Kurdish Studies
Jan 2024
Volume: 12, No: 1, pp. 3213-3222
ISSN: 2051-4883 (Print) | ISSN 2051-4891 (Online)
www.KurdishStudies.net

Received: October 2023 Accepted: December 2023
DOI: https://doi.org/10.58262/ks.v12i1.231

An Examination of Nurses' Knowledge and Attitude toward Pain Management at Hai Duong Provincial General Hospital in Vietnam Using a Cross-Sectional Approach

Nga Thi Nguyen[1], Huyen Thi Hoa Nguyen[2], Nhu Thi Thuy Pham[3], Anh Tuan Truong, Quang Duc Tran, Tran Ngoc Tran[4] , Hoang Huy Duong[5]

Abstract

Nurses are essential in ensuring patients to receive proper pain management. There are, however, few studies assessing Vietnamese nurses' attitudes and knowledge on pain treatment, particularly among those employed in provincial hospitals. This cross-sectional descriptive study was conducted to determine the factors influencing the attitudes and knowledge of 200 nurses at Hai Duong Provincial General Hospital on pain treatment. Participants were randomly selected, and the structured Knowledge and Attitude Survey Regarding Pain (KASRP) was used to assess their attitudes and knowledge. The factors correlated with nurses' knowledge and attitudes on pain treatment were examined using logistic regression. The results showed that 78% of nurses had KASRP scores below 70%, indicating low degrees of knowledge and attitudes toward pain management. Higher levels of KASRP were positively correlated with higher educational attainment (OR=3.55, 95%CI=1.35-9.32, p=0.01) and attendance at previous pain management courses (OR=3.65, 95%CI=1.57-8.47, p = 0.03). These results imply that in order to give nurses the information and practical skills they need to enhance the standard of pain treatment for patients, pain management education programs are required.

Key words: *Nurse, Knowledge, Attitude, Pain Management.*

1. Introduction

Pain is a prevalent reason for hospitalization, with up to 71.6% of hospitalized patients experiencing it (Tawil, Iskandar, Salameh, 2018). Unfortunately, pain management during hospital stays is often inadequate, with 55-78.6% of patients reporting moderate to severe discomfort (Benimana, 2017). In Vietnam, a study of 12,136 outpatients in 43 provinces and cities revealed that approximately 85.6% of patients experienced pain-related discomfort (Nguyen, Dinh, Nguyen, et al., 2019). This highlights the significant impact of poorly managed pain on patients' physical health, including increased heart rate and blood pressure, compromised blood flow, and the development of blood clots. These consequences of pain often result in longer hospital stays and more acute pain, which in turn, lead to sleeplessness, anxiety, and depression (Adesoye & Duncan, 2017; Gan, 2017; Kahsay & Pitkajavir, 2019). Therefore, effective pain management is essential to prevent these adverse effects and improve patient outcomes and quality of life.

[1] Nam Dinh University of Nursing, Vietnam
[2] Email: huyen.nth@vinuni.edu.vn
[3] Hai Duong Medical Technical University, Vietnam
[4] Vin University, Vietnam
[5] Thai Binh University of Medicine and Pharmacy, Vietnam

When it comes to patient care, nurses are essential and frequently have the most frequent and direct interactions with patients (Bartoszczyk, Gilbertson-White, 2015). In order to effectively assess and manage pain, nurses must possess a thorough understanding of the relevant concepts, knowledge, attitudes, and practical skills (Alkhatib, Al Qadire, & Alshraideh, 2020; Kalkman, Van Wijck, 2017). More effective practice in this area may result from improving nurses' attitudes and understanding of pain treatment (Alzghoul & Abdullah, 2015).

However, evidence suggests that nurses may have inadequate attitudes and knowledge when it comes to pain management. In Saudi Arabia, for example, 70.1% of nurses were found to have a low degree of attitudes and knowledge related to pain management (AL-Sayaghi, Fadlalmola, Aljohani et al., 2022), while in Iran the proportion was 66.6% (Shahriary et al., 2015).

