



ASSOCIATION BETWEEN NURSES' PERSONAL PAIN SENSITIVITY WITH KNOWLEDGE AND ATTITUDE OF PAIN MANAGEMENT

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ABSTRACT

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Effective pain management requires the right attitudes, judgments, skills, and knowledge that have an impact on pain treatment outcomes. A careful assessment of each individual's pain sensitivity is invaluable for the prevention, evaluation, and treatment of pain. This study aimed to describe nurses' knowledge and attitude toward pain management, to describe the nurses' personal pain sensitivity, and to determine the relationship between nurses' knowledge and attitude level toward pain sensitivity level. The method used in this research is a cross-sectional study with a survey design that provides a quantitative picture of pain sensitivity, knowledge, and attitudes towards pain management using KARSF and PSQ questionnaires with validity value ($r > 0.8$), and the internal consistency, or reliability, using Cronbach's alpha has been measured (> 0.7). The population are nurses who work in one of the private hospital in Bandar Lampung with participated sample are 160 nurses. The results show that the majority are lack of knowledge regarding pain management. It is indicated that 96.87% of the nurses lack knowledge with an average of 48,89. Pain sensitivity is categorized as moderate level. It is found that there is a relationship between knowledge and attitude with educational level with a sig 0.017 ($P < 0.050$). There is a significant relationship between knowledge and attitudes with a sig value of 0.022 ($P < 0.05$), and there is no significant relationship between knowledge and pain sensitivity with a sig. value of 0.689 ($p > 0.05$). Efforts to improve knowledge, attitudes, skills and pain sensitivity among healthcare professionals are needed, monitored and evaluated by the hospital administration to improve nurses' skills in pain management for better patient outcomes. Moreover, training or in-service education is very important to increase the knowledge and attitude of the nurses toward pain management. It is recommended that future researchers compare the nurses' pain sensitivity and the patient's pain sensitivity toward the patient's satisfaction with pain management.

Keywords:

Attitude, Knowledge, Nurse, Pain sensitivity

BACKGROUND

Pain is an unpleasant subjective sensation (Jayakar et al., 2021) and is responded to vary by how people report, react, and get treated (Cohen et al., 2020). Based on the duration felt by a person, pain is classified into acute and chronic pain. Acute pain has a short period of less than three months. For example, the pain after surgery can be controlled and mostly is resolved within a week (Glare, Aubrey & Myles, 2019). Chronic pain usually persist for at least three to six month, and happen when the usual time of tissue healing from the acute pain is prolonged (Price & Ray, 2019). Pain is a distressing, experience that is commonly associated with actual or potential tissue damage, and is accompanied by sensory, emotional, cognitive, and social components (Williams & Craig, 2016). More than 80% of patients who undergo surgical procedures experience acute postoperative pain and approximately 75% of those with postoperative pain report the severity as moderate, severe, or extreme. However, the majority of surgical patients experience acute postoperative pain, despite the availability of perioperative interventions and management strategies (Gan et al., 2014). In the United States, 126.1 million adults (55.82%) reported some level of pain in the previous three months of being surveyed, with 25.3 million adults (11.2%) experiencing chronic pain, 25.4 million adults (11.3%) experiencing moderate pain, and 14.4 million adults (6.4%) experiencing severe pain (Nahin, 2015). Evidence showed that more than three-quarters of patients report moderate, severe, or extreme postoperative pain in the postoperative period (Admassu, Hailekiros & Abdissa, 2016; Gan, 2017). For the first three days, post-operative pain is severe, unpleasant and uncomfortable hence it needs timely management (Kolobe, 2015). Therefore, equipping nurses with accurate, updated knowledge and skills about immediate post-operative pain management to give compassionate care, especially for patients hospitalized in surgical wards, is paramount (Madenski, 2014).

