

Knowledge and self-reported practices on post-operative pain management among nurses working in surgical wards in two selected Teaching Hospitals

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Abstract—

A descriptive cross sectional study was conducted at Colombo South Teaching Hospital (CSTH) and Sri Jayewardenepura General Hospital (SJGH) to describe knowledge and self-reported practices on post-operative pain management (POPM). Data were collected from a convenience sample of 132 nurses working in adult surgical wards using a pre-tested self-administered questionnaire. Data were analyzed using SPSS (version-16). Mean age and years of experience of the participants were 32.5 ± 7.7 and 7.0 ± 7.9 respectively. Those who had previous education on POPM were 87.1 %. The mean score for overall knowledge was 64.9 ± 1.4 . The mean score for overall practices was 55.0 ± 1.6 . The participants had an average level of knowledge and moderate level of self-reported practices on POPM. Most participants were knowledgeable on subjectivity of pain (58.3 %), use of pain scales for pain assessment (79.5 %), and the need for administering analgesia round the clock (68.2%) while 75 % were unaware of measuring pain to assess analgesic efficacy. A majority (56.1 %) were unaware of intravenous opioids being the best method to treat sudden onset of severe pain. Administration of opioids were minimized by nurses 'Always' (50.8 %) and 'Sometimes' (42.4 %) because of the potential risk of patients becoming addicted. A total of 34.1 % nurses have given a placebo to patients to confirm the truth of their complaint on pain. Almost a half of the sample (48.5 %) has 'Never' used pain scales but 70 % 'always' have asked about the presence of pain. Degree holders ($p=0.000$) and those who had previous education through in-service training programs ($p=0.048$) had significantly high level of knowledge. Nurses who had work experience for more than 5 years ($p=0.035$) and previous education on pain management ($p=0.018$) had significantly high practice scores. Provision of nursing knowledge through specific training on POPM may contribute to improve nurses' practices on POPM and hence to improve post-operative patient outcomes.

Key words: Nurses, post-operative pain management, knowledge, self-reported practices

I. INTRODUCTION

Nurses play a key role when managing acute and chronic pain (Courtenay and Carey, 2008). Nurses are the health care professionals who spend more time with patients suffering from pain than the others (Richards and Hubbert, 2007). Managing post-operative pain is a major challenge when caring for surgical patients (Klopper, et al., 2006). Poor post-operative pain relief can contribute to post-operative complications such as delayed wound healing, atelectasis and deep vein thrombosis (Frances and Fitzpatrick, 2013). Positive patient outcomes can be achieved through a nurse's accurate pain assessment, appropriate intervention and evaluation of pain treatments (Ekim and Ocakci, 2013).

The previous Sri Lankan studies have revealed poor knowledge and practices of nurses on cancer pain (De Silva, 2011) and lack of knowledge among nurses in assessing post-operative pain in paediatric patients (Mullevithana, De Silva and Madhavi, 2012). Nurses' preparation for post-operative pain management of adult patients was less explored in Sri Lankan settings.

The aim of this study is to describe knowledge and self-reported practices on Post-Operative Pain Management (POPM) among nurses working in adult surgical wards.

II. METHODOLOGY

A descriptive cross sectional study was carried out in the adult surgical wards of Colombo South Teaching Hospital (CSTH) and Sri Jayewardenepura General Hospital (SJGH). A self-administered questionnaire was developed using existing literature and content validated with expert opinion. It was pre-tested using a sample of 15 nurses who did not participate in the study. The participants were interviewed about understandability and comprehensibility of the questionnaire.

The questionnaire was administered to a convenience sample of 132 nurses from 06 adult surgical units in CSTH

and 05 adult surgical units in SJGH after obtaining informed consent. The data were collected during a period of three weeks from 4th to 22nd May 2015. Ethical approval for the study was obtained from Ethics Review Committees of Faculty of Medical Sciences, University of Sri Jayewardenepura, CSTH and SJGH.

Nurses' knowledge on post-operative pain assessment and pharmacological management of post-operative pain was assessed using 11 questions to elicit responses; "Yes" and "No". One mark was given for each correct answer and the minimum score obtained by a participant was 0 and maximum was 11. The final mark for each participant was calculated as a percentage. The knowledge levels of nurses on post operative pain management on given questions were categorized into three levels as poor (<50 %), average (50 % - 75 %) and good (>75 %) (Suhara et al. 2013).