In Vietnam, the health care system in general and the health system in Hai Duong province in particular, including Hai Duong Provicial General Hospital, pain sign is not considered one of the vital signs requiring nursing care, monitoring and daily care for entire inpatients**.** On the other hand, the nurse performs intervention and uses painkillers for the patient under the doctor's prescription. Due to these reasons, reality shows that nurses in Vietnam as well as nurses at Hai Duong Provincial General Hospital tend not to be truly proactive in monitoring, detecting and promptly treating pain for patients. Knowledge plays an extremely important role in promoting nursing practice. However, studies conducted in Vietnam assessing the current status of nurses' pain management knowledge have shown inconsistent results. Certain studies conducted in Vietnam have yielded encouraging findings, suggesting that nurses there had a fair degree of expertise and a favorable approach towards pain management (Nguyen, Mai, Diep et al., 2020), while others have reported the opposite, with percentages ranging from 77.8% to 94% of the study population demonstrating inadequate knowledge or negative attitudes towards pain management (Tran, 2020; Nguyen, Dang, Nguyen et al., 2021). These inconsistent findings underscore the need for further research in this area, particularly in the context of Vietnam, to better understand the status of nurses' perspectives and understanding of pain treatment. This project aims to determine the nurses' attitudes and expertise regarding pain management in Hai Duong General Hospital, Vietnam – a regional hospital where pain management is under-researched and lacks evidence for clinical practice that is appropriate for the province's social and cultural context. Such research will help to identify factors associated with these knowledge gaps and inform nursing care and practice, ultimately leading to improved patient health outcomes.

2. Method

2.1. Research Design

A cross-sectional descriptive approach was used in this study. The study was conducted from May to June 2022 at Hai Duong General Hospital, a leading healthcare facility in the Northern region of Vietnam known for its excellence in examination, treatment, medical examinations, and nurse-patient care.

Cluster sampling technique was used to select 200 eligible nurses who provided direct patient care and had at least one year of working experience. The study only included nurses who volunteered to be included; nurses who were employed as administrative nurses or were on maternity or sick leave were not included.

2.2. Research Instrument

The Nurses' Knowledge and Attitude Regarding Pain (Nurse KASRP) questionnaire, created by Ferrell and McCaffery (2014), was the research tool utilized in this study to evaluate nurses'

attitudes and knowledge regarding pain treatment. Test-retest reliability (0.8O) and internal consistency (0.70%) of the validated KASRP were reported in earlier investigations (Ferrell & McCaffery, 2014).

There are 22 true or false questions, 15 multiple-choice questions, 5 short answer questions, and two scenarios total in the KASRP. There is a total score range of 0 to 42 points, with one point awarded for each correct response and zero for each erroneous response. Nurses with an overall score of 70 percent or more are considered to have great knowledge and an attitude toward pain treatment, per McDonald's recommendations (McDonald, 2002).

The KASRP was translated into Vietnamese and was used in a previous study conducted by Nguyen, Dang, Nguyen, and colleagues (2021). Their study found that the Vietnamese version was easy for Vietnamese nurses to understand and had good content validity, construct validity, and reliability. The internal reliability, measured by the Cronbach Alpha value, was 0.888, and the test-retest reliability, measured by the ICC value, was 0.977. The researchers obtained permission from Ferrell, McCaffery, Nguyen, Dang, Nguyen & et al. (2021) to use the Vietnamese version of the KASRP for this study.

Nguyen, Dang, Nguyen, and associates (2021) translated the KASRP into Vietnamese and applied it in an earlier investigation. According to their research, the Vietnamese version showed strong construct validity, content validity, and reliability and was simple enough for Vietnamese nurses to grasp. Test-retest reliability was determined by the ICC value at 0.977 and internal reliability by the Cronbach Alpha value at 0.888. Ferrell, McCaffery, Nguyen, Dang, Nguyen & et al. (2021) granted permission for the researchers to utilize the KASRP's Vietnamese translation in this study.

2.3. Data Collection

Researchers used a self-administered survey to gather information on nurses' attitudes and knowledge on pain treatment. Participants were informed about the goal, methodology, and voluntary nature of the study prior to data collection. There was no effect of their participation on their research or employment status. It took the nurses around thirty minutes to finish the survey.