One of the most common chronic pain is cancer pain. According to WHO, cancer is the second leading cause of death globally, accounting for an estimated 8.6 million deaths, or one in six deaths, in 2018 (WHO, 2018b). In 2018, the prevalence of cancer in Indonesia was 1.8% (per mil) or an estimated 475,185 people had cancer out of a total 263,991,379 Indonesian population (The World Bank, 2017). The number of deaths from cancer in Indonesia is predicted to reach 207,210 people in 2018 (WHO, 2018a). More than half of people with cancer had

experienced pain and almost 50% of them reported moderate to severe pain (Paice, 2018). Aside from cancer pain, there are still various kinds of pain that health services are needed to manage and improve the patient's quality of life. Chronic pain is significantly associated with a lower quality of life and higher psychological distress (Inoue et al., 2015; Williams, and Craig, 2016). Moreover, pain provoked an onset of depressive or anxiety disorder in 15.5% of participants with no previous history of such disorder and no current evidence of depression or anxiety (Gerrits et al., 2014). The coexistence of depression and anxiety with chronic pain is strongly associated with severe pain (Tsatali et al., 2014) in which pain might indicate progression or tumour recurrence (Schmidt, 2015). A comprehensive assessment and an optimal pain management strategy might provide relief from pain and improve quality of life. In managing pain, two treatments are usually used simultaneously by health workers. Pharmacological treatment is the conservative treatment, which is using medicine to manage the pain. For example NSAIDS and opioids for osteoporosis pain (Vellucci et al., 2018), PPARs for chemotherapy-induced pain (Quintão et al., 2019), etc. Another treatment that can be used is non-pharmacologic treatment which usually uses alternative therapy aside from medicines. Using robots (Adelia & Nilasari, 2021), music (Kurniasih et al., 2021), compress and relaxation techniques (Sugianti and Joeliatin, 2019) are diverse examples of these treatments.

Undertreated post-operative pain is often associated with delayed mobility leading to delayed wound healing and deep vein thrombosis, pneumonia, chronic pain, coronary ischemia, myocardial infarction, and depressed immune function (Admassu, Hailekiros & Abdissa, 2016). All of these affect economic and medical conditions, such as extended hospital stay, re-admissions, and patient dissatisfaction with medical care (Fallatah, 2017; Bonkowski et al., 2018). Effective in postoperative patient management, healthcare professionals must have adequate knowledge, a positive attitude and good skills (Shoqirat et al., 2019). Pain is considered the "fifth" vital sign to be routinely assessed, nurses should give great attention to controlling postoperative pain (Chatchumni et al., 2016). They should also consider patients' self-report of pain which is the best to evaluate pain perceptions and cognitive response (Tomaszek et al., 2019). Evidence shows that less than half of patients undergoing surgery say they are free from acute postoperative pain. This inadequate pain control can affect the quality of life, daily functioning, and the func-

tion of improving conditions, even causing post-operative complications (Chou et al., 2016).

Nurses have a role in effective pain management through the use of pain assessment tools, behavioural observation, and analgesic choices (Burns & McIlfatrick, 2015). Pain management depends on systematic and accurate pain assessment carried out by both doctors and nurses. This serves as a guide in making decisions for the titration of analgesia and drugs needed (Crawford et al., 2016). Inadequate pain management may lead to unnecessary suffering and reduced quality of life (Wengström et al., 2014). Nurses, the person who stands by 24 hours with patients, have a crucial role in conducting pain management (Menlah et al., 2018). They are required to have enough knowledge to observe and give interventions related to pain (Smeland et al., 2018). Most nurses around the world have poor knowledge and attitudes regarding pain management, including in Indonesia (Samarkandi, 2018). This is the problem that can lead to another problem, namely ineffective pain management, which should be prevented (Iklima, Tania & Destian, 2022). Pain sensitivity varies in different people. Distorted reactions to pain may pose a substantial risk in the process of rehabilitation and convalescence (Tesarz et al., 2013). Innate pain sensitivity may affect the need for sedatives and analgesics during an intervention, as well as the response to pain treatment (Sellers et al., 2013). Anxiety is associated with pain intensity (Lauriola et al., 2019). Studies on clinical population suggest that perioperative psychological distress has a significant impact on post-surgical recovery, and it is associated with poor clinical outcomes after surgery to the hip, knee, and lumbar spine (Duivenvoorden et al., 2013; Pakarinen et al., 2014). There was also a synergistic interaction effect on pain tolerance when combining insomnia and chronic pain than sleep problems significantly increase the risk for reduced pain tolerance (Sivertsen et al., 2015).