Eleven statements related to correct practices and three questions on incorrect practices were presented using a 3 point scale (Always, Sometimes and Never). One mark for the response "Always" and zero mark for responses "Sometimes" or "Never" were assigned to the correct practice statements. For incorrect practice statements, one mark for the response "Never" and zero mark for "Always" or "Sometimes" were assigned. The minimum score obtained was 0 and maximum score was 14. The final mark for practices of each participant was calculated as a percentage. Overall self-reported practices were categorized as; bad (<50 %), moderate (50 % - 75 %) and good (>75 %) (Jayasinghe and Weerakoon 2014).

Statistical Package of Social Sciences (SPSS) version 16 was used to analyze data. Independent t-test was performed to assess associations between demographic variables and overall knowledge and overall practices. Bivariate correlations were used to assess correlation between overall practices with age and work experience in nursing.

III.RESULTS

The mean age of participants' was 32.5 (±7.7) years. Of the sample 92.4 % were females. There were 92.4 % Diploma holders and 7.6 % degree holders in Nursing. Most of the participants (87.1 %) had previous education on post operative pain management. The mean years of working experience in nursing were 7.0±7.9 and the participants having more than 5 years of experience in surgical wards was 16.7 %.

The frequency distribution of study participants' overall knowledge levels on post-operative pain management is presented in table 1.

A majority of the sample (65.2%) showed 'Average' level of knowledge while 18.9% had 'Poor' knowledge. Degree holders (p=0.000) and those who had previous education through in-service training programs (p=0.048) had significantly high level of knowledge.

Table 1.Overall knowledge levels on POPM

Knowledge	N (%)
Poor	25 (18.9)
Average	86 (65.2)
Good	21 (15.9)
Total	132 (100.0)

Mean (SD) 64.9 (1.4) Median=66.7 Minimum=25.0
Maximum=91.7

Percentages of nurses' responses for knowledge questions are presented in table 2.

Table 2. Knowledge on POPM (N=132)

Statement	True N (%)
Assessment of a patient's pain should be done when a patient complains of pain.	63(47.7)
Assessment of a patient's pain should be done to assess analgesic efficacy.	33(25)
Pain assessment scales can be used to assess a patient's pain	105(79.5)
Measuring of vital signs is sufficient to assess pain.	20(15.2)
Opioid analgesia should be administered "round the clock", if patient's post operative pain is persistent.	90(68.2)
Epidural analgesia can be used to relieve post operative pain.	102(77.3)
IV administration of opioids is the best method to treat sudden onset of severe post operative pain.	58(43.9)
Opioid analgesia may cause respiratory depression	115(87.1)
Patients get constipated due to administration of opioids.	71(53.8)

Most of the participants gave the answer 'True' for the statements 'pain assessment tools can be used to assess pain' (79.5 %), 'measuring of vital signs is sufficient to

assess pain (15.2 %), ‘opioid analgesia should be administered round the clock’ (68.2 %), ‘epidural analgesia can be used to relieve post operative pain’ (77.3 %), ‘opioid analgesia may cause respiratory depression’ (87.1 %), and for ‘opioid may cause constipation’ (53.8 %).

A majority have selected the response ‘False’ for the following statements; pain assessment should be done to assess analgesic efficacy (75 %), IV administration of opioids is the best method to treat sudden onset of severe post-operative pain (56.1 %) and assessment of patients pain should be done when a patient makes a complaint (52.3 %).

Further, the study participants’ awareness on subjectivity of pain was assessed by asking “Who makes the most accurate judgment of pain intensity in a conscious patient?” A majority of participants (58.3 %) has given the correct answer as ‘the patient makes the most accurate judgment on his/her own pain intensity’. The study participants who have given the answer as Nurse and Doctor were 36.4 % and 5.3 % consecutively.

The table 3 summarizes the frequency of self-reported practices of the participants.

A majority of the participants (48.5 %) has never used a pain assessment scale while many have observed patients’ behaviours (78%) and asked about the presence of pain (70.5 %) in order to assess pain. A total of 34.1 % participants have given a placebo to patients to confirm the truth of their complaint. Administration of opioid analgesics was minimized by participants ‘Always’ (50.8 %) and ‘Sometimes’ (42.4 %) because of the potential risk of patients becoming addicted. A majority has reported that they sometimes (64.4 %) and always (15.9 %) administered analgesics prescribed as ‘if necessary’ (SOS) at night time more than the day time. Majority (63.6 %) of participants have assessed sedation levels of their patients after administration of opioids. Participants have always had good communication on POPM with other nurses and medical officers (69.7 %) and when giving health education to patients (78.8 %).

