

The knowledge and attitude on pain management and their associated factors among nursing students at the school of nursing, Vavuniya

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Abstract

Background: Pain control in patients is important as untreated pain impede their response to treatments and negatively affect their quality of life. Optimal pain management requires adequate knowledge, positive attitudes, and competent pain assessment measures. Nurses are key players and have an essential role in pain management. Applying nursing roles requires that nursing students attain adequate knowledge about pain, its management, and positive attitudes towards it.

Aim/s: To assess the knowledge and attitudes on pain management and their associated factors among nursing students in the School of Nursing, Vavuniya.

Methods: A descriptive cross-sectional study was conducted with the total study population of second-year (n=97) and third-year nursing students (n=43) at the School of Nursing, Vavuniya. The study was conducted using a pre-tested self-administered questionnaire that included the modified Ferrell and McCaffery (2012) Knowledge and Attitude Survey Regarding pain (KASRP). Data were described using descriptive statistics, and associations were assessed using the Mann-Whitney U and Kruskal Wallis tests. Significance was set as $p < 0.05$. The ethical clearance was obtained from the Rajarata University of Sri Lanka.

Results: The response rate was 97%. The majority belonged to the age group between 23-25 years (n=112, 80.0%). The mean age was 23.7 years (SD +1.102). Majority were female (n=135, 96%), Sinhalese (n=107, 76%) and Buddhist (n=98, 70%). Most of the students had “poor” knowledge on pain management (n=98, 70%) and had “fair” attitudes (n=98, 70%). “Good” attitudes were reported by 7% (n=10) of the students. The median of the total correct answers for knowledge was 13 (IQR=5) out of 30 questions, and the median attitude score was 8 (IQR=4) out of 15 questions. The year of study and additional study of reference materials were significantly related to knowledge and attitudes towards pain management ($p < 0.01$).

Conclusion: The overall knowledge among nursing students on pain management was “poor”, and most had fair attitudes towards pain management. Pain management education needs to be strengthened, and positive attitudes should be cultivated through curricular reforms in nursing education.

Keywords: Pain Management, Knowledge, Attitudes, Nursing Students

Introduction

Pain is an unpleasant sensation experienced by both sick and healthy people. Pain is a major source of distress for patients and their families as well as health care providers. Patients may experience pain as a result of injuries, acute & chronic illnesses, and medical or surgical procedures. It can lead to physical consequences such as increased oxygen consumption and alterations in blood glucose metabolism. In addition, the experience of untreated pain may lead to long-term psychological, physiological, and behavioral consequences for a person [1].

All people have experienced pain at some point of the life continuum from birth to death, especially while being in hospitals. Similarly, every nurse may experience managing a patient with pain at some point in his or her nursing career [2]. One of the important responsibilities of health care personnel is to relieve as much pain as possible. This comes in the same line with the “American pain society” (1995) cited in Goodrich [3] which labeled pain as the “Fifth vital sign” to emphasize the importance of assessing the pain frequently and providing appropriate treatment. The undertreatment of pain can delay healing and may develop into chronic pain that can limit daily activities, increase disability, and increase anger and fear that may negatively affect the quality of life. If ineffectively managed, acute pain can lead to negative physiological and psychological ramifications including the development of chronic pain syndromes [4].

Nurses play an important role in assessing and managing patients’ pain during hospitalization. They spend most of their time at the patient’s bedside as compared to other health care professionals. Patients and their families have the right to receive pain management timely and effectively [5]. Pain management is a crucial part of patient management that helps to deliver high-quality nursing care. The research findings on the knowledge and attitudes of registered nurses

towards the pain management of adult medical patients in Bindura hospital, Zimbabwe identified that they had inadequate knowledge (64.5%) and attitudes (56%) regarding pain management [6]. Similarly, the investigation of knowledge and attitudes regarding pain management among nurses in Hong Kong medical units showed a deficit in knowledge and attitudes related to pain management (47.72%) [7].

Student nurses must have sound knowledge and attitudes regarding the management of pain. Consequently, if student nurses are insufficiently educated and ill-prepared to relieve pain, ultimately the patient will suffer [8]. For this reason, nursing students must be well knowledgeable about pain and its management to improve patient outcomes and collaborate efficiently with other health care professionals to manage the pain successfully [9].

