



The Effectiveness of Modern Wound Care Training on Improving Nurses' Knowledge in Chronic Wound Care

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ABSTRACT

Modern wound care training is one of the effective strategies to increase the knowledge and competence of nurses in dealing with chronic wounds. The objective was to analyze the effectiveness of modern wound care training on improving nurses' knowledge in chronic wound care. The method used is Pre-experimental Design using the One Group Pretest-Posttest approach. The study was carried out on December 17 - 31, 2024, the intervention was given 2 times a week for 2 weeks. The sampling technique was by purposive sampling with a sample of 30 nurses. The independent variable was modern wound care training, while the variable was bound by the nurse's knowledge. Data collection using questionnaires and data analysis using Wilcoxon statistical test. The results of the study showed that there was a significant increase in knowledge before the treatment of respondents with a good score of 3.3%, enough 66.7% and less than 30% and after the training of respondents with good knowledge scores became 100%. The results of statistical analysis showed that the p value of $0.000 < 0.05$ meant that modern wound care training was effective in increasing nurses' knowledge. This study recommends Modern wound care training is effective in improving nurses' knowledge in chronic wound care.

Keywords: Diabetes Mellitus, Modern Wound Care, Chronic Wounds, Knowledge

INTRODUCTION

Diabetes mellitus (DM) is one of the most common chronic diseases and is a growing global health problem. Worldwide, the prevalence of diabetes mellitus in adults between the ages of 20 and 79 in 2021 is estimated to reach 10.5% (537 million people) (Sun et al., 2023), mainly due to type 2 diabetes mellitus. And by 2045, this number is expected to increase to 12.2% (783 million). Based on data from the International Diabetes Federation (IDF) 2021, Indonesia is ranked 7th with the 3rd highest number of diabetes mellitus and prediabetes cases in the world. There are around 19.5 million Indonesians aged 20-79 years with diabetes (Yulianingsi et al., 2024). Gorontalo Province ranks eighth with a prevalence of Diabetes Mellitus of 2.4% (RI & Health, 2018; Riskesdas Gorontalo, 2018).

High incidence of Diabetes Mellitus influenced by several factors, including: genetics (such as family history), age, lifestyle including diet and physical activity, and obesity (Wika Novenda Ramadani et al., 2023). Diabetes mellitus is a condition characterized by impaired metabolism, carbohydrates, and fats due to the inability of the pancreas to produce insulin optimally. As a result, the body is unable to utilize insulin properly, which leads to an increase in blood sugar levels.

Uncontrolled increases in blood sugar levels can cause damage to the body's systems and can even lead to complications (Korengkeng et al., 2022).

Complications not only affect life expectancy but also quality of life. Diabetic foot ulcers are one of the most difficult complications of diabetes mellitus to treat (Namretta, 2020 & Chrisanto, 2017). The prevalence of diabetic ulcers in Indonesia is 15% of DM patients, who are at high risk of lower extremity amputation due to lack of treatment and treatment that causes infected leg ulcers that do not heal (Radhika & Poomalai, 2020).

Chronic wound care requires a more structured and systematic approach compared to acute wound care. In contrast to acute wounds that usually heal in a relatively short time, chronic wounds take longer and often require a specialized approach in treatment. Improper or inadequate chronic wound care can lead to serious complications such as infection, spread of wounds, or even amputation in patients (Philip et al., 2019).

Some of the main challenges in chronic wound care include the selection of the right treatment techniques, the use of dressing materials that are appropriate for the condition of the wound, as well as an understanding of the management of

factors that cause injuries such as diabetes, vascular disorders, or nutritional problems. In-depth knowledge of wound physiology and processes healing is very important to optimize chronic wound management (Nursalam, 2020).

Modern wound care has been developed as a more effective method compared to conventional methods. The main principle in modern wound care is to create a moist environment that supports the healing process, prevents infection, and accelerates tissue regeneration. These techniques include the use of innovative wound dressings, negative pressure therapy, and the application of growth factors to accelerate wound healing (Della Safitri et al., 2022).

While conventional wound care is a wound dressing that uses gauze as the main dressing. This dressing is a passive material with its main function as a protector, maintaining warmth and covering up uncomfortable appearances. Conventional wound care can maintain the moisture of the wound but the wound healing process is slower than modern wound care. Improving nurses' knowledge and skills in applying modern wound care methods is essential to improve the quality of patient care and clinical outcomes (Irwan et al., 2022).

Training is one of the effective strategies in improving the knowledge and

competence of nurses in modern wound care. Previous research has stated that modern wound care training is effective in improving nurses' knowledge and skills in treating wounds with a good knowledge pre-test result of 9.1% and after training an increase in good knowledge to 72.7% (Marisi et al., 2022) In addition, research conducted (Moore & Webster, 2018) stated that practice-based training is able to improve the competence of nurses in handling chronic injuries effectively.

Although some research shows that modern wound care training can improve nurses' knowledge, there are still some gaps in understanding the effectiveness of this training. Much of the research that has been done has focused on theoretical knowledge improvement, but it is not enough to explore how that knowledge is applied in clinical practice in the field, especially in areas with limited facilities and resources.

This study aims to analyze the effectiveness of modern wound care training in improving nurses' knowledge in chronic wound care. It is hoped that the results of this research can be the basis for the development of more effective and sustainable training programs in the clinical environment.