The frequency distribution of study participants’ overall self-reported practice levels on post-operative pain management is presented in table 4.

The mean overall practice score of the sample was 54.9±1.6. The levels of practice for ‘bad’, ‘moderate’ and ‘good’ were 29.5 %, 59 % and 11.4 % respectively.

Table 3. Self-reported practices on POPM (N=132)

Practice	Always	Some times	Never
	%	%	%
I use pain assessment scales when I assess a patient’s pain.	12.1	39.4	48.5
I observe patient’s behaviours to assess a patient’s pain.	78	22	00
I get a verbal response from the patient about the presence of pain to assess a patient’s pain.	70.5	25.8	3.8
I administer IV saline bolus to a patient, to confirm whether his/her complain on pain is true or false.	3	31.1	65.9
I give health education to patients on post- operative pain management.	78.8	19.7	1.5
I give health education to relatives/ visitors of the patient on post-operative pain management.	22.7	70.5	6.8
I communicate with other nurses and medical officers about patients’ post operative pain management.	69.7	28.8	1.5
I administer prescribed (if necessary) analgesics to the patients, at night time more than day time.	15.9	64.4	19.7
When I administer analgesics to the patients, I minimize administration of opioids as patient has a risk to become addicted to opioids.	50.8	42.4	6.8
I assess patients’ sedation levels after administration of opioids.	63.6	34.8	1.5

Participants who had more than 5 years experience in current surgical ward ($p = 0.035$) and those who had previous education on pain management ($p=0.018$) showed significantly high practice scores.

Table 4..Overall self-reported practice levels on POPM (N=132)

Self Reported Practice	N (%)
Bad	39(29.5)
Moderate	78(59.1)
Good	15(11.4)
Total	132(100.0)

Mean(SD) 54.9(1.6) Median=57.1 Minimum=14.3
Maximum=85.7

The total score obtained for- self-reported practices had no significant association with gender, the hospital they were employed, highest educational qualification or work experience in nursing.

IV.DISCUSSION

A.Knowledge

The participants in present study had an average level of knowledge on POPM. The mean overall knowledge score was 64.9 ± 1.4 . An approximately similar mean score (69.3%) was reported by Francis and Fitzpatrick (2013) on nurses responses to the knowledge and attitude survey regarding pain (KASRP).

A majority of participants (58.3%) in the current study were aware that the most accurate judgment of pain intensity in a conscious patient will be made by the patient him/herself. In a previous study done in the United Kingdom and Sri Lanka, 73% of Sri Lankan nurses have stated that the most accurate judgment of patients' pain is made by nurses themselves (Hiscock and Kadawathage 1999). In contrast, all the nurses (100 %), who participated in a study done in United States by Frances and Fitzpatrick (2013) stated that the patients take the most accurate judgment of their own pain intensity. Further, a considerably high percentage (41.7 %) of nurses were unaware of the subjectivity of pain.

Among the current study participants, 75 % were unaware of the fact that a patient's pain should be assessed in order to assess analgesic efficacy. More than two thirds of participants (79.5 %) were aware of the usage of pain assessment scales and 71.2 % knew that measuring vital signs will not be sufficient to assess a patient's pain. Similarly, in the study conducted in United States by Voshall

et al. (2013), most of the participants (97.9 %) stated that vital signs are not always reliable as indicators of the intensity of a patient's pain.

In the current study, 68.2 % of the participants knew that opioid analgesia should be administered "round the clock" if patient's post operative pain is persistent. Further, only 43.9% of the current study participants were aware of the best method to treat sudden onset of severe post-operative pain as the IV administration of opioids. Similar studies have shown comparatively higher levels of awareness of IV administration of opioids as the best method to treat severe post operative pain; 62.1% in the study by Ekim and Ocakci (2013), 77.5% in a study done in Greece by Kiekkas (2014) and 84.4% of participants in a study in United States by Voshall et al. (2013).

Kiekkas, et al (2014) found that nurses' knowledge levels on post operative pain management was significantly high of those who had participated in continuing education programmes on pain management ($p=0.004$). Similarly, current study has shown significantly high knowledge levels of post operative pain management of those who hold degrees ($p=0.000$) and those who had previous education through in-service training programs ($p=0.048$).