Nursing students have to learn and serve patients in their entire training period of 3 years in the clinical setting. Most of the time, they meet patients who are needed to be relieved of pain. Implementing the role of the caregiver in providing comfort, nursing students should achieve a comprehensive knowledge of pain and its management during the nursing program [8]. Adequate knowledge of pain and appropriate pain attitudes are prerequisites for nursing students to engage in pain management of patients [9]. Research on nursing students’ knowledge and attitudes regarding pain is limited. These limited studies also identified that nursing students had poor knowledge and attitude regarding pain management [3,10]. Student nurses’ knowledge about pain management was poor, especially in the areas of pharmacology [11]. The same finding was confirmed in another study as nursing students had inadequate pain knowledge and inappropriate pain management attitudes [12]. Using the Nurses’ Knowledge and Attitude Survey Regarding Pain (NKASRP), a study identified that student nurses had inadequate knowledge of pain management [13]. Because of the knowledge

deficit related to pain and pain management, there should be a real need for improving the content of pain and management in the undergraduate nursing education curriculum [14].

Pre-registration nursing education in Sri Lanka, is based on a three-year diploma level nursing program delivered by 15 schools of nursing that are attached to the Ministry of Health. It is aimed at preparing nurses who will be able to utilize a comprehensive range of knowledge, skills, and attitudes in caring for patients. There is no separate module or section to teach pain management in the present curriculum of the basic nursing diploma program. The pharmacology part II module is devoted to teaching medicines acting on different systems of the body rather than pain-managing medicines. The majority of the clinical subjects familiarizes the students with pain as a symptom of disease through the lecture-based method. Therefore, the amount of time that is allocated for teaching pain management in the nursing curriculum is unknown. Exposure to the clinical subjects and the second part of pharmacology commence with the second year of training. Moreover, second-year and third-year students involve more in pain management in the clinical setting. There was no research conducted among nursing students in this area in Sri Lanka. Based on this rationale, the study was conducted to investigate the level of knowledge and attitude and associated factors regarding pain management among the second-year and third-year nursing students at the school of nursing Vavuniya in Sri Lanka.

Methods

The quantitative descriptive cross-sectional study method was applied to investigate the level and factors associated with knowledge and attitude on pain management among nursing students at the School of Nursing, Vavuniya from June to September 2019. School of nursing, Vavuniya is the youngest nursing school in Sri Lanka which follows the uniform curriculum as

the rest of the other nursing schools. The study population included second-year and third-year nursing students because they handle pain management of patients compared to the first-year students and have theoretical exposure to pain management. The total study population of 144 was used for the study.

Data were collected using a structured pretested self-administered questionnaire. The instrument of this study consisted of three sections; (1) participants' background and biographic information, (2) student nurses' knowledge of pain management, and (3) attitudes towards pain management. Section two consisted of 30 items; 28 knowledge-related questions were derived from 'knowledge and Attitude Survey Regarding Pain (KASRP) which was developed by Ferrell and McCaffery (2012) and the researcher added two questions based on content exposure of pharmacology. Section 3 was developed using two questionnaires because of the need to assess attitudes separately. It consisted of 15 questions; nine questions from KASRP and six questions from the tool developed by Manwere, Chipfuwa, Mukwamba, and Chironda (2015). Section 3 consisted of questions in true/false and multiple-choice types. Sections two and three were not adopted to or validated in the Sri Lankan setting. Before the actual data collection, appropriate modifications were done based on the pre-test results which were done with nursing students in another nursing school and experts' opinions. In this study, internal consistency, and reliability of the questionnaire were measured by Cronbach's alpha for a total scale was 0.72. The tool was prepared and administered in English because the nursing curriculum is conducted in English medium. The ethical clearance was obtained from the Rajarata University of Sri Lanka.

All the data in the study were statistically analyzed using SPSS 20. The data was organized, tabulated, analyzed, and interpreted by using descriptive and inferential statistics based on

the objectives of the study. In order to assess their level of knowledge, students were asked to select the most suitable answer for the questions. Correct responses or the questions were given a score of one, incorrectly answered items or those not answered were assigned a score of zero. The scores were then converted to “percentages” for the ease of understanding. The levels were interpreted according to the percentages as (1) poor $\leq 50\%$, (2) fair $51\% \leq 74\%$, or (3) good $\geq 75\%$).