METHOD

This study uses Pre-experimental Design using the One Group Pretest-Posttest approach. The research was carried out at Otanaha Hospital, Gorontalo City, on December 17 - 31 2024. The research population is all nurses working at Otanaha Gorontalo Hospital totaling 95 nurses. Sample The study was a nurse who worked in the operating room and emergency room (ER). Sampling With the inclusion criteria of being willing to be respondents, participating in training and having STR, the exclusion criteria were not present during the study. The sampling technique was by purposive sampling with

a sample of 30 nurses. Before intervening, the researcher provided informant consent and a pre-test questionnaire. After that, theoretical interventions and modern wound care practices are provided, such as the use of moisture-based dressings, safe debridement techniques, and the management of infections and chronic wound complications. The training sessions are conducted in several stages, which include lectures, interactive discussions. The intervention was given for 2 times a week for 2 weeks after which a post test was carried out. The data obtained were analyzed using the Wilcox statistical test.

RESULTS AND DISCUSSION

In this study, there were 30 nurse respondents. The characteristics of the respondents are presented as follows:

Table 1. Characteristics of Respondents based on gender, education and length of work

Characteristic	N	%
Gender		
Man	4	13,3
Woman	26	86,7
Education		
D3	13	43,3
S1/Ns	17	56,7
Length of Work		
< 2 Years	5	16,7
2-5 Years	7	23,3
5 Years	18	60,0

Source: Primary Data (2024)

Table 1 shows that the majority of respondents are female (86.7%), only 13.3% are male. The last education of the respondents was mostly S1/Ns education

56.7% and D3 as much as 43.3%. Most of the respondents worked for more than 5 years 60%, only 16.7% of respondents worked for less than 2 years.

Table 2. Frequency Distribution Of Knowledge Before And After Modern Wound Care Training

Variable	Modern Wound Care			
	Pre Test		Post Test	
	N	%	N	%
Knowledge				
Good	1	3,3	30	100
Enough	20	66,7	0	0
Less	9	30,0	0	0

Source: Primary Data (2024)

Table 2 shows that there is a change in pre-test and post-test knowledge in the respondents. Before the training, only 3.3% of

respondents had good knowledge and after the training there was an increase in good knowledge to 100%.

Table 3. Wilcoxon Pretest-Posttest Test Results

Variable	n	%	Negative Rank	Positive Rank	Ties	P value
Knowledge						
Pretest	30	100	0	29	1	0,000*
Posttest						

Source: Uji Wilcoxon

Table 3 shows the effect of modern wound care training on the level of knowledge of nurses with an increase in scores of 29 respondents and 1 respondent has a value in the fixed category. Based on the results

of the Wilcoxon test, it shows a p value of $0.000 < 0.05$, which means that modern wound care training is effective in increasing nurses' knowledge.

Discussion

The results of the study showed a significant increase in the knowledge of nurses after participating in modern wound care training. Nurses who previously had a poor understanding of moist wound healing principles and evidence-based wound care techniques showed increased knowledge after participating in modern wound care training. Receiving information can be facilitated by channeling through the five human senses.

About 75%-87% of human knowledge can be transmitted through the eyes, while the other 13% to 25% is transmitted through other senses. Therefore, the delivery and receipt of health information to a person is easier to do through visual tools or direct practice (Irawati et al., 2018; Notoadmodjo, 2014; Nurain et al., n.d.).

The level of nurse education is one of the factors that affect the understanding and application of nursing practice, including In this study, nurses with Diploma III and

S1/Ns educational backgrounds experienced increased knowledge after participating in the training. However, there is a difference in the level of initial understanding, where nurses who graduate from S1 tend to have higher pre-test scores than DIII nurses. The results of this study show that nurses with S1 education with the results of the pre-test are on average sufficiently educated (82.3%) while in D3 before the intervention is sufficiently educated (46.1%). This suggests that higher formal education may contribute to a better initial understanding of modern wound care concepts (Asmarani et al., 2021; Rumah et al., 2015; Yulianto, 2016). Several studies have shown that there is a relationship between the length of work experience and the level of knowledge of nurses about wound care. Nurses with longer work experience generally have a better understanding of wound care procedures, infection management, as well as the selection of appropriate dressings, this can be caused by several factors such as: frequency of case exposure, clinical experience and repeated learning (Della Safitri et al., 2022; Rumah et al., 2015).

This research is in line with research (Marisi et al., 2022) which states that modern wound care training is effective in improving the knowledge and skills of nurses in treating wounds with a pre-test result of good knowledge of 9.1% and

after the training there is an increase in good knowledge to 72.7%. In addition, research conducted by (Mustamu et al., 2020) stated that nurses' knowledge increased from an average of 12.53 to 17.59 after participating in wound care training. Practice-based training is able to improve the competence of nurses in treating chronic wounds more effectively. In addition, this training also assists nurses in choosing the appropriate type of wound dressing, reducing the risk of infection, and speeding up the patient's healing process. However, challenges in the implementation of this method are still found, such as limited access to modern wound care products, lack of institutional policies in supporting the use of the latest techniques, and cost constraints that are still the main consideration in some health facilities. Therefore, further support from management and policy makers is needed in adopting more effective wound care methods and evidence-based.

CONCLUSION

Modern wound care training has proven to be effective in increasing nurses' knowledge regarding chronic wound management. With this increased understanding, it is hoped that nurses can apply more appropriate methods in clinical practice, so that they can improve the

quality of wound care and accelerate patient healing.

To ensure the sustainability of competency improvement, it is recommended that this training be used as a periodic program in health facilities. In addition, there is a need to strengthen policies related to the use of evidence-based wound care and the availability of tools and materials that

support the application of this method in the field.

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