B.Practices

In the present study, usage of a pain assessment scale was reported only by 12.1 % participants. In a similar study done in Uganda (n=153) the usage of pain assessment tools by nurses were minimal (4 %) (Kizza, 2012). Twycross (2008) found that usage of pain tools was unsatisfactory (18.75 % ,n=16). A majority of participants in the present study have reported that they have always observed patients' behaviour(78 %) and patients' verbal responses about pain (70.5 %) to assess patients' pain while 48.5 % have never used a pain assessment scale. McCaffery and Ferrell (1997) recommended that behaviors and vital signs should not be used for assessment of pain instead of self-report by patient and to use a pain rating scale whenever possible.

In the current study, a total of 34.1 % participants reported that they give a placebo to patients to confirm whether his/her complaint on pain is true or false. In a similar study(n=96) by Voshall, et al. (2013), 97.9 % of nurses have disagreed with giving sterile water by injection to patients as a useful test to determine if the pain is real. However, a placebo should not be used even if a physician orders (McCaffery and Robinsson, 2002). Hence, it was evident that one third of the participants in the present study were involved in an unacceptable practice.

In a study by Briggs and Dean (1998) only 9 % of nurses have given information to patients about the event or procedure related to pain management although 73 % nurses have encouraged the patient to express pain. Similarly, Bell and Duffy (2009) reported that nurses failed to communicate with patients regarding pain. In the present study, 78.8 % participants reported that they have always given health education to the patients on post-operative pain management.

The participants of the current study who reported that they 'always' gave health education to relatives/ visitors of the patient on post-operative pain management were 22.7 %. In the study by Twycross (2008) it was observed that only one among twelve participants had communicated with parents of paediatric patients at some point of their care.

In the current study, 69.7 % of the participants have reported that they 'always' communicate with other nurses and medical officers about patient's POPM. In contrast, an observational study has found that only 12 % of cases out of 790 handovers have communicated with anaesthesiologist or anaesthesia nurse about the information on initiation of post-operative pain management (Milby, et al., 2014).

It was evident in the current study that 50.8 % of participants have 'always' and 42.4 % 'sometimes' have minimized administration of opioid analgesics due to the fear of patients becoming addicted. Similarly, almost half of the participants agreed that repeated doses of opioids could not be given because the patients may develop dependence in a survey of 100 Sri Lankan nurses by Williams, et al. (2001). Further, it was reported that the participants have administered analgesics prescribed as 'if necessary' at night time more than the day time. According to the best practice guidelines of the World Health Organization (2016) unnecessary delaying of medication should not be done and it is required to anticipate patients' pain management needs after surgery.

In the current study, 63.6 % of nurses have 'always' assessed patient's sedation levels after administration of opioids and 34.8 % nurses have sometimes done so. In the study of Briggs and Dean (1998), the frequency of documented interventions of care plans on monitoring effects of analgesia was 77 %.

Significantly high practice scores were found among participants who had more than 5 years' experience in current surgical ward ($p = 0.035$) and those who had previous education on pain management ($p=0.018$).

Previous studies also state that participation in educational programmes on pain management and experience enhances the nurses' skills and practices in pain management (McNamara, Harmon, and Saunders, 2012; Rejeh, et al., 2008).

VI.CONCLUSION

A majority of nurses participated had an average level of knowledge and moderate level of self reported practices on post-operative pain management. Deficiencies of knowledge were evident in the area of pain assessment. Participants' usage of pain assessment scales was low; instead they have used observation of patients' behavior and questioned on the presence of pain. Incorrect practices such as minimizing administration of opioid analgesics and giving placebos were reported. The deficiencies of knowledge and practices of nurses on post-operative pain management should be addressed through specific training to improve post-operative patient outcomes.

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REFERENCES

- Briggs, M. and Dean, K.L., 1998. A qualitative analysis of the nursing documentation of post-operative pain management. *Journal of Clinical Nursing*, 7, 155–163.
- Bell, L., and Duffy, A., 2009. Pain assessment and management in surgical nursing : a literature review. *British Journal of Nursing (Mark Allen Publishing)*, 18(3), 153–156.
- Courtenay, M. and Carey, N., 2008. The impact and effectiveness of nurse-led care in the management of acute and chronic pain: A review of the literature. *Journal of Clinical Nursing*, 17(15), 2001–2013.
- De Silva, B.S.S. and Rolls, C., 2011. Attitudes, beliefs, and practices of Sri Lankan nurses toward cancer pain management: An ethnographic study, *Nursing and Health Sciences*, 13, 419-424.
- Ekim, A. and Ocakci, A.F., 2013. Knowledge and attitudes regarding pain management of pediatric nurses in Turkey. *Pain management nursing : official journal of the American Society of Pain Management Nurses*, 14(4), 262–267.
- Francis, L., and Fitzpatrick, J.J., 2013. Post-operative Pain : Nurses ' Knowledge and Patients ' Experiences. *Pain Management Nursing*, 14(4), 351–357.
- Jayasinghe, R.D. and Weerakoon, B.S., 2014. Prevention of nosocomial infections and standard precautions: knowledge and practice among radiographers in Sri Lanka. *Journal of Medical and Allied Sciences*, 4(1), 9–16.
- Kiekkas, P., Gardeli, P., Bakalis, N., Stefanopoulos, N., Adampoulou, K., Avdulla, C., Tzourala, G., and Konstantinou, E., 2015. Predictors of Nurses ' Knowledge and