Inferential statistical analyses were used to test the hypotheses and address the research questions of the study. The nonparametric tests were used for inferential statistics because the data did not follow a nominal distribution. Mann Whitney U and Kruskal Wallis tests were used to assess the significance while, Spearman's correlation test was used to assess correlation. Finally, the results were interpreted as a statistically significant association if p value was less than 0.05 and with a 95% confidence interval.

All the participants were informed well through information leaflets and informed written consent was obtained voluntarily. None of the participants were harmed physically, psychologically, emotionally, socially, or economically.

Results

From all 144 selected sampled students, responded rate was 97.2% (n= 140). Of the sample 96.4% (n= 135) were female while 3.6 % were (n=05) male. The mean age of the study group was 22.5 (SD +1.07). More than half of the respondents were aged 23-25 years (80%) and 20-22 years of age accounted for 15%. The greater proportion of participants was Sinhalese (76.4%) and Buddhist (70 %).The majority reported the advanced level as the highest education level (68.6 %). Most of the students 97(69.3%) were in the second year whereas 43 (30.7%) students were in the third year.

Among the participants, the majority have not

referred to any extra reading materials on pain management (78.57%, n=110) while (21.43%, n=30) have referred to extra reading materials. Of the sample, the majority had not participated in the pain education program (90.71%, n=127) while only 13 (9.29%) had participated in the pain management education program which was arranged for nurses parallel to the in-service training program.

Considering the knowledge and attitude on pain management of the participants the median correct answers for knowledge was 13 (IQR= 5) out of 30 answers while the median total correct answers for attitude was 8 (IQR= 4) out of 15 correct answers.

Among the participants, the majority had poor knowledge (70 %, n=98) while 30 % (n= 42) were reported for fair knowledge. There was no one who had good knowledge (n=0). Among the participants majority had fair attitude (70 %, n=98) while 7.1 % (n=10) for good attitude and 22.9% (n= 32) reported for poor attitude.

Table 1 shows the distribution of level of knowledge and attitudes on pain management by their academic year. Among the second-year students majority reported for poor knowledge (81.44%, n= 79) while majority of third-year students reported for fair knowledge (55.81%, n=24). Of the students who participated from their second year and third year, majority had fair attitudes reported by 66 (68.04%) and 32 (74.42%) students respectively.

Table 2 shows the students who had extra reference to pain management reported more fair attitudes (66.67%, n= 20) and fair knowledge (60%, n=18).

The students who had been exposed to the pain education program majority reported fair attitudes (53.85 %, n= 7) and 69.23% (n= 9) had poor knowledge. Majority who had fair attitudes reported by the students not been referred to any extra reading material (71.65%,

n= 91) (Table 3). A significant difference in median scores both knowledge ($p=0.000$) and attitudes ($p=0.000$) were identified regarding the academic year. And also, there is a significant difference in the median score of both knowledge ($p= 0.037$) and attitudes ($p=0.012$) that were identified regarding reference to extra reading materials. There is no statistical significance between the median score of knowledge ($p=0.410$) and attitudes ($p= 0.278$) identified for the exposure to the pain education program (Table 4). Spearman's correlation test indicates the positive correlation between knowledge and academic year (0.398), attitude and academic year (0.323),

Discussion

In this study, the majority had poor knowledge and fair attitudes. Other researchers in other countries have reported similar results which show a deficit of knowledge and attitudes toward pain management [8, 12]. The results of the current study line with the study done in Louisiana showed severe knowledge deficits relating to pain and pain management [13]. Proving the results, the study among Iranian nursing students identified that nursing students had inadequate knowledge of pain management [14]. And also, a study conducted among baccalaureate nursing students determined that the students had inadequate knowledge and attitudes regarding pain management [3]. Proving the results, the undergraduate nursing students' knowledge and attitude regarding the pain management of children in Upper Egypt reported a higher percentage of participating students who had less than 50% of the total score of knowledge and attitude regarding pain [10].

In the current study, there is no statistically significant relationship between exposure to randomly conducted pain education programs with both knowledge and attitudes toward pain management. The results line with the findings of the study in Palestine showed there were no

statistically significant differences between the nurses' total average score on knowledge of pain management and demographic characteristics, except for their initial level of education [15]. Contrast findings of the study showed that there was a significant difference found in the nursing students' scores related to pain management training [8].

