ( ) 6 Constipation
( ) 7 Depress your breathing ( ) 8 Other .....

Part 2: Assessment of patients' perceptions regarding NCB-PPP

Introduction: I will ask about the actions that nurses have done to relieve your pain during 24 - 48 hours after surgery in this surgical ward. The nurses are those who working in this wards and not student's nurses or me, the researcher.

2.1. Assessment of patients' perceptions of pain assessment-evaluation

1. Nurses used observation to determine your pain

( ) 0 No ( ) 1 Yes

2. Nurses asked you to determine your pain

( ) 0 No ( ) 1 Yes

3. Nurses asked you to describe the intensity of pain after surgery using pain scale

( ) 0 No ( ) 1 Yes

If yes, from the following options, which scales that nurses used?

( ) 1 description of pain severity using categorical verbal rating scale

( ) 2 description of pain severity using numeric scale from 0 - 10

( ) 3 description of pain severity using numeric scale from 0 - 100

( ) 4 description of pain severity by color

( ) 5 description of pain severity using figure of face expression

4. Nurses asked you to evaluate your pain during 24 - 48 hours after surgery

( ) 0 No

( ) 1 Yes, if yes, how often did nurses do it?

( ) 1 time/shift ( ) 2 - 3 times/shift ( ) 4 times/shift or more

5. Nurses asked you to locate the area which felt pain

( ) 0 No ( ) 1 Yes

6. Nurses asked you about the frequency of pain experience after surgery

( ) 0 No ( ) 1 Yes

7. Nurses asked you to describe the pain using your own words, such as stabbing, cutting, hurting, and referring.

( ) 0 No ( ) 1 Yes

8. Nurses asked you to describe the most severe pain after surgery

( ) 0 No ( ) 1 Yes

9. Nurses asked you to describe the least severe pain after surgery

( ) 0 No ( ) 1 Yes

10. Nurses asked you to describe the average of pain after surgery

( ) 0 No ( ) 1 Yes

11. Nurses asked you about the presence of any other symptom that occur simultaneously with pain, such as nausea, vomiting, difficult to sleep, etc

( ) 0 No ( ) 1 Yes

12. Nurses asked you about the intensity of your pain before giving pain drug

( ) 0 No

( ) 1 Yes, if yes, how often did nurses do it in a shift?

( ) 1 sometimes ( ) 2 frequently ( ) 3 every time drug given

13. Nurses asked you about the intensity of your pain after giving pain drug

( ) 0 No

( ) 1 Yes, if yes, how often did nurses do it in a shift?

( ) 1 sometimes ( ) 2 frequently ( ) 3 every time drug given

14. Nurses asked you about factors that can increase the intensity of your pain

( ) 0 No ( ) 1 Yes

15. Nurses asked you about factors that can reduce the intensity of your pain

( ) 0 No ( ) 1 Yes

16. Nurses asked you about the cause your pain become worse

( ) 0 No ( ) 1 Yes

17. Nurses asked you about non pharmacological method you used to reduce pain

( ) 0 No ( ) 1 Yes

18. Nurses asked you about the side effects of pain drug that you experienced such as drowsiness, nausea, vomiting, respiratory problem

( ) 0 No

( ) 1 Yes, if yes, how often did nurses do in a shift?

( ) 1 sometimes ( ) 2 frequently ( ) 3 every time drug is given

2.2 Assessment of patients' perceptions of pain intervention

1. Nurses gave prescribed pain drug to you on a fixed schedule such as every 4 hours or every 6 hour during 24 - 48 hours after surgery

( ) 0 No

( ) 1 Yes, if yes, how often did nurses do it in a shift?

( ) 1 sometimes ( ) 2 frequently ( ) 3 every time as schedule

2. Nurses gave you pain drug as necessary (prn)

( ) 0 No

( ) 1 Yes, if yes, how often did nurses do it in a shift?

( ) 1 sometimes ( ) 2 frequently ( ) 3 every time patient ask

3. Nurses explained to you about the pain experience after surgery

( ) 0 No ( ) 1 Yes

4. Nurses taught you about alternative method that you could use to reduce pain

( ) 0 No ( ) 1 Yes

5. Nurses explained to you about the side effects of pain drug given to you such as nausea, vomiting, and constipation.

( ) 0 No ( ) 1 Yes

6. Nurses suggested and explained you about drug addiction to reduce your fear of drug addiction and taught you how to evaluate and report it to them

( ) 0 No ( ) 1 Yes

7. Nurses taught you the importance of pain evaluation and suggested you to report any feeling of pain after surgery to them

( ) 0 No ( ) 1 Yes

8. Nurses provided comfort to you after surgery

( ) 0 No ( ) 1 Yes

9. Nurses helped you to position comfortably after surgery

( ) 0 No ( ) 1 Yes

10. Nurses helped you when you need help

( ) 0 No ( ) 1 Yes

11. Nurses helped you to have enough sleep after surgery

( ) 0 No ( ) 1 Yes

12. Nurses spent times talked to you to reduce your pain after surgery

( ) 0 No

( ) 1 Yes, if yes, how often did nurses do it?