Appropriate pain management can lead to shorter length of stay and allow for a quicker clinical recovery. The nurses' knowledge and positive attitudes about pain led to higher patient satisfaction (Brant et al., 2017). Poor knowledge and attitude of nurses regarding pain management can be influenced by various factors. Educational level, working experience (Kahsay & Pitkäjärvi, 2019), inadequate pain assessment, insufficient knowledge of pain control, and strict regulation of opioid use (Toba, Samara & Zyoud, 2019) is questionable whether or not it can affect nurses' knowledge and attitude toward pain management. Therefore, this study is conducted to

find the relationship between nurses' personal pain sensitivity towards the knowledge and attitude of pain management.

Based on the information above both knowledge and attitude and pain sensitivity are very important in pain management. However, the studies evaluate them separately. In this study, both of them are evaluated simultaneously and find whether there is a relationship between them. Therefore, the primary purpose of this study is to describe the level of knowledge attitude, and pain sensitivity of nurses toward pain management. It will answer the research questions: 1) what is the level of nurses' knowledge and attitude of pain management?; 2) what is the degree of nurses' pain sensitivity?; 3) what is the relationship between nurses' knowledge and attitude, and pain sensitivity?; 4) what is the relationship between educational level toward knowledge and attitude of nurses related to pain management?.

METHODS

This is a cross-sectional study with a survey design which provides a quantitative description of knowledge and attitude about pain management and also pain sensitivity.

The population of this study was all graduate nurses who worked in a Bandar Lampung Adventist Hospital with the criterion: graduate nurse with all degrees, work in the setting at least for one year, male and female, all ages and the exclusion criteria are nurses assistants or the workers without a nursing degree. All the nurses are given the same opportunities to participate. Data collection is conducted after being approved by the ethics committee with the clearance letter No.237/KEPK-FIK.UNAI/EC/VII/22. Data collection started from July 2022 to August 2022 in Bandar Lampung Adventist Hospital. A total of 190 questionnaires were distributed in the hospital setting both nursing units and clinical departments. The questionnaire contains two major parts. Part one is to assess nurses' knowledge and attitudes using the Knowledge and Attitudes Survey Regarding Pain (KASRP) which includes 30 questions (Ferrell & McCafery, 1987). Knowledge is assessed in questions 1-19, while attitude is assessed in questions 20-30. Each question is answered with "True" or "False" and one point will be given to the correct answer. There is no deduction point if the answer is wrong. Part two, Pain Sensitivity Questionnaire (PSQ) is utilized to obtain pain sensitivity level. It includes 17 Questions. The PSQ-minor score is obtained by calculating the average values of num-

bers 3, 6, 7, 10-12, and 14. The PSQ-moderate score is calculated as the average score of numbers 1, 2, 4, 8, and 15-17. These questionnaires are often used in previous studies with validity value ($r > 0.8$), and the internal consistency, or reliability, using Cronbach's alpha has been measured (>0.7). Data was analyzed using descriptive and correlational statistic analysis using SPSS. The level of knowledge will be scored as follows: $<70\%$ = Lack, 70-79 adequate, 80-89=good, and 90-100 very good. The level of pain sensitivity transferred from the 1-10 scale into the following: Scores: <4 = Mild, 4-7= Moderate, >7 Severe.

RESULTS

Respondents Demography

There are 190 questionnaires distributed to nursing staff but only 160 questionnaires were filled and returned to the desk of the researcher. The distribution of respondents based on gender, age, work experience and education can be seen in table-1.

