

RESEARCH ARTICLE

Nurses' Knowledge, Attitudes, and Practices Regarding Postoperative Pain Management in Sri Lanka

G.M.M. Kumara, H.M.P. Hindagoda,
M.S. Indika, B.Sunil S De Silva, Faiz MMT Marikar¹

Abstract

Purpose of the study: This study aimed to investigate the knowledge, attitudes, and practices regarding post-operative pain management among nurses working in the surgical units in Kandy, Sri Lanka.

Design: The study was based on quantitative method, specifically descriptive design. Samples were selected using the probability sampling technique of simple random sampling. The sample size obtained was 200 nurses using 95% confidence level and a 4% margin of error for a population of 300 nurses in the research setting.

Methods: A self-administered questionnaire was chosen as a data collection method, and this questionnaire contained 36 questions under four sub-topics. A box was kept in the matron office in the surgical section to collect the questionnaire. The data were analyzed using descriptive analysis with percentages.

Findings: According to the research findings, 66% (132) were knowledgeable about the meaning of post-operative pain management. Post-operative pain management was identified by 74% (148) of the respondents, and 26% (52) correctly indicated that the most accurate judge of post-operative pain is the patients' self-report. When considering the attitudes, 66% (132) of the participants agreed that post-operative patients show discomfort before receiving the next analgesics. Among the participants, 60% (120) of nurses worried that patients would become addicted to analgesics that they give, while 20% (40) disagreed, and 2% strongly disagreed. 54% (108) of the nurses stated that patients were kept under close observation and the pain was monitored regularly, while 46% (92) expressed that patient is kept in a comfortable position. To manage post-operative pain, 80% (160) used non-pharmacological methods while 20% (40) did not.

Conclusions: The findings of this study identified problems such as inadequate knowledge, and inappropriate attitudes and practices regarding postoperative pain management.

Keywords: *Postoperative Pain, Knowledge, Attitude, Practice*

Introduction

Pain is a phenomenon experienced by every human from birth to death with varying intensity and duration. One kind of pain people may experience in their lifetime is postoperative pain. Postoperative pain is a result of the chemical, thermal, or mechanical stimulus associated with surgery and trauma (Coll, Ameen & Moseley, 2004). It is expected that after surgery, pain often delays mobilization and overall recovery (Ho, Choy & Rozainie, 2009). Moderate to severe postoperative pain is

unpleasant but treatable (Ho et al. 2009). Postoperative pain management is defined as 'reducing or eliminating the postoperative pain and discomfort with a minimum of side effects' (Garimella & Cellini, 2013). Being a health professional staying mostly with the patients, nurses play a vital role in postoperative management (Basak, 2010). Thus, it is very important to explore nurses' attitudes and knowledge in pain management.

¹ Corresponding author: faiz.marikar@fulbrightmail.org; Director, Staff Development Centre, General Sir John Kotelawala Defence University, Ratmalana, Sri Lanka

Several studies have investigated the nurses' attitudes and knowledge in pain management. Knowledge and attitudes of nurses on postoperative pain management were defined as "nurses' understanding and valuing about postoperative pain, assessment, education, and management of postoperative pain including both pharmacological and non-pharmacological management". Meanwhile, practices of nurses regarding postoperative pain management are defined as nurses' perception of their nursing action, performed to reduce postoperative pain (Basak, 2010). Effective postoperative pain management is highly associated with adequate knowledge and nurses' attitudes.

Tse and Chan (2004) surveyed registered nurses in Hong Kong with an adapted version of the Nurses' Knowledge and Attitudes Survey (Manworren, 2000). The results indicated knowledge deficits that may interfere with effective pain management. The main factors influencing nurses' postoperative pain management are knowledge, attitudes, and practices. Studies continue to show that postoperative pain continues to be inadequately treated; and, patients still suffer moderate to severe pain after surgery (Vickers, Wright & Staines, 2014). In the past few decades, numerous studies have revealed that nurses had knowledge deficits and negative attitudes in many areas related to postoperative pain assessment and management (Basak, 2010; Coulling, 2005). Nurses in the United States had moderate knowledge of postoperative pain management (Francis & Fitzpatrick, 2013). Meanwhile, the knowledge and attitudes of nurses toward postoperative pain management in New Zealand are insufficient (Smart, 2005). Malaysian nurses possessed a moderate level of understanding toward postoperative pain management (Ho et al., 2009). Nurses in Bangladesh had a very low level of knowledge and attitudes regarding postoperative pain management (Basak, 2010).

