

Evaluation of the Effectiveness of Pain Management Training for Nurses in Improving the Quality of Patient Care

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ABSTRACT

Pain management is an important part of clinical practice, and it has a significant impact on the quality of patient care. The aim of this study was to evaluate the effectiveness of pain management training for nurses in improving patient care quality. Methods. This is a cross-sectional study that aims to provide evidence-based recommendations that can be used by healthcare institutions to improve nursing training in the future. The research instruments consist of pre-test and post-test questionnaires to measure nurses' knowledge, attitudes, and skills related to pain management. The results of bivariate analysis showed that the comprehensive and theory-based training materials successfully enriched nurses' understanding of the pain management concepts, assessment, and interventions. The mean knowledge score increased from 65.2 10.4 to 85.6 7.8 (31.2% increase; $p = 0.001$). The mean skill score also improved by 32.5% (from 62.8 9.3 to 83.2 8.0) (32.5% increase, $p > 0.001$), and the mean patient satisfaction score increased by 72.5 6.7 to 91.4 4.9 (26.1% increase; 26% increase). Conclusion. This study proves that theory- and simulation-based learning is not only relevant but also effective in improving patients' quality of care through strengthening nurses' competencies. In addition, the results also provide recommendations for the development of nursing education policies that focus on improving practical skills through evidence-driven approaches and clinical simulations.

Keywords: Knowledge, Attitude, Practice Skills, Patient Satisfaction



INTRODUCTION

Quality healthcare is one of the key elements in improving patient well-being, in which pain management plays an important role. Poorly managed pain can worsen the patient's clinical condition, prolong treatment time, and reduce patient satisfaction with health services (Purwati et al., 2023). Nurses as frontline health workers have the primary responsibility in providing effective pain management interventions, both through pharmacological and non-pharmacological approaches.

However, many nurses face obstacles in implementing pain management due to limited knowledge, skills, and confidence. Research by Purwati et al. (2023) showed that many paediatric nurses in hospitals still struggle to implement non-pharmacological pain management, which ultimately affects the quality of care of paediatric patients. Similar challenges are also found in adult care practices, where inadequate knowledge is often a major barrier (Purwati et al., 2023).

Training based on an educative approach has been proven to improve nurses' competence in various aspects of pain management. Asmawati and Idealistiana (2024) showed that a training approach based on the SBAR (*Situation, Background, Assessment, Recommendation*) method can significantly improve nurses' communication skills and patient safety (Asmawati & Idealistiana, 2024). This approach has also been adopted in various trainings to facilitate knowledge transfer more effectively.

Optimal pain management not only has a positive impact on individual patients, but also improves the overall efficiency of healthcare operations. Studies show that effective pain management can reduce complication rates and increase patient satisfaction with the care received (Rahmah et al., 2023).

In addition, simulated practice-based training has been shown to have a major impact on improving nurses' clinical skills. According to Kalengkongan et al. (2023), training that involves real case simulation helps nurses be more confident in applying appropriate pain management techniques in the field (Kalengkongan et al., 2023).

However, although many trainings have been implemented, evaluating their effectiveness remains a major challenge. Systematic evaluation of training programmes is essential to understand the extent to which training can have a direct impact on clinical practice and the quality of patient care. Research by Wahyuni (2020) shows that continuous monitoring and evaluation is key to ensuring the sustainability of the positive impact of training on nurses' practice (Wahyuni, 2020).

This study aims to evaluate the effectiveness of pain management training for nurses in improving the quality of patient care. Using comprehensive evaluation methods, this study will provide empirical evidence on the success of training in improving nurse competence as well as its impact on patient satisfaction (Rosidah et al., 2019).

This research not only provides an academic contribution but also a reference for health institutions to design and implement more efficient training in the future. This evidence-based



method is expected to consistently support the improvement of healthcare quality in Indonesia (Jayanti & Mumpuni, 2024).

While there are many options for pain management training, not much systematic research has been done to evaluate how effective the training is. To determine the strengths and weaknesses of the training, this evaluation is important. It will be used as a basis for continuous improvement. Evaluation also helps determine whether the training has improved the quality of the carer's patient care.