2.4. Data Management and Analysis

SPSS version 26.0 was used to enter and evaluate the gathered data. Prior to analysis, data cleaning was done, and participant identity was preserved by removing all identifying information. The data were summarized using descriptive statistics, which were then shown in tables and charts. For continuous variables, the demographic data was shown as Mean ± SD, and for categorical categories, as frequencies or percentages. The study utilized binary logistics regression to investigate the impact of several factors on the knowledge and attitude of nurses on pain treatment. A p-value that was less than 0.05 on both sides was deemed statistically significant. The variables linked to nurses' attitudes and knowledge of pain treatment were included to the regression model using the enter technique, and the model's quality of fit was assessed using the Hosmer-Lemeshow test. All independent variables were entered, and the results were shown as OR with 95% confidence interval.

3. Results and Discussions

3.1. Sociodemographic features

According to the study, 66% (n=132) of the participants had a bachelor's degree or above, and 75% (n=150) of the participants were female. The mean duration of nursing employment was

5.6 years (SD = 4.4), with 47% of nurses (n = 94) possessing over 10 years of experience, and 43% of nurses (n = 87) employed in the surgical unit. Furthermore, only 17% of the nurses had participated in pain-related training.

Table 1. Socio-Demographic Characteristics of Nurses (N= 200).

Variable	Category	Frequency (n)	Percent (%)
Gender:	Male Female	50 150	25 75
Educational level	Diploma and college level University level Master level	68 1293	34 64.5 1.5
Years of experience	1- < 5 years 5-10 years ≥ **10 *years***	28 78 94	14 39 47
Working department	Internal Medicine Surgery Oncology Others	57 87 32 24	28.5 43.5 16 12
Attended pain treatment training courses	Yes No	34 166	17 83

3.2. Nurses' Attitudes and Knowledge About Pain Treatment

According to the survey, just 22% (n=44) of nurses had acceptable levels of knowledge and attitude about pain treatment, compared to the majority (78%; n=156) who had low levels (Figure 1). The average correct answer rate across the 41 items of the scale was 47.25%, with a range of correct responses for each item from 9.5% to 85.5%. Items 7, 10, 14, 20, 21, 22, 23, and 25, which pertained to the attitude and knowledge of using pain medication, had the highest percentage of correct answers. In contrast, items 2, 4, 36, 37, 38a, 38b, 39a, and 39b had the lowest percentage of correct responses. These items dealt with pain in children, how patients' pain affects their sleep, physical dependence on opioids, opioid-induced respiratory depression, pain intensity assessment, and dose of opioid medication (Table 2).

Figure 1 The Proportions of KARPS Levels Among Nurses (N=200).

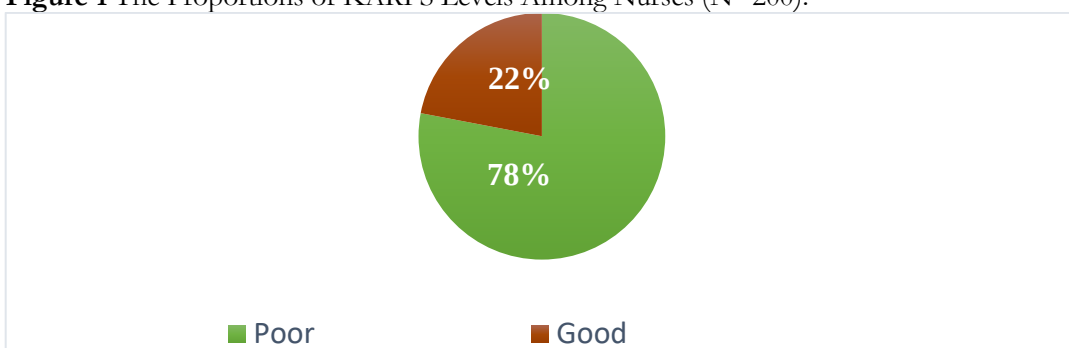

Table 2. Items In KARPS With Highest and Lowest Rate of Correct Answers by Nurses.

Item Number	Item's Content	N	%
	Items with highest rate of correct answers		
Item7	When analgesics that function through distinct mechanisms are combined (for example, an NSAID and an opioid), the combined impact may be less side effects and greater pain management than when the analgesic is used alone.	146	73
Item10	Opioids are not tolerated by elderly persons for pain management.	146	73
Item 14	A patient's response should be taken into consideration when adjusting the dosage of an opioid analgesic after the first dose.	171	85.5