Considering the Asian countries, Lui, So & Fong (2008) conducted a non-experimental descriptive study to explore the current knowledge regarding postoperative pain management of cardiac surgical nurses in Hong Kong. The findings indicated that 62% of the participants have insufficient knowledge in terms of pain assessment and management, opiate-related addiction, and pharmacological and non-pharmacological approaches to pain management.

A descriptive correlation study was conducted by Basak (2010) in Bangladesh to examine the relationship between knowledge and attitudes of nurses and their practices of postoperative pain management. Results showed that 100 Bangladesh nurses had a very low level of knowledge in postoperative pain management, with a mean score of 59.05%. They also have lacked knowledge related to pain medication (non-

pharmacological methods could be beneficial for pain control and pain assessment). They had never used a pain scale for pain assessment, and the numeric rating scale was also unknown to the nurses. The study suggested the necessity of improving the knowledge of nurses regarding postoperative pain management.

Effective postoperative management is associated with sound knowledge and positive attitudes and well-established practices (Smart, 2005). Despite numerous studies performed worldwide regarding knowledge, attitudes, and practices in postoperative pain management, the Sri Lankan situation is not yet identified. Therefore, it is worthy to investigate the nurses' knowledge, attitudes, and practices towards postoperative pain management in the Sri Lankan context.

Examining the nurses' knowledge, attitudes, and practices on postoperative management will be significant for many reasons. It is an assessment of nurses' knowledge, attitudes, and practice. Thus, appropriate strategies could be developed to address the educational needs of nurses related to postoperative pain management. Research findings will serve as baseline data to guide nurses on postoperative assessment and management. Furthermore, it will help in developing an appropriate body of knowledge and practice on postoperative pain management that can be incorporated into the nursing curriculum and training. Finally, these findings offer baseline data for further development of research on issues related to effective postoperative pain management. Therefore, it necessitated to examine the nurses' knowledge, attitudes, and practices regarding postoperative pain management, and rectify any deficit identified. This study only checked the nurse's knowledge, attitudes, and practices regarding postoperative pain management in Sri Lanka. This study is not linked with any pharmacological interventions. Non-pharmacological interventions were highlighted.

Methods

Study design and sample

A quantitative approach was applied in this study. Descriptive research design is a scientific method that involved observing and describing the behavior of a subject without influencing it in any way. Data on nurses' knowledge, attitudes, and practices on postoperative pain management, gathered from the questionnaire, were transferred into numerical information (Polit & Beck, 2009). The study was conducted in 8 general surgical units with 300 nursing officers at the Teaching Hospital in Kandy. The sample was selected using simple random sampling; with a confidence level of 95% and margin of error of 4%. For a population of 300, statistical calculator computed that 200 nurses with at least two years of working experience were included in the study.

Development and Description of the Questionnaire

36-item self-administered questionnaire was utilized in this study and it was designed from the local Sinhala Language. Two observers competent in the English language independently assessed the validity of the translation. It is divided into four parts, which included the socio-demographic data, and the knowledge, attitudes, and practices of nurses in postoperative pain management. Multiple-choice questions were used to obtain their knowledge and practices. 5-point Likert scale was used to evaluate the attitudes of nurses toward postoperative pain management. 10 nurses from the cardiology unit were invited for the pilot-testing of the questionnaire to check for its validity. It took 30 minutes to answer the questionnaire and the Sri Lankan nurses answered the questionnaire for the first time. The use of the questionnaire was justifiable because it was prepared by an experienced research group working in the education field, and it has already been tested and validated before distribution. A strong correlation between the scores for questions and associated with the questionnaire indicated high construct validity (>85%). After validation, test-retest reliability was checked from a different group of persons. To test for test-retest reliability, the questionnaire was re-administered days and weeks after the initial on the same group of persons. A value of more than 90% indicated a high test-retest reliability. This is essential to be determined to fine-tune the questionnaire before its actual implementation. Another group of participants completed a questionnaire designed to measure attitudes.