Therefore, this study aimed to evaluate the effectiveness of pain management training for nurses in improving the quality of patient care. This study also aims to provide evidence-based recommendations that can be used by healthcare institutions to improve nursing training in the future.

Through a comprehensive evaluation, it is hoped that the results of this study can contribute to improving the quality of health services in Indonesia. This study is also expected to provide a clear picture of the impact of training on nurses' clinical practice, particularly in the context of pain management

METHODS

This study used a quantitative approach with a descriptive design. This approach was chosen to evaluate the effectiveness of pain management training on improving nurses' knowledge, attitudes, and skills, as well as its impact on the quality of patient care. The research will be conducted in regional public hospitals or health facilities that have pain management training programmes for nurses. The research will be conducted in several stages, including initial data collection, training implementation, and post-training evaluation.

The population in this study were nurses working in the inpatient unit of the hospital. The study sample was taken using purposive sampling technique with inclusion criteria, namely nurses who were willing to take part in the training and were directly in charge of providing patient care. The sample size was determined based on the number of nurses who attended the training programme during the study period, with a minimum target of 30 participants to ensure the validity of the results.

The research instruments consisted of pre-test and post-test questionnaires to measure nurses' knowledge, attitudes, and skills related to pain management. In addition, observation sheets were used to assess the implementation of pain management in clinical practice. Additional data regarding the quality of patient care was measured using a patient satisfaction survey specifically designed to measure the impact of pain management. The validity and reliability of the instruments were tested prior to use in the study.

The pain management training that was the main intervention in this study was designed based on professional training standards, including theory and practice sessions. Theoretical sessions included discussion of pharmacological and non-pharmacological pain management



concepts, while practical sessions involved clinical case simulations. The training was conducted over three consecutive days with assistance from competent instructors in the nursing field.

Data were analysed quantitatively using descriptive and inferential statistical tests. Comparison of *pre-test* and *post-test* results was analysed using paired t-test to determine the improvement of nurses' knowledge, attitude, and skills after the training. Meanwhile, the relationship between training and improved patient care quality was analysed using correlation and regression analysis. The results of these analyses were used to evaluate the extent to which the training had a positive impact on nurses' pain management practices.

This study was conducted by considering the ethical aspects of research, including approval from the ethics committee, informed consent from participants, and assurance of data confidentiality. With this approach, it is expected that the research can provide valid, relevant, and applicable results to support the improvement of the quality of health services.

RESULTS

1. Univariate Research Results

a. Respondent Characteristics

Table1 . Respondent Characteristics

Variables	Category	f	Percentage (%)
Gender	Male	18	60
	Women	12	40
Total		30	100
Age	< 30 years	8	26,7
	30 - 40 years	15	50
	> 40 years	7	23,3
Total		30	100
Last Education	Diploma III	20	66,7
	Undergraduate	10	33,3
Total		30	100
Work experience (years)	< 5 years	10	33,3
	5 - 10 years	14	46,7
	>10 years	6	20
Total		30	100

Table 1 shows that the majority of respondents were male (60%). Most respondents were in the age group of 30-40 years (50%). Most respondents had a Diploma III Nursing education (66.7%). Respondents with 5-10 years of work experience were the largest group (46.7%)



b. Patient Knowledge and Satisfaction on Patient Nursing Quality

Table 2. Patients' knowledge and satisfaction with nursing quality

Variables	Category	f	Percentage (%)
Knowledge before training	Simply	22	73,3
	Less	8	26,7
Total		30	100
Knowledge after training	Good	25	83,3
	Simply	5	16,7
Total		30	100
Patient satisfaction	High	22	73,3
	Medium	8	26,7
Total		30	100

Based on table 2, it is known that the knowledge of respondents before being given training was in the moderate category as many as 22 people (73.3%) and after training, there was a significant increase in the "Good" knowledge category as many as 25 people (83.3%). Patient satisfaction was also dominated by the "High" category after training as many as 22 people (73.3%)