Item Number	Item's Content	N	%
Item 20	Addiction to narcotics or opioids is characterized by a chronic neurologic condition and behaviors that include compulsive drug use, decreased control over drug use, persistent use despite damage, and yearning.	155	77.5
Item 21	When referring to the dosages of different analgesics that offer roughly the same level of pain relief, the word "equianalgesic" denotes approximately equal analgesia.	156	78
Item 22	Because opioid-induced respiratory depression is preceded by severe sedation, sedation evaluation is advised during opioid pain treatment.	166	83
Item 23	For patients experiencing ongoing pain associated to cancer, the following routes of opioid analgesic administration are advised a intravenous b. intramuscular c. subcutaneous d. oral e. rectal	156	78
Item 25	Which analgesic medicine is recommended as the first choice when treating cancer patients' chronic moderate to severe paina.codeine b. morphine c. meperidine d. tramadol	161	80.5
Items with lowest rate of correct answers			
Item 2	Children under two have a lower threshold for pain and a shorter recall span for traumatic events due to their developing neural systems.	63	31.5
Item 4	Even in extreme discomfort, patients can still sleep.	66	24
Item 36	When an opioid is abruptly stopped, the following symptoms of physical dependency appear a. Agitation in patients with sudden withdrawal of the opioid; sweating, yawning, diarrhea.b. Reduced ability to regulate cravings, obsessive drug usage, and drug use.b. The requirement for greater dosages to get the same results. d. a and b	38	19
Item 37	Which of the following claims about opioid-induced respiratory depression is true a. Due to a buildup of opioids, more frequent a few nights following surgery.b. One significant risk factor is obstructive sleep apnea.c. Happens more commonly in patients who were previously taking larger opioid dosages before to surgery. d. Is simple to evaluate using intermittent pulse oximetry.	64	32
Item 38a	You must indicate the patient's discomfort on the following scale on his medical record. Mark the number that corresponds to your evaluation of the patient's suffering No pain/discomfort/Worst Pain/discomfort	21	10.5
Item 38b	Two hours have passed after he got the 2 mg of morphine IV in your evaluation above. After the injection, his half-hourly pain ratings ranged from 6 to 8, and he did not experience any drowsiness, respiratory depression, or other undesirable side effects. He determined that a pain alleviation score of 2/10 was appropriate. His doctor prescribed "morphine IV 1-3 mg q1h PRN pain relief" as his analgesic. Verify the action you plan to perform right now.1. Administer no morphine at right now.2. Administer morphine 1 mg IV now.3. Administer morphine 2 mg IV now.4. Administer morphine 3 mg IV now.	18	9
Item 39a	You must indicate the patient's discomfort on the following scale on his medical record. Mark the number that corresponds to your evaluation of the patient's suffering. No pain/discomfortWorst Pain/discomfort	23	11.5
Item 39b	Two hours have passed after he got the 2 mg of morphine IV in your evaluation above. After the injection, his half-hourly pain ratings ranged from 6 to 8, and he did not experience any drowsiness, respiratory depression, or other undesirable side effects. He determined that a pain alleviation score of 2/10 was appropriate. His doctor prescribed "morphine IV 1-3 mg q1h PRN pain relief" as his analgesic. Verify the action you plan to do at this moment:1. Administer no morphine at this time.2. Administer morphine 1 mg IV now.3. Administer morphine 2 mg IV now.4. Administer morphine 3 mg IV now.	24	12

3.3. Factors Influencing Nurses' Attitudes and Expertise About Pain Management

To evaluate the relationships between predictors and dependent variables, all elements pertaining to nurses' knowledge and attitudes about pain treatment were included into a binary logistic regression model. All of the predictors in the whole model were statistically significant, $\chi 2$ (df = 8, n = 200) = 25.123, p = 0.01, suggesting that the model was able to differentiate between nurses who had low or good attitudes and understanding on pain management. The whole model properly identified 79% of cases and explained between 11.8% (Cox and Snell R square) and 18.1% (Nagelkerke R squared) of the variation in nurses' knowledge and attitude toward pain care. There was no indication of a poor fit using the Hosmer-Lemeshow goodness of fit with $\chi 2$ = 5.627, p = 0.689.

As shown in Table 3, Factors that were highly correlated with nurses' attitudes and expertise in pain management ($p < 0.05$). Nurses holding a university degree or higher had 3.55 times higher levels of knowledge and attitude than a college degree holder and lower (OR=3.55, 95%CI = 1.35- 9.32, p=0.01). Additionally, nurses who had previously participated in pain training had 3.65 times higher levels of attitudes and knowledge than those who had not undergone any related training (OR=3.65, 95%, CI = 1.57-8.47, p=0.03).