Ethical Consideration and Procedure

The ethical approval to conduct this research was obtained from the Institutional Ethical Review Committee of the Teaching Hospital, Kandy. Permission was obtained from the Director of the Teaching Hospital, Kandy before commencing the investigation. The information letters were given to all participants to inform them about the study, the instruments used to collect data, and the absence of any potential risk. Informed consent forms were presented to the participants to get their written consent. Participants were given a code number to ensure anonymity, and their names or addresses were not recorded. Confidentiality was maintained by keeping the collected data forms locked, and data entered on the computer were protected by a password. After storing data, all data sheets were destroyed. Any participant could withdraw from the study at any time without a penalty.

Data Collection

A self-administered questionnaire in English was distributed among 200 nurses in the surgical section. A

box was kept in the matron office in the surgical section where participants can drop their answered questionnaires. A serial number was given to all participants to ensure privacy and confidentiality. Only the researchers distributed the questionnaires. Data collection was materialized within three weeks, with a response rate of 100%.

Data Analysis

To analyze the questions, the researchers used the application of everyday knowledge, education, and thinking skills to analyze and evaluate information displayed by individuals representing a high and low level of responses. Percentage and frequency distribution were used to analyze the results of the study

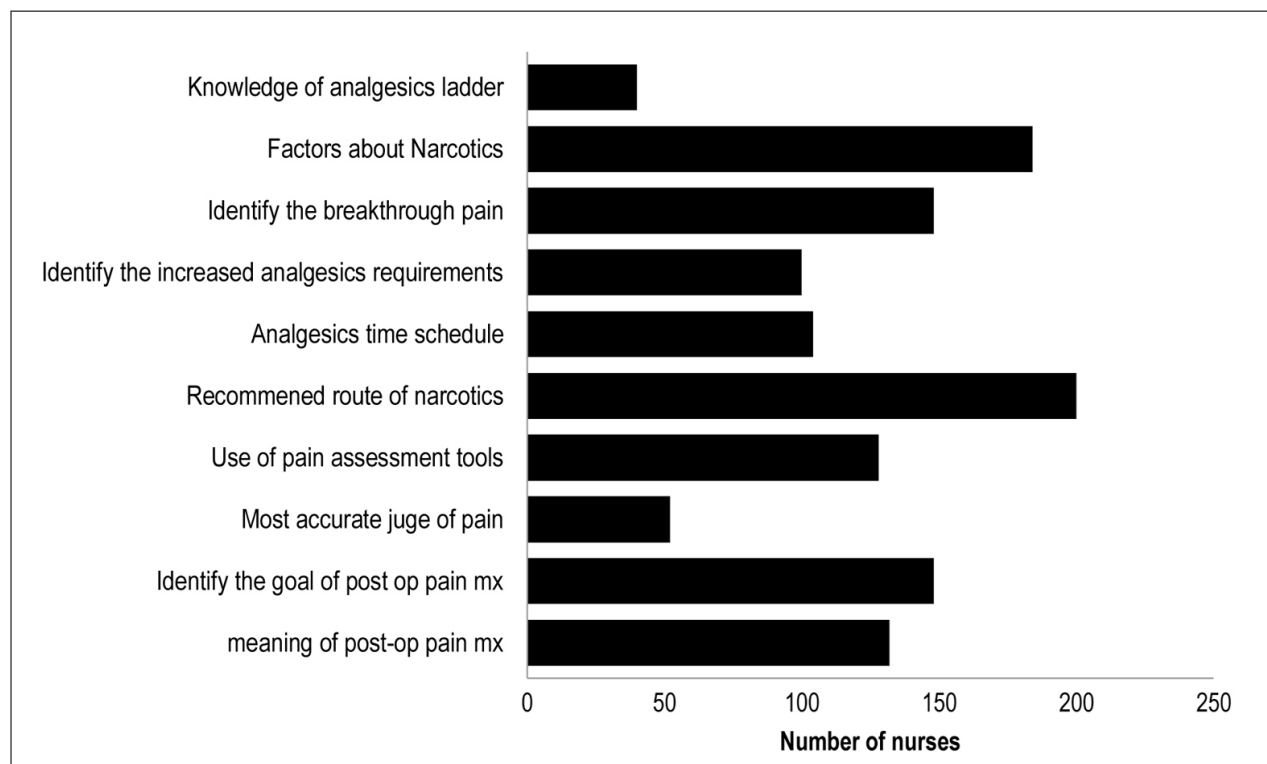
Results

Basic Demographic Results

200 out of 220 registered nurses participated in the study. Majority of the respondents were females (86%) with ages ranging from 30-39 (71%), with a diploma in nursing (96%) and with clinical experience of 6-10 years (40%). Only 12 respondents (6%) have attended pain management workshops after nursing education. (Table 1).