Based on the table 1, most of the respondents are female with 80.6% while male only 19.4%. Regarding the age, most of the respondents are 20-50 years old. Only a small amount are over 50 years old. The percentage of length of work experience is larger between 11-20 years (29.4%), followed by 3-5 years (23%). The third row was between 6-10 of working experience (18.1%). In the fourth row was over 20 years of work experience. The smallest percentage of respondents had 1-2 years of working experience. It is found also that the largest number of respondents obtained a BSN degree (60.6%), followed by a Diploma degree (37.5%). Only a small percentage obtained a magister degree (1.9%), and none of them are PhD degree.

Description of Respondents' Knowledge and Attitude

The frequency and percentage of nurses who answer the question correctly are presented in Table 2. It can be seen that the highest scores (100%) were found on three attitude questions 28, 29,30 which is then followed by the second highest (98.10%) on the knowledge questions 15 and 16. There are 4 questions between 60% to 86.30%: They are questions 3, 12,13 and 26. The rest of the questions are under 60%. They are questions number 1, 2, 4, 5, 6, 7, 8, 9, 10, 11, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, and 27.

To determine the level of knowledge, a frequency and percentage analysis were carried out and

scored based on knowledge scoring by Arikunto (Arikunto,2010) from lack to very good knowledge. Based on Table 3, it can be seen that only one participant (0,63%) has very good knowledge and attitude regarding pain management. 4 participants have good knowledge and attitude regarding pain management. The majority of the participants (96.87%) have a lack of knowledge and attitude regarding pain management.

Description of Pain Sensitivity

The participants' pain sensitivity is displayed in Table 4. It was found the pain sensitivity both minor and moderate score were at moderate level.

The Correlation Analysis

To answer the research question of whether there is a correlation between knowledge and attitude toward pain sensitivity, the correlation bivariate is tested. It was found that the significant value was 0.77 (larger than 0.05). the result can be seen in Table 7. It can be interpreted that knowledge and attitude toward pain sensitivity are insignificant.

Based on Table 5, it is also found that there is a correlation between knowledge and attitude based on participants' education. When correlation analysis was utilized and found that the p-value was 0.017. It is lower than 0.05. So, it can be concluded that participants' pain knowledge and attitude correlate with participants' education level.

DISCUSSION

Based on the result, the average of the participant's knowledge and attitude toward pain management was 48.89 and categorized as lack of knowledge. It is also described that the majority of nurses (96.87%) lack knowledge and attitude regarding pain management. This is similar to previous studies in that nurses' knowledge and attitudes towards pain management at one of the private hospitals in Bandung, Indonesia were still lacking. The average value of nurses' knowledge and attitudes towards pain management was 48.13% (Silalahi & Perangin-angin, 2022). The lack of knowledge and negative attitudes of nurses towards pain management were found also in other countries outside Indonesia. Nimer & Ghayeb (2017) found nurses in 6 government and private hospitals in Palestine with an average score of 45.6%. Likewise, in the National Geriatric Hospital in Vietnam, 154 participants found not much different with an average value of 45.2% of knowledge and attitude toward pain management (Nguyen et al., 2021).

Table 1. Distribution of Respondents Based on Gender, Age, Work Experience, and Education

Demographic Data		f	%
Gender	Male	31	19.4
	Female	129	80.6
Age	20-30 years	52	32.5
	31-40 years	51	31.9
	41-50 years	55	34.4
	>50 Years	2	1.3
Work Experience	1-2 Years	21	13
	3-5 Years	37	23
	6-10 Years	29	18.1
	11-20 Years	47	29.4
	>20 Years	26	16.3
Education	Diploma	60	37.5
	BSN	97	60.6
	Magister	3	1.9
	PhD	0	0

This study also revealed that the lowest scores of knowledge and attitude fall under the question of visual assessment of pain. Only 4 respondents answered it correctly. Assessment is the first phase of the nursing process and it should be done correctly before continuing to the rest of the phase. Inappropriate assessment can cause erroneous in diagnosing, planning, and implementation (Potter & Perry, 2009). Appropriate pain assessment is an important part of quality care for critically ill patients, and the use of valid pain measures can aid in the evaluation of multidisciplinary pain management techniques. Uncontrolled pain triggers can have a negative impact in terms of physical and emotional stress responses that can hinder the healing process, increase the risk for other complications, and increase the length of stay in the hospital (Kizza et al., 2016). Pain is a sensitive indicator, nurses have an role important in the assessment and management of pain. Nurses have a role in effective pain management through the use of pain assessment tools, behavioural observations, and analgesic options (Burns & McIlpatrick, 2015).