- Attitudes Toward Postoperative Pain in Greece. *Pain Management Nursing*, 16(1), 2–10.
- Kiekkas, P., Gardeli, P., Bakalis, N., Stefanopoulos, N., Adamopoulou, K., Avdulla, C., Tzourala, G., Konstantinou, E., 2014. Predictors of Nurses' Knowledge and Attitudes Toward Postoperative Pain in Greece. *Pain Management Nursing*, [e- journal] 13(2). PP.105-108. Available through:< <http://www.ncbi.nlm.nih.gov/pubmed> > [Accessed 25 June 2014].
- Kizza, I.B., 2012. Nurses knowledge and practices related to pain assessment in critically ill patients at Mulago Hospital, Uganda. (*Critical Care and Trauma*) *Dissertation*. Muhimbili University of Health and Allied Sciences. November 2012.
- Klopper, H., Anderson, H., Minkinen, M., et al., 2006. Strategies in assessing post operative pain — A South African study. *Intensive and Critical Care Nursing*, 22, 12–21.
- McCaffery and Ferrell, B.R 1997. Nurses' Knowledge of Pain Assessment and Management: How Much Progress Have We Made?, *Journal of Pain and Symptom Management*, 14(3):175-188.
- McCaffery, M. and Robinson, E.S., 2002. Your patient is in pain. Here's how you respond. *Nursing* 2002, 32(10), 36–45.
- McNamara, M.C., Harmon, D., and Saunders, J., 2012. Effect of education on knowledge, skills and attitudes around pain. *British journal of Nursing*, [e- journal] 21(16), pp.958, 960-964. Available through:< <http://onlinelibrary.wiley.com/doi/10.1111/j.1365-2702.2008.02278.x/abstract> > [Accessed 25 June 2014].
- Milby, A., Gerbershngen, M. U., Joppich, R., and Wappler, F., 2014. Quality of post- operative patient handover in the post- anaesthesia care unit : a prospective analysis. *Acta Anaesthesiol Scandinavia*, 58, 192–197.
- Mullevithana, A.K., De Silva, B.S.S., Madhavi, A.V.P. 2012. Nurses' knowledge, attitudes and practices regarding paediatric Post-operative pain management, Annual Academic Sessions 2012, Open University of Sri Lanka.
- Rejeh, N., Ahmadif, F., Mohammadi, E., Anoosheh, M., and Kazemnejad, A., 2008. Barriers to, and facilitators of post-operative pain management in Iranian nursing: a qualitative research study. *International Nursing Review*, 55, pp.468–475.
- Richards, J. and Hubbert, A.O., 2007. Experiences of Expert Nurses in Caring for Patients with Postoperative Pain. *Pain Management Nursing*, 8(1), 17–24.
- Suhara, F.K., George, J., Thomas, J.K., Chako, J., Varghese, J. G., and Dharmarajan, B., 2013. Assessment of knowledge regarding mechanical ventilation among staff nurses working in selected hospital , Mangalore with a view to develop an information pamphlet. *International Journal of Recent Scientific Research*, 4(9), 1410–1413.
- Voshall, B., Dunn, K.S. and Shelestak, D., 2013. Knowledge and attitudes of pain management among nursing faculty. *Pain management nursing : official journal of the American Society of Pain Management Nurses*, 14(4), e226–e235.
- Williams, J.E., Chandler, A., Ranwala, R., De Silva, B.S.S & Amarasinghe, I., 2001. Establishing a cancer pain clinic in a developing country: effect of a collaborative link project with a U.K. Cancer pain center, *Journal of pain and Symptom Management*, 22(4), 872-878.
- World Health Organization, 2016. Emergency and essential surgical care; Best Practice Safety Protocols, Post-operative painrelief. <http://www.who.int/surgery/publications/s15978e.pdf?ua=1> , accessed 08.06.2016