Table 1. Frequency distribution and percentages of the qualitative contextual characteristics of the respondents

Description	Parameters	Number	Percentage
Gender	Male	28	14
	Female	172	86
Age group (years)	20-29	20	10
	30-39	142	71
	40-49	20	10
	50-60	08	04
	>60	10	05
Educational Level	Diploma	192	96
	Degree	08	04
Clinical Experience (years)	0-2	52	26
	3-5	48	24
	6-10	80	40
	>10	20	10
Have you attended pain management workshops	Yes	12	06
	No	88	94

Figure 1. Nurses' knowledge of postoperative pain management

Nurses' Knowledge Regarding Postoperative Pain Management

Results showed that 66% (132) of the subjects know the meaning of postoperative pain. 74% (148) have identified the goal of postoperative pain management. 26% (52) of the respondents answered that patients' self-report is the most accurate evaluator of postoperative pain. Meanwhile, 68% (136) reported that it was the patient's caregiver or nurse otherwise. Furthermore, results revealed that 64% (128) respondents were aware of using the pain assessment scales. 36% (72) gave a wrong answer to the question.

Moreover, 52% (104) of the respondents knew how to give analgesics round the clock in the postoperative period. 50% (100) correctly identified the patient's request for an increased dose of analgesics when pain is experienced.

Surprisingly, 74% (148) know about the breakthrough pain and 92% (184) were familiar with the factors considered in using narcotics. 80% were ignorant of the analgesic ladder. However, 100% knew about the recommended route of administration of narcotics in the postoperative period (Figure 1).

Attitudes Regarding Postoperative Pain Management

According to the findings, 66% (132) of the participants agreed that a postoperative patient should show discomfort before

receiving the next analgesics. Among the participants, 60% (120) of nurses were anxious that the patients would become addicted to the analgesics, while 20% (40) disagreed and 2% strongly disagreed with the statement that pain reliefs should be measured according to the type of surgery. Findings revealed that 38% (76) of the participants disagreed with the statement that opioids should not be given for a person with a history of drug addiction, while 32% (64) agreed and 10% (20) strongly agreed. "Using spiritual beliefs is helpful to reduce the postoperative pain in every patient" was agreed by 50% (100) of the respondents (Table 2).

Furthermore, 54% (108) thought that a patient with postoperative pain should be able to withstand some portion of pain while 20% (40) disagreed. Although 62% (124) agreed that staff can always pick up cues regarding a patient's level of pain, 8% (16) disagreed. Among the participants, 30% (60) strongly agreed and 36% (72) agreed on the statement that postoperative pain is highly individualized. However, 60% (120) agreed that some patients complain of severe pain to attract staff attention, while 16% (32) disagreed. Also, 48% of the participants disagreed with the statement that a patient with minor surgery cannot experience severe pain (Table 2).

Practices Regarding Postoperative Pain Management

According to the findings, when a patient is brought to the ward after surgery to manage postoperative pain, 54% (108) of the nurses stated that the patient is kept under close observation and

regularly monitored, while 46% (92) expressed that patients were placed in a comfortable position. Also, 22% (44) injected Morphine or Pethidine as prescribed and 30% (60) kept the patient under observation and emphasized to the patient to tolerate pain to some extent. Regarding the practice of injecting narcotics, 60% (120) were careful about respiratory depression and 32% (64) were vigilant as these drugs are addictive. 28% (56) injected narcotics under medical supervision.

To manage postoperative pain, 80% (160) used non-pharmacological methods while 20% (40) did not. Among the participants, 62% (124) placed patients on their most comfortable positions, and 42% (84) helped in promoting adequate sleep. In addition to managing pain, 38% (76) of nurses helped to support the area with the pain, 32% (64) supported the surgical wound area only, and 24% (48) encouraged patients to engage in religious activities, and 12% (24) used music therapy. When a doctor has not recommended analgesics for patients with minor surgery but they have severe pain, 76% (152) assessed the level of pain and informed the doctor to consider analgesics, while 8% opted to neglect the patients' complaints.