2. Bivariate Research Results

a. Pre-test and Post-test Knowledge, Attitude, Skills and Patient Satisfaction on Quality of Patient Care

Table 3. Knowledge, Attitude, Skills and Patient Satisfaction on Quality of Patient Care

Variables	Pre-test	Post-test	Increase(%)	<i>p-value</i>
Pain Management Knowledge	65.2 ± 10.4	85.6 ± 7.8	31.2	<0.001
Attitude towards Pain Management	70.3 ± 8.5	88.9 ± 6.4	26.5	<0.001
Pain Management Practice Skills	62.8 ± 9.3	83.2 ± 8.0	32.5	<0.001
Patient Satisfaction	72.5 ± 6.7	91.4 ± 4.9	26.1	<0.001

Based on Table 3, it is known that the pain management training conducted showed significant results in improving nurses' competence in various aspects. Based on the analysis, the average score of nurses' knowledge increased by 31.2% (from 65.2 ± 10.4 to 85.6 ± 7.8) after the training, with a significance level of <0.001. This indicates that the theoretical sessions in the training successfully improved nurses' understanding of the concept of pain management. In addition, nurses' attitudes towards pain management also experienced positive changes, with an



average increase of 26.5% (from 70.3 ± 8.5 to 88.9 ± 6.4). This change reflects a better acceptance of the importance of pain management in improving the quality of patient care.

Nurses' practical skills in pain management also improved significantly by 32.5% (from 62.8 ± 9.3 to 83.2 ± 8.0), confirming the success of the case simulation approach in the training. This increase in nurse competence has a direct impact on the quality of care, which is reflected in a 26.1% increase in patient satisfaction (from 72.5 ± 6.7 to 91.4 ± 4.9). These results indicate that better implementation of pain management provides a more satisfying care experience for patients.

Overall, the training proved effective in improving nurses' knowledge, attitudes and skills, and had a positive impact on patient satisfaction. This suggests that training based on theory and simulation approaches is highly relevant to support clinical practice in healthcare.

DISCUSSION

The results of bivariate analysis showed that pain management training significantly improved nurses' competence in various aspects, including knowledge, attitudes, skills, and patient satisfaction. The following discussion is based on the bivariate findings:

1. Pain Management Knowledge

The mean knowledge score increased from 65.2 ± 10.4 to 85.6 ± 7.8 (31.2% increase; $p < 0.001$). This improvement reflects the effectiveness of the theory-based training module that provides a strong foundation of pain management concepts and strategies. The module covers pain assessment methods, evidence-based interventions, and evaluation of pain management outcomes. Improved knowledge through training is in line with cognitive learning theory, where structured exposure to information can facilitate understanding and long-term knowledge retention (Wandani et al., 2023)

This finding is in accordance with the study of Tasalim et al., 2020 regarding Nurses' Knowledge of Discharge Planning with Patient Satisfaction at Sari Mulia Banjarmasin Hospital found that nurses' knowledge of discharge planning has a significant relationship with patient satisfaction (Tasalim et al., 2020). And a similar study by Amalia, 2021 The effect of increasing knowledge of hypertension on blood pressure values in the elderly is known to increase patient knowledge about hypertension through leaflet education is significant in controlling blood pressure (Amalia, 2021).

The researcher assumed that the increase in nurses' knowledge after training was due to the delivery of comprehensive training materials and based on the latest theories regarding pain management. The structured training module provided nurses with a better understanding of pain management based on scientific evidence, thus significantly improving knowledge scores. We also assume that the learning methods used, such as interactive presentations and case discussions, encouraged participants to understand pain management concepts in depth.



2. Attitude towards Pain Management

The mean attitude score increased from 70.3 ± 8.5 to 88.9 ± 6.4 (26.5% increase; $p < 0.001$). The increase in attitude indicates a positive change in nurses' perception and acceptance of the importance of pain management. This could be due to the discussion and reflection sessions that integrated ethical and empathetic aspects in the training. The theory of planned behaviour supports that attitude change occurs when individuals understand the benefits and relevance of an action towards a specific goal (Bangun et al., 2023)

The study by Muslimin et al., 2023 found that nurses' attitudes and knowledge were closely related to the implementation of patient safety in hospitals (Muslimin et al., 2023). This was also found in a study by Abadan & Kristaung, 2019 customer attitudes influenced by knowledge have a significant impact on perceived service quality (Abadan & Kristaung, 2019).