Another thing related to pain management is that the nurses must know about dealing with painkillers. Knowing the peak effective time of drugs such as morphine given orally in peak conditions of 1-2 hours (Nimer & Ghayeb, 2017). The nurse also must have knowledge related to opioid administration to avoid their false belief about the use of this type of medication in pain management and the use of other drugs. The nurse must be giving drugs at the right time, dosage and manner (Rasmi Issa, Awaje & Khraisat, 2017). Because of a lack of knowledge,

nurses are worried that patients will be addicted to opioids post-surgery pain (van Dijk et al., 2017), and nurses are worried about the possibility that the patient will experience respiratory problems. This causes that medication to be given with insufficient doses of the drug. It causes the patient not to get effective treatment (Admass et al., 2020). Insufficient pain management delays recovery, increases the risk of complications, and may significantly lengthen the duration of a hospital stay and decrease the patient's level of satisfaction (Bruneau, 2014). Moreover, nurses must have adequate knowledge in evaluating the results. Ongoing evaluation of response to treatment outcomes is very important. An objective evaluation can reduce unnecessary pain consequences in patients (Andersson et al., 2017).

In providing effective care for patients with pain, nurses must have adequate knowledge to assess, diagnose, plan, implement, and evaluate the result. Nurses with a lack of knowledge are far away from adequate pain management. A recent study found that there is a relationship between knowledge about pain and attitudes toward effective pain management (Odunayo & Olalekan, 2020). Therefore, the nurses who lack knowledge need to learn more. Knowledge and attitude can be improved by attending training. Germossa, Sjetne & Helleso (2018) at the Ethiopian University Hospital that 98.2% of participant increased their scores after receiving the education program. There is an increase in average value from 41.4% to 63% after receiving education. Through this research, it was found that nurses' knowledge and attitudes towards pain management

Table 2. Descriptive Analysis of Respondents' Knowledge and Attitude

No	Questions	Frequency and percentage of nurses who answer correctly	
		f	%
1	Amitriptyline is a strong narcotic	79	49.38
2	Ibuprofen is not effective analgesic in bone pain	88	55.00
3	Celebrex is a weak opioid	99	61.88
4	Pain is considered one of the vital sings	94	58.80
5	Pain intensity should be rated by the nurse, not the patient	74	46.30
6	The patient may sleep despite severe pain	4	2.50
7	Frequent requests for analgesia by the patient means he is already addicted	67	41.90
8	Beyond a certain dose of morphine increasing the dose will not increase analgesic (i.e. Ceiling effect)	78	48.80
9	The goal of giving narcotic analgesia during the first 48 hours postoperatively is to relieve as much pain as possible	25	15.60
10	The preferred route of administration of narcotics in pain patients is the IM route	44	27.50
11	Continuous peripheral nerve block is one of the modalities of managing pain	41	25.60
12	WHO analgesic ladder is the guideline approach to managing any type of pain	138	86.30
13	The presence of an epidural catheter is a contraindication for the patient to move	99	61.90
14	PCA IV line should be kept for PCA use only	39	24.40
15	All postoperative patients should have a pain management plan	157	98.10
16	A collaborative effort between the primary service and pain management team is a must for adequate pain control	158	98.80
17	The numerical rating scale is the only scale available to assess pain intensity	67	41.90
18	Sometimes propofol alone is enough to control patient pain	86	53.80
19	If the patient has no complaints that means he is not in pain	67	41.90
20	The patient with pain should be encouraged to endure as much pain as possible before restoring to pain relief measures	60	37.50
21	If the patient can be distracted from pain that means he/she does not have a high intensity of pain	22	13.80
22	Allowing patients to administer their pain medication through (PCA) is a superior way to provide analgesia	90	56.30
23	I worry that the patient might become addicted to the analgesia we administer	32	20
24	Patients with a history of substance abuse should not be given opioids for pain relief	57	35.60
25	The potency of analgesia selected for the patient should	47	29.40