According to the findings, 32% (64) regularly used pain assessment scales to measure postoperative pain while 24% never used pain scales and 22% used it rarely. Further, 32% (64) always documented pain scores while 16% had no time to record due to their heavy workload. However, 20% (40) never

documented while 14% documented rarely. The results revealed 70% (140) of participants updated their knowledge regarding postoperative pain management by day-to-day experiences while 28% used the internet and 26% attended the in-service programs and workshops; 6% had no time for such activities due to their workload (Figure 2).

Discussion

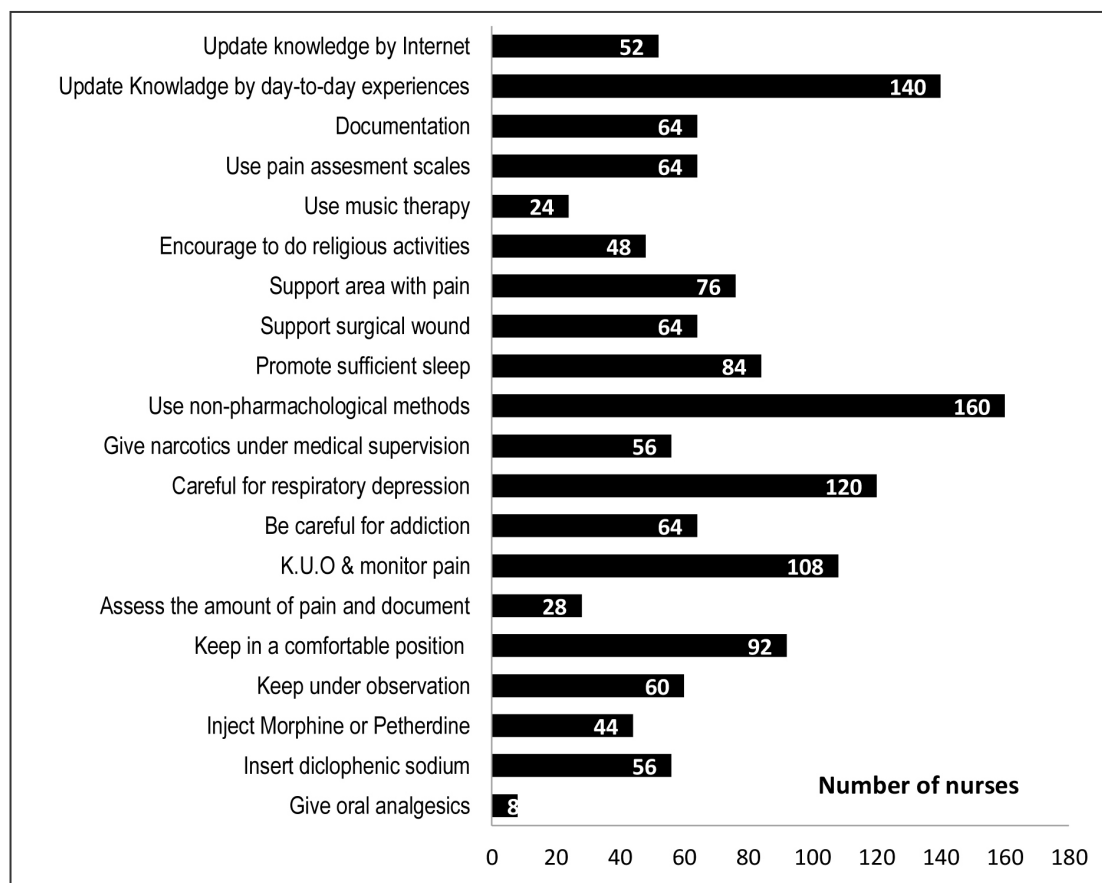
Knowledge of Postoperative Pain Management

The study findings revealed most respondents were knowledgeable of the analgesics schedule used in the postoperative period, as supported by Basak (2010). Accordingly, most respondents had correctly indicated that analgesics should be given round-the-clock in the postoperative period.