Table 3. Predictors of Attitude and Knowledge About Pain Treatment Among Nurses by Binary Logistic Regression.

Variable	Category	B	OR	95% CI	p
Sex	Male	0.371 Ref	1.45	0.64 – 3.28	0.373
	Female				
Education level	Bacherlor and Master degree	1.27 Ref	3.55	1.35-9.32	0.01
	Intemediate and College degree				
Years of experience	1-5 years	Ref			0.89
	5-10 years.	-0,074	0,928	0,273-3,16	0,905
	≥ 10 years	0,131	1,14	0,35-3,69	0,827
Working department	Medical	Ref			0,334
	Surgical	0,631	1,88	0,78-4,56	0,16
	Oncology	0,01	1,01	0,28-3,63	0,99
	Other	-0,225	0,799	0,21-3,07	0,74
Join a training course	Yes	1,29 Ref	3,65	1,57-8,47	0.003
	No				

3. 4. Discussions

Our study sheds light on the present understanding of pain treatment and attitude among nurses in Vietnam. A total of 200 eligible nurses took part in our study, and the majority of them, 156 (78%), had KASRP scores below 70%, indicating their low degrees of understanding and attitudes around pain management based on grading standards developed by McDonald's (2002). Our findings showed that a higher percentage of nurses had insufficient levels of pain management knowledge and attitude compared to two recent investigations in Vietnam using the same KASRP scale, conducted by Nguyen et al. in Vietnam National Geriatric Hospital (Nguyen, Dang, Nguyen & et.al., 2021) and by Doan et al. in Vietnam National Hospital (Doan, Nguyen, Duong & et.al., 2022), and a study in Saudi Arabia (AL-Sayaghi, Fadlalmola, Aljohani & et.al., 2022). The ratio of study participants with inadequate levels of pain management

knowledge and attitude in those three studies was 72.2%, 74%, and 70.1%, respectively. There are several possible reasons for the higher percentage found in our study. Firstly, our study was conducted in a regional hospital where support and training for health staff are less prioritized by the government compared to urban and national hospitals. Additionally, our findings suggest that the local hospital did not offer adequate assistance for continuing programs on pain treatment, as 166 (83%) of our study participants reported receiving no workplace training on the subject. Furthermore, the majority of our study participants were women (n=150; 75%) who often face multiple responsibilities such as motherhood, housework, and childcare, leaving them with little time for independent study via books or the internet. Finally, the lack of options for continued education and official databases concerning nurses' pain management in regional clinics may also be a factor in the low levels of attitude and knowledge about pain treatment found in our study.

Notably, our study revealed that a staggering 83% (n=166) of the participants had never taken a pain management course. This finding aligns with a similar survey conducted at Bharatpur Hospital in Nepal, where 86.5% of nurses reported never having received training or in-service education on pain management (Thapa & Gurung, 2020). In contrast, a study conducted at a rural hospital in China reported a lower percentage of nurses (44.6%) who had not received training in pain management (Ou, Xu, Chen & et.al., 2020).

Our study identified the top 8 questions that nurses answered correctly at a rate of 70 percent or higher. These questions involved selecting painkillers for cancer patients with moderate to severe pain, combining analgesics, tolerating opioids in elderly patients, adjusting opioid analgesic after an initial dose, defining opioid addiction, and understanding the term "equianalgesic." This general knowledge about opioid medications is considered fundamental. Our findings revealed that 65% of participants in the university nursing training program held bachelor's degrees or higher and had studied this general knowledge during their program's study. In contrast, the Hai Duong General Hospital Policy warns personnel to use opioid medications with caution and lists them as one of the substances. Our study's results are consistent with earlier research, which showed nurses were more likely to answer related questions correctly. Additionally, other studies confirmed that nurses properly answered questions related to adapting initial dosages of opioid analgesic and combining analgesics. These findings suggest that continuous training programs for pain management should revisit these topics briefly and focus on other aspects of pain management.