Notes. PCA- Patient controlled analgesia; IV- Intravenous; IM- Intramuscular; PRN- As- Needed

Table 3. Knowledge and Attitude Score of the Respondents regarding Pain Management

Category	f	%
Very Good	1	0.63
Good	4	2.5
Adequate	0	0
Lack	155	96.87
Total	160	100

Scores: <70%= Lack, 70-79 adequate, 80-89=good, and 90-100=very good

Table 4. Pain Sensitivity Question Score

Category	n	Average Value	Level
PSQ Minor Score	160	4.63	Moderate
PSQ Moderate Score		6.15	Moderate

Scores: <4= Mild, 4-7=Moderate, >7 Severe

Table 5. Multi Correlation Analysis

Category	n	Average Value	Level
PSQ Minor Score	160	4.63	Moderate
PSQ Moderate Score		6.15	Moderate

is confirmed by a recent study that the nurses who had received pain management training had higher scores than those who had never received training (Nguyen et al., 2021). Education and training are needed by nurses to support the implementation of effective pain management. Inadequate training and preparation will affect effectiveness in managing pain management. Training and in-service education become effective in removing obstacles in implementing and evaluating the effectiveness of pain management (Mediani et al., 2017). On recent study assessed the effectiveness of pain management education programs on nurses' knowledge and attitudes towards pain, which proved to have a significant positive effect (El-Aqoul et al., 2020). Nurses who are trained, have good knowledge and have experience of more than 6 years have a good attitude towards pain management (Lulie, Berhanu & Kassa, 2022).

Another result of this study describes that nurses generally had moderate pain sensitivity. Understanding client pain sensitivity is very important because pain intensity varies from patient to patient. Before nurses understand the patient's pain sensitivity, it is wise and essential to know their pain sensitivity. Large differences between a nurse's pain sensitivity and a patient's sensitivity often give rise to errors in personal judgment. Authors said that "some conditions may be more painful than others, the variation between individuals with the same condition is

far greater than the difference in painfulness across conditions" (Nielsen et al., 2009). Thus, correct measurement of pain sensitivity by both nurses and patients may contribute to the prediction of clinical outcomes and to individualize pain treatment regimes.

In this study, there is a positive and significant relationship between nurses' knowledge and attitude with education level. The significant value was 0.017 (than 0.05). It is expected when the level of education is higher, the knowledge and attitude become better. However, in certain topics of discussion, the level of education does not always support their knowledge and attitude. A recent study shows that "women with higher levels of education do not always exhibit improved knowledge, attitudes, or practices regarding appropriate strategies for the prevention and control of COVID-19 in the Democratic Republic of Congo" (Loleka & Ogawa, 2022). This is congruent with the study conducted in Malaysia. Nursing educational level was not correlated with the outcomes of care in private hospitals in Malaysia. However, the researcher concluded that training programs and general nursing orientation programs can help to upgrade the knowledge, can increase nurses' self-confidence, and critical thinking ability and improve their interpersonal skills. So, better education and training are required to satisfy client expectations and sustain the outcomes of patient care (Rahman, Jarrar, & Don, 2015).

The results of the study give a strong indication for knowledge and attitude improvement for the private hospital in RSABL because a majority of nurses participated in the number of samples representing the population in this hospital. However, this result is limited to one hospital only. So, the researcher will not be able to generalize other hospitals in Bandar Lampung or anywhere else.

CONCLUSION

There is a lack of knowledge and attitudes among nurses who works in a private hospital in Bandar Lampung, and there is a big room for improvement by providing, seminar, training, and in-service education. All of this enables the nurses to provide high-quality care, especially in caring for clients who suffer from pain. It is recommended that future researchers compare the nurses' pain sensitivity and the patient's pain sensitivity toward the patient's satisfaction with pain management.

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