The study findings highlighted that knowledge questions related to patient variables scored more by most participants, identifying the understanding of these nurses that the best judge of pain is the patient, and if a patient asked for more analgesia, it is because they experience severe pain. Gunningberg and Idvall (2007) also revealed that the cause for requesting increased doses of pain medication is the patients' increased pain. Similar findings were reported by Van, Niekerk, and Martin (2003), where most participants have indicated that the most accurate judge of pain is the patient. Richards and Hubbert (2007) stated that on the first

Table 2. Nurses' attitudes regarding postoperative pain management

Statement	Strongly Agree	Agree	No Opinion	Disagree	Strongly Disagree
A patient with postoperative pain should show discomfort before receiving the next analgesic dose	28	132	04	36	00
I worry that the patient will become addicted to analgesics I gave	12	120	24	40	04
Postoperative pain relief measures depend on the type of surgery	32	104	08	36	20
Should not give opioids if there is a history of drug addiction	20	64	24	76	16
Increasing analgesics requirement is a sign of addiction	08	92	40	36	24
Using spiritual beliefs are helpful to reduce the postoperative pain in every patient	12	100	44	32	12
A patient with postoperative pain should be able to tolerate certain portion of pain	08	108	36	40	08
Staff can always pick-up cues regarding a patient's level of pain	20	124	40	16	00
Postoperative pain is highly individual	60	72	52	16	00
Some postoperative patients complain of severe pain to get more attention	28	120	12	32	08
A patient with minor surgery cannot experience severe pain	12	64	12	96	16

Figure 2. Practices regarding postoperative pain management by nurses

postoperative days, nurses administered lesser analgesia than the PRN (as needed) schedule would have permitted; thus, many patients were in pain.

The results of this study revealed more than half of the participants were acquainted with the use of pain assessment tools. It agrees with Smart (2005), who highlighted that 60% of nurses were aware of the basic pain assessment tools. Basak (2010) revealed that fewer nurses knew how to use pain scales to assess pain intensity, and a possible explanation was that Bangladesh nurses had never used the pain scale for pain assessment, and even the Numeric Rating Scale was unknown to nurses.

Regarding the narcotics properties, this study's findings highlighted that most participants correctly indicated factors associated with narcotics. Similarly, Basak (2010) also disclosed that Bangladesh nurses were conversant with narcotics properties. By contrast, they found that many nurses possessed inaccurate knowledgebase about common pharmacologic agents used in pain control (Saed, et al., 2019).

The research findings showed that some respondents correctly indicated that the most accurate judge of postoperative pain is the

patients' self-report. Hence, the staff can always pick up cues regarding a patient's level of pain. The Sri Lankan nurses' overconfidence of judging patients' level of pain may create inadequate pain management which is hard to find in the studies in another context.

Attitudes Concerning Postoperative Pain Management

These study findings exposed that most participants were concerned about the possible addiction of patients to the analgesics they received. Ho et al. (2009) and Kim et al., (2007) supported this statement since most nurses were anxious about addiction to the analgesics in their study. However, Smart (2010) pointed out that 90% of nurses indicated the fear of addiction did not refrain them from administering opioids analgesia in the postoperative period. Most participants in this study believed that measuring pain scores should depend on the type of surgery, as reported by Ho et al. (2009).

Few participants in this study indicated that opioids should not be given to patients with a history of drug addiction. A previous investigation by Smart (2010) disclosed that only four respondents would not administer an opioid to adolescents with a history of drug addiction. Nevertheless, Brunier et al. (1995)

realized that 30% of the nurses falsely believed that 25% of the patients with pain could be addicted to opioids; but, Vickers et al., (2014) revealed most staff nurses have incorrect beliefs on addiction and respiratory depression, which may have originated from misinformation and attitudinal bias.

Study findings highlighted that most nurses considered spiritual beliefs to help in reducing postoperative pain. Basak (2010) supported these findings. In their study, nearly half of the respondents believed that satisfying patients' spiritual needs could help in reducing their pain.

This investigation revealed more than half of the nurses thought a patient should tolerate the pain to some extent. Similarly, Ho et al. (2009) declared most respondents might expect their patients to withstand a certain amount of pain and suffering. However, Clark et al. (2006) noted that very few nurses strongly felt that patients could and should be maintained in a pain-free state. Similarly, Smart (2005) reported that few participants thought a postoperative patient should be able to tolerate pain to some extent.