On the opposite end of the spectrum, the lowest rates of correct response (ranging from 9-32% of nurses) were observed in response to items 2, 4, 36, 37, as well as the two scenarios. These questions focused on topics such as pain in children, the impact of pain on sleep, physical dependence on opioids, opioid-induced respiratory depression, assessment of pain severity, and opioid dosing - all of which require specialized pain knowledge, opioid management, and pain assessment skills. These findings are unsurprising given that 83% (n=166) of the study's participants had not undergone any pain management training, indicating a lack of knowledge in effectively managing pain.

Effective pain management is crucial in improving patients' quality of life and reducing the burden of diseases on their daily activities. Thus, it is important to address risk elements influencing nurses' perspectives and understanding of pain treatment to support their work and patients' recovery. According to our research, nurses' levels of knowledge and attitudes toward pain management were found to be independently correlated with their educational background and attendance at pain training sessions. Specifically, nurses holding a bachelor's

or post-graduate degree had 3.55 times greater knowledge and attitude levels compared to those holding vocational training degrees. Moreover, nurses who attended previous training on pain management had 3.65 times higher levels of knowledge and attitude than those who had not been trained. These findings are consistent with two systematic literature reviews by Bouya et al. (2018) and Abdulwahab, Kehyayan, & Tawafsheh (2020), as well as other studies conducted in Spain (Martn-Gil, López, & CS, 2021) and Vietnam (Nguyen et al., 2021). These results underscore the importance of providing pain management training courses that meet nurses' educational levels and social and cultural contexts. Regional provinces like Hai Duong in Vietnam should have suitable policies in place to enable nurses to advance their education and access training programs on pain management to address this pressing issue.

4. Contributions and Drawbacks

This study is deemed to be the first of its type in Hai Duong province, Vietnam and the instrument used in the study underwent rigorous testing to ensure its validity and reliability. The sample size was quite large and participants were randomly selected from various nursing areas, which means that the research results accurately represent all nurses at Hai Duong Provincial General Hospital. However, the study was limited by the fact that all participants were only selected from one medical facility, which may limit the generalizability of the findings to other hospitals. Additionally, self-report bias could be a possible limitation as nurses who answered incorrectly may have been less interested in the topic compared to those who answered correctly.

5. Conclusion

To sum up, our cross-sectional research revealed that a large percentage of nurses in the sample (78%) had low levels of knowledge and attitudes toward pain treatment. Although the majority (86%) of participants has more than 5 years of clinical working experience, only 17% had participated in pain management training, suggesting an absence of support for nurses to update their understanding and skills in this area. Our findings highlight the urgent need for changes in hospital and provincial policies in regional areas to prioritize continuous training programs in pain management for nurses. Our statistics revealed that educational level and previous attendance in pain management training were significant factors influencing nurses' knowledge and skills in this field, suggesting that training programs should focus more on nurses holding vocational training degrees.

6. Recommendations

Nurses are the leading medical team in a medical facility providing timely care to patients. Therefore, to improve the knowledge and attitude of pain management for nurses, Hai Duong Provincial General Hospital should develop a training course to provide comprehensive knowledge related to pain management, especially the training course focusing on the knowledge that most nurses lack such as pain manifestations in children, the effects of pain on sleep, the body's dependence on opioid drugs, the effects of opioids on the respiratory system, assessment of pain level and opioid dosage. In addition, hospital leaders should give chances for nurses to have the opportunity to improve their education level so that they will be able to seek information to update their professional knowledge.

For nursing schools, it is recommended to design a separate pain management module in the training program to help equip the nursing staff with adequate knowledge in the future, thereby improving proactiveness, management practice and more effective pain management for nurses.