( ) 1 time/shift ( ) 2 - 3 times/shift ( ) 4 times/shift or more

13. Nurses taught you to perform some distracted activity such as deep breathing, distraction, and relaxation when you felt pain.

( ) 0 No

( ) 1 Yes, if yes, how often did nurses do it?

( ) 1 time/shift ( ) 2 - 3 times/shift ( ) 4 times/shift or more

14. Nurses helped you to ambulate such as sitting up from lying down, sitting with the leg hanging at the side of bed, or standing up

( ) 0 No ( ) 1 Yes

15. Nurses taught you to support your surgical wound when you moved or cough

( ) 0 No ( ) 1 Yes

16. Nurses helped you to support the pain area when you moved or cough

( ) 0 No

( ) 1 Yes, if yes, how often did nurses do it?

( ) 1 time/shift ( ) 2 - 3 times/shift ( ) 4 times/shift or more

17. Nurses took care of your wound and its drainage to alleviate your pain

( ) 0 No

( ) 1 Yes, if yes, how often did nurses do it?

( ) 1 time/shift ( ) 2 - 3 times/shift ( ) 4 times/shift or more

18. Nurses provided some alternative activities to alleviate your pain when you still felt pain

( ) 0 No

( ) 1 Yes, if yes what are they? .....

19. What other things/activities that nurses have done for you to alleviate your pain experienced after surgery .....

.....

.....

APPENDIX C

FORM OF CONSENT

LEMBAR PERSETUJUAN

Saya Erniyati, SKp., staff dosen di Program Studi Ilmu Keperawatan, Fakultas Kedokteran, Universitas Sumatra Utara. Selama l.k. 3 bulan ini, saya melakukan penelitian yang berkaitan dengan persepsi perawat dan pasien terhadap asuhan keperawatan pada pasien dengan nyeri operasi. Ini merupakan bagian dari tugas belajar yang sedang saya jalani di program pendidikan Master Ilmu Keperawatan di Fakultas Ilmu Keperawatan, Prince of Songkla University, Thailand. Selain itu, penelitian ini berguna bagi upaya peningkatan asuhan keperawatan di ruang perawatan bedah, khususnya yang berkaitan dengan masalah nyeri pasien setelah operasi.

Bapak/Ibu/Anda diminta kesediannya untuk diwawancarai. Jika bersedia saya ingin membuat perjajian kapan waktu yang tepat dan luang selama bagi Bapak/Ibu/Anda untuk wawancara ini. Lama wawancara l.k.15-25 menit. Silakan menandatangani persetujuan ini sebagai bukti kesukarelaan diwawancarai.

Identitas pribadi Bapak/Ibu/Anda akan dirahasiakan dan semua informasi yang diberikan hanya akan digunakan untuk penelitian ini. Bapak/Ibu/Anda berhak untuk menarik diri tanpa perlu merasa takut akan adanya konsekuensi buruk dalam masa perawatan di sini atau pun dikemudian hari. Jika ada yang kurang jelas, silakan bertanya langsung kepada saya. Terima kasih atas waktu yang diberikan untuk penelitian ini.

Medan, ...

Pasien/perawat

.....

Peneliti,

Erniyati, SK.p

.....

VITAE

Name Mrs. Erniyati

Date of Birth 8th December, 1986

Education Attainment

Degree	Institution	Year of graduation
1. Bachelor in Nursing Science	University of Indonesia, Jakarta	1991
2. Master of Nursing Science	Prince of Songkla University Songkla, Thailand	2002

Scholarship Awards during Enrolment

1. Department of Technical and Economic Cooperation, Royal Thai Government

Work-Position

Position	Institution	Year
1. Nurse Practitioner	Rumah Sakit Islam Pusat, Cempaka Putih, Jakarta	1992-1993
2. Nurse Educator	Diploma of Nursing School Bekasi, West of Java	1996
3. Nurse Educator	Imelda Diploma of Nursing School Medan, North of Sumatra	1997-1998
4. Nurse Educator (part-time)	University of Sumatra Utara, Medan	1997-1998
5. Nurse Educator (full-time)	University of Sumatra Utara, Medan	1998-now