Using spiritual beliefs in reducing postoperative pain of patients was identified by the nurses to be helpful.

Practices Regarding Postoperative Pain Management

Although most respondents declared they have sufficient knowledge of pain assessment scales, the research findings revealed that the use of pain assessment scales in their practice was in very low percentages. Basak (2010) have also produced similar results that denote fewer nurses have used pain scales to assess pain intensity. Nonetheless, most nurses in New Zealand were sufficiently competent in using pain assessment scales in their practice (Smart 2005).

The study findings revealed that though most nurses had adequate knowledge about analgesics options, most of them administered fewer analgesics than the prescribed levels on the first postoperative day. This finding was supported by Manias et al. (2015), where nurses administered fewer quantities of analgesia than the PRN (as needed) schedule would have permitted, although 91% of patients were in pain.

According to Basak (2010), nurses commonly practice actions such as helping to get ample sleep, assisting patients to comfort the pain area, and observing to determine patients' pain. Similarly, in this study, practices such as maintaining comfortable positions, promoting enough sleep, and supporting the pain area were common nursing actions. According to Basak (2010), nearly half of the nurses suggested patients read religious books, and few nurses used reassurance to manage postoperative pain. In this study, only a fewer percentage of nurses encouraged the patients to engage in religious activities to reduce postoperative pain.

To manage postoperative pain, most participants stated that the patients used non-pharmacological methods such as religious activities, and music therapy. It is hard to identify this situation from the literature in another context.

Conclusion

This descriptive research examined the knowledge, attitudes, and practices of nurses regarding postoperative pain management. The results indicated that nurses have moderate experience of postoperative pain management. They had sufficient knowledge in areas related to analgesics including narcotics, pain assessment scales, and goals of postoperative pain management. They also held negative attitudes associated with the fear of addiction, and patients' self-report on pain score. The practice of nurses was inadequate, and they did not routinely apply their knowledge in practice. This is manifested by their lesser frequency in using pain scales, giving fewer analgesics on the first postoperative day than the prescribed, and inadequate documentation. Despite these, they highly performed non-pharmacological interventions to reduce postoperative pain such as boosting the patients' spiritual beliefs and asking them to engage in religious activities. This can be added to the existing literature. Overall, nurses, who participated in this research study, displayed moderate knowledge regarding postoperative pain management, but their attitudes and practices were weak.

The Limitation of the Study

This study was conducted in Teaching Hospital, Kandy, Sri Lanka, and the sample size is comparatively small. To eliminate biases, participants were assured that their responses will not be associated with them nor their institution. With this, participants tried to answer correctly and gave socially acceptable answers to the questions rather than their routine practice. Their responses can be considered as a limitation of the study since it was not purely based on their routine practice. Other factors might have influenced their responses.

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ABOUT THE AUTHORS



G.M.M. Kumara is an operating room nurse in the Kandy General Hospital, Sri Lanka. He earned his Bachelor of Science in Nursing Degree from the Open University of Sri Lanka in 2018. His research interests include emergency care and post-anesthesia care.



H.M.P. Hindagoda finished her Bachelor of Science in Nursing Degree from the Open University of Sri Lanka in 2018. She is currently enrolled in a master's degree in Nursing and is working at Kandy General Hospital as a trained nurse. Her research interests include pediatric endocrinology, health promotion and illness prevention.



M.S. Indika, obtained his Bachelor of Science in Nursing Degree from the Open University of Sri Lanka in 2018. He is currently working at the Kandy General Hospital. His training includes nursing education. His research interests include clinical nurse specialty and gerontological research.



B.Sunil S De Silva works as a Senior Lecturer at the Department of Nursing, Faculty of Health Sciences, The Open University of Sri Lanka. He earned his Bachelor of Science in Nursing degree from the Open University of Sri Lanka in 2001 and Master of Nursing by Research from Australian Catholic University, Australia in 2009. Currently, he is pursuing his doctoral degree. His research interests were palliative care and nursing education.



Faiz MMT Marikar is an academician and a health educationist. Currently he is the Director of Health Education and Research in General Sir John Kotelawala Defence University, Sri Lanka. He obtained his bachelors degree from University of Ruhuna Sri Lanka in 2000, and his masters and doctoral degrees in Nanjing University in 2003 and 2006, respectively. His research interest revolved on medical education, aging and health policy.