The improvement in nurses' attitude scores after the training is assumed to be due to a better understanding of the importance of pain management as an integral part of patient care. The researcher considered that the real case simulation and reflection in the training helped to change nurses' perceptions of the needs of patients experiencing pain. This assumption is also supported by positive changes in attitudes that reflect nurses' readiness to implement pain management in clinical practice.

3. Pain Management Practice Skills

The mean skill score increased from 62.8 ± 9.3 to 83.2 ± 8.0 (32.5% increase; $p < 0.001$). The improvement in practical skills reflects the success of the simulation approach used in the training. Nurses gained hands-on experience in clinical scenarios, which enabled them to apply theory to real practice. This approach is supported by experiential learning theory, which emphasises that practical skills can be developed through a cycle of experience, reflection and application (Hakima & Hidayati, 2020).

Research by Husna et al., 2024 found that education and patient involvement improved independent skills in stoma care (Husna et al., 2024). The same research conducted by Irawati et al., 2024 stated that training improves nurses' skills, resulting in improved quality of care (Irawati et al., 2024).

The researcher assumed that the improvement in nurses' practical skills in pain management was due to simulation-based training. Simulation provides nurses with the opportunity to practice pain management assessment, intervention, and evaluation procedures in situations that resemble real conditions in the clinic. With this hands-on practice, nurses' skills become more honed, and they feel more confident in managing patients with pain.

4. Patient Satisfaction

The mean patient satisfaction score increased from 72.5 ± 6.7 to 91.4 ± 4.9 (26.1% increase; $p < 0.001$). This increase suggests that nurses' competence in pain management has a positive impact on patients' experience of care. Patients feel more cared for when their pain is properly identified



and managed. Patient satisfaction is influenced by the quality of therapeutic communication and effective interventions, in accordance with service quality theory (Nurlin et al., 2022)

A study by Purba et al., 2021 found that service quality affects patient satisfaction and loyalty (Purba et al., 2021). As well as research by Arifiani & Wahyono, 2018 states service quality as a mediator affects customer satisfaction (Arifiani & Wahyono, 2018).

The researcher assumed that patient satisfaction increased as a direct result of more competent nurses after the training. Patients perceived improvements in nurses' communication, attentiveness, and responsiveness in managing their pain. This assumption is also supported by the fact that improvements in patient satisfaction occurred in parallel with improvements in nurses' knowledge, attitudes, and skills, suggesting a causal relationship between nurse competence and patient experience

CONCLUSIONS

This study concluded that pain management training significantly improved nurses' competence in various aspects, including knowledge, attitudes, and practical skills, and had a positive impact on patient satisfaction with quality of care. From the bivariate results, an increase in the mean knowledge score of 31.2% indicated that the comprehensive and theory-based training materials successfully enriched nurses' understanding of pain management concepts, assessment, and interventions. Changes in nurses' attitudes towards the importance of pain management, with an increase of 26.5%, indicated that the training was able to encourage better awareness and acceptance of the implementation of pain management in clinical practice.

The 32.5% increase in nurses' practical skills reflects the success of the case simulation approach in training nurses to apply pain management strategies directly and appropriately in the clinical environment. This confirms that experiential learning methods play an important role in building nurses' confidence in dealing with patient pain cases. The positive impact of the training is also evident from the 26.1% increase in patient satisfaction scores, indicating a direct link between nurse competence and patient perceptions of service quality.

Overall, this study proves that theory- and simulation-based training is not only relevant but also effective in improving the quality of patient care through strengthening nurses' competencies. Therefore, similar training needs to be adopted on an ongoing basis by hospitals or other healthcare institutions to improve the quality of care, particularly in the aspect of pain management. In addition, the results of this study also provide recommendations for the development of nursing education policies that focus on improving practical skills through evidence-based approaches and clinical simulation

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