The current findings of this study also revealed that the majority (70 %) of the nurses had a moderate attitude towards pain management. The study findings were inconsistent with the study in Saudi Arabia, nursing students had lack of attitude towards pain management [16]. Moreover, the contrast findings of the study in Jordan showed that the attitude among nursing students towards pain management was negative [17].

The present study reported the year of study and additional study of reference materials were significantly related to both knowledge and attitudes toward pain management. Third-year students had more knowledge and attitudes than second-year students. In contrast to the results of the current study the University of Connecticut (UConn), School of Nursing, found that juniors performed better than 4th and 5th-year seniors when caring for hematology/oncology patients [18]. This may be related to repeating education on pain in both classroom and clinical settings of the third-year students.

This study is limited to the knowledge and attitude of nursing students in a single nursing school. Therefore, this study is implicated for further research to conduct the study in several nursing schools or compare the knowledge and attitude of nursing students with staff nurses.

Conclusion and recommendations

In light of all of these findings, it is thought that the present study will help in the nursing curriculum to provide opportunities to plan and include pain education programs for nursing students. The findings highlight the nursing

school's role is to motivate the students to improve their knowledge and attitude through extra reading on available reference materials and participation in educational programs. Pain management

education needs to be strengthened and positive attitudes should be cultivated through curricular reforms in nursing education in Sri Lanka.

Author declaration

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References

- [1] Mathew PJ, Mathew J L, Singhi S, Knowledge, attitude and practice of paediatric critical care nurses towards pain: a survey in a developing country setting. *Journal of Postgraduate Medicine*. (Internet) 2011 (2018- Sep 10); 57(3): 196-200. Available from <https://www.ncbi.nlm.nih.gov/pubmed/21941056>.
- [2] Matthews E, Malcolm, C, Pain management. Nurses' knowledge and attitudes in pain management. *British Journal of Nursing*, (Internet) 2007 (2018 Sep 10); 16(3): 174-179.
- [3] Goodrich C, Students' and faculty members' knowledge and attitudes regarding pain management: a descriptive survey. *Journal of Nursing Education*. (Internet) 2006 (2018 Sep 11); 45(3): 140-142. Available from <https://www.ncbi.nlm.nih.gov/pubmed/16562805>.
- [4] Kehlet H, Jensen T S, Woolf C J, Persistent postsurgical pain: risk factors and prevention. *Lancet*. (Internet)2006 (2018 Sep 12); 13;367:1618-1625. Available from <https://www.ncbi.nlm.nih.gov/pubmed/16698416>.
- [5] De Silva B S, Rolls C, Attitudes, beliefs, and practices of Sri Lankan nurses toward cancer pain management: an ethnographic study. *Nursing Health Science*. (Internet) 2011 (2018 Sep 10); 13(4):419-24. Available from <https://www.ncbi.nlm.nih.gov/pubmed/21902777>.
- [6] Manwere A, Chipfuwa T, Mukwamba M M, Chironda G, Knowledge and attitudes of registered nurses towards pain management of adult medical patients: A Case of Bindura Hospital, *Health Science Journal*, (Internet)2015 (2018 Sep 13); 9(4): 3. Available from <https://www.researchgate.net/publication/282988117>.
- [7] Lui L Y, So W K, Fong D Y, Knowledge and attitudes regarding pain management among nurses in Hong Kong medical units. *Journal of Clinical Nursing*, (Internet) 2008 (2018 Sep 14); 17(15): 2014-2021. Available from <https://www.ncbi.nlm.nih.gov/pubmed/18720572>
- [8] Al-Khawaldeh O A, Al-Hussami M, Darawad M, Knowledge and attitudes regarding pain management among Jordanian nursing students. *Nurse Education Today* (Internet) 2013 (2018 Sep 15); 33(4):339-45. Available from <https://www.ncbi.nlm.nih.gov/pubmed/23398912>
- [9] Chan J C Y, Hamamura T, Emotional intelligence, pain knowledge and attitudes of nursing