References

1. Abdulwahab, S., Kehyayan, V., Al-Tawafsheh, A.(2020). Factors influencing nurses' knowledge and attitude toward patients in chronic pain with opioid use disorder: A literature review. Journal of Nursing Education and Practice, 10(9); 37-46. Doi: 10.5430/jnep.v10n9p37
2. Adesoye, A., Duncan, N. (2017). Acute Pain Management in Patients with Opioid Tolerance. US Pharm, 42(3), 28-32.
3. Alkhatib, G.S., Al Qadire, M., Alshraideh, J.(2020). Pain Management Knowledge and Attitude of Healthcare Professionals in Primary Medical Centers. Pain Manag Nur, 21; 265–270. [Google Scholar] [CrossRef]
4. AL-Sayaghi, K.M., Fadlalmola, H.A., Aljohani, W.A., et.al.(2022). Nurses'Knowledgeand attitude regarding pain assessment and Management in Saudi Arabia. Healthcare, 10, 528. https://doi.org/10.3390/healthcare10030528
5. Al-Zghoul, B. I. S. (2016). Determinants of nurses' pain management practices in Jordan: The moderating role of patient's barriers (Doctoral dissertation, University Utara Malaysia).
6. Bartoszczyk, D. A., Gilbertson-White, S. (2015). Interventions for nurse-related barriers in cancer pain management. Oncol Nurs Forum, 42; 634–641. [PMC free article] [PubMed] [Google Scholar]
7. Benimana, O. (2017). "Knowledge, attitude, practices and challenges faced by nurses in pain management among surgical patients," in One Referral Hospital in Rwanda, University of Rwanda, Kigali, Rwanda. View at: Google Scholar.
8. Bouya, S., Balouchi, A., Malekneja, A., et.al. (2018). Cancer Pain Management Among Oncology Nurses: Knowledge, Attitude, Related Factors, and Clinical Recommendations: a Systematic Review. Journal of Cancer Education. https://doi.org/10.1007/s13187-018-1433-6
9. Brant, J. M, Keller, L., McLeod, K, et.al. (2017). Chronic and Refractory Pain: A Systematic Review of Pharmacologic Management in Oncology. Clin J Oncol Nurs, 21(3); 31–53.
10. Doan,T.N., Nguyen, V.D., Duong, H.T., et.al.(2022). Factors associated with knowledge and attitude among Vietnamese nursing staff regarding pain management in a Vietnam National Hospital. Journal of Neuroscience Nursing, 54(3); 136-142.
11. Ferrell, B., Mc McCaffery, M. (2014). Knowledge and Attitude Survey Regarding Pain. (www.cityofhope.org/NRE/resources).
12. Gan, T. J. (2017). Poorly controlled postoperative pain: prevalence, consequences, and prevention. J Pain Res,10; 2287–2298.
13. Kahsay, D.T., Pitkäjärvi, M. (2019). Emergency nurses' knowledge, attitude and perceived barriers regarding pain Management in Resource-Limited Settings: Cross-sectional study. BMC Nurs, 18, 56. [CrossRef]
14. McDonald, M.E. (2002). Systematic assessment of learning outcome: Developing multiple choice exams. Sudbury, M A: Jones and Bartlett Publishers.
15. Nguyen, A.T., Dang, A.K., Nguyen, H.T.T., et.al. (2021). Assessing Knowledge and Attitude Regarding Pain Management Among Nurses Working in a Geriatric Hospital in Vietnam. Journal of Multidisciplinary Healthcare, 14; 799–807

16. Nguyen, T.H., Mai, H.B.H., Diep, B.T., et.al (2020). Kiến thức và thái độ của điều dưỡng về quản lý đau trên bệnh nhân ung thư đang điều trị nội trú tại Bệnh viện Ung Bướu. Tạp chí Ung thư học Việt Nam; 441-443
17. Nguyen, V.C., Dinh, C.P., Nguyen, T.T.T., et.al. (2019). Pain incidence, assessment, and management in Vietnam: a cross-sectional study of 12,136 respondents. Journal of Pain Research, 12; 769–777
18. Shahriary, S., Shiryazdi, S. M, Shiryazdi, S.A., et.al. (2015). Oncology Nurses Knowledge and Attitude Regarding Cancer Pain Management. Asian Pac J Cancer Prev, 16(17); 7501–6.
19. Tawil, S., Iskandar, K., Salameh, P. (2018). Pain management in hospitals: patients' satisfaction and related barriers. Pharmacy Practice, 16(3); 1268.
20. Trần Q. P. (2020). Kiến thức và thái độ về quản lý đau sau phẫu thuật của điều dưỡng tại Viện chấn thương chỉnh hình Bệnh viện hữu nghị Việt Đức. Tạp chí Khoa học Điều dưỡng, 3(4); 58-63
21. Wondimagegn, Z.G., Hailemariam, H.A., Meshesha, T.A., et.al.(2021). Knowledge, Practice and Factors Associated with Pain Management for Adult Critical Ill Patients Among Nurses Working in Federal Hospitals of Addis Ababa Ethiopia 2020. American Journal of Clinical and Experimental Medicine. 9(2); 28-39. doi: 10.11648/j.ajcem.20210902.12