- students in Hong Kong. Pain management in Nursing, (Internet) 2016 (2018 Sep 12); 17(2): 159-168. Available from [https://www.painmanagementnursing.org/article/S1524-9042\(16\)00024-2/abstract#%20](https://www.painmanagementnursing.org/article/S1524-9042(16)00024-2/abstract#%20)
- [10] Gadallah M A E, Hassan A M H, Shargawy S A E H, Undergraduate nursing students' knowledge and attitude regarding pain management of children in Upper Egypt. Journal of nursing education and practice (Internet)2017 (2018 Sep 10); 7(6): Available from <http://www.sci.edu.ca/journal/index.php/jnep/issue/view/788>
- [11] Shdaifat E, Al-Shdayfat N, Sudqi A. Saudi nursing students' pain management knowledge and attitudes. Nurs Open. 2020 Aug 11;7(6):1833-1839. doi: 10.1002/nop2.570. PMID: 33072368; PMCID: PMC7544852.
- [12] Chow K M, Chan J C, Pain knowledge and attitudes of nursing students: a literature review. Nurse Education Today, (Internet)2015 (2018 Sep 10); 35(2):366-372. Available from <https://www.ncbi.nlm.nih.gov/pubmed/25466789>
- [13] Plaisance L, Logan C, Nursing students' knowledge and attitudes regarding pain. Pain Management in Nursing. (Internet)2006 (2018 Sep 10); 7(4):167-75. Available from <https://www.ncbi.nlm.nih.gov/pubmed/17145491>.
- [14] Rahimi-Madiseh M, Tavakol M, Dennick R, A quantitative study of Iranian nursing students' knowledge and attitudes towards pain: implication for education. Iranian Journal of Nursing Practice. (Internet)2010 (2018 Sep 10); 16(5): 478-483. Available from <https://www.ncbi.nlm.nih.gov/pubmed/20854345>
- [15] Salameh B, Nurses' knowledge regarding pain management in high acuity care units: A case study of Palestine. Int J Health Sci (Internet)2018 (2019 March 18); 12(3): 51–57. Available from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5969775/>
- [16] Alsaqr S H. Nursing student's knowledge and attitudes toward pain management at Hail University, Saudi Arabia. International Journal of Advanced and Applied Sciences 2018; 5(3): 75-81. <https://doi.org/10.21833/ijaas.2018.03.011>
- [17] Al Khalaileh M, Al Qadire M. Pain management in Jordan: nursing students' knowledge and attitude. Br J Nurs. 2013 Nov 28-Dec 11;22(21):1234-40. doi: 10.12968/bjon.2013.22.21.1234. PMID: 24280924.
- [18] Laprise J, Identification of Student Nurses' Knowledge and Attitudes Regarding Paediatric Pain Management (Internet): University of Connecticut;2016. Available from https://opencommons.uconn.edu/cgi/viewcontent.cgi?article=1024&context=usp_projects

Table 1: Knowledge and attitudes by academic year of the students

	Level	Second year		Third Year	
		F	%	F	%
Knowledge	Good	-	-	-	-
	Fair	18	18.56	24	55.81
	Poor	79	81.44	19	44.19
Total		97	100	43	100
Attitudes	Good	5	5.15	5	11.63
	Fair	66	68.04	32	74.42
	Poor	26	26.81	6	13.95
Total		97	100	43	100

Table 2: Knowledge and attitudes by extra reference of reading materials on pain management

Attitude level	Extra reference of reading materials on pain management				Knowledge level	Extra reference of reading materials on pain management			
	N	%	N	%		N	%	N	%
Good	5	16.67	5	4.54	Good	0	-	0	-
Fair	20	66.66	78	70.91	Fair	18	60	24	21.82
Poor	5	16.67	27	24.55	Poor	12	40	86	78.18
Total	30	100	110	100		30	100	110	100

Table 3: Level of knowledge and attitudes with exposure to pain educational program

Attitude level	Exposure to pain educational program				Knowledge level	exposure to pain educational program			
	N	%	N	%		N	%	N	%
Good	2	15.38	8	6.3	Good	0	-	0	-
Fair	7	53.85	91	71.65	Fair	4	30.77	38	29.92
Poor	4	30.77	28	22.05	Poor	9	69.23	89	70.08
Total	13	100	127	100		13	100	127	100

Table 4: Relationship of selected associated factors with the level of knowledge and attitude of the participants

	Knowledge			Attitude		
	Median	IQR	significance	Median	IQR	significance
Academic year						
Second year	13	5	P=0.000	7	3	P= 0.000
Third year	17	3		9	3	
Extra reference						
Reference	18	3	P= 0.037	9.5	4	P=0.012
No reference	11	3.5		7	3	
Pain education program						
Participated	14	5	P=0410	6.5	4	P= 0.278
Not participated	13	4		6	5	