Original Research Paper

The Effect of Acupressure on Reducing the Intensity of Primary Dysmenorrhea Among Nursing Students at Tadulako University in Palu City

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ABSTRACT

Background: Dysmenorrhea is a common condition characterized by menstrual pain experienced by adolescent girls, which can significantly affect their quality of life. Acupressure therapy is considered effective in alleviating pain intensity. This study aims to evaluate the impact of acupressure on reducing dysmenorrhea intensity among students of Akper Untad in Palu City. **Objective:** This research aims to analyze the effect of acupressure therapy on primary dysmenorrhea intensity in female students. **Methods:** This study employed a quasi-experimental design with a pre-test and post-test approach. A total of 47 female students participated as respondents. Pain intensity was measured using a 0-10 scale before and after acupressure treatment. Data analysis was performed using the Paired T Test. **Results:** The findings indicate that the average dysmenorrhea intensity before treatment was 7.77, which decreased to 3.00 after treatment. Statistical analysis revealed a p-value of 0.000, indicating a significant effect of acupressure on reducing dysmenorrhea intensity. **Conclusion:** Acupressure therapy is effective in reducing primary dysmenorrhea intensity among female students at Akper Untad in Palu City. This study provides evidence that acupressure can be a valuable non-pharmacological intervention for managing dysmenorrhea.

Introduction

Dysmenorrhea, or menstrual pain, refers to lower abdominal pain that occurs without abnormalities in the genital organs, experienced by women either before or during menstruation, typically without pathological signs and often accompanied by cramps[1]. Many sufferers often manage dysmenorrhea by taking over-the-counter painkillers without knowing the potential side effects of these medications[2]. Various side effects of menstrual pain relievers, if consumed excessively or without supervision, can lead to liver damage, gastric problems, and even hypertension[3]. Therefore, non-pharmacological interventions are needed as alternative methods for managing menstrual pain[4].

In general, dysmenorrhea management can be approached in two ways: pharmacological therapy and non-pharmacological therapy[5]. However, in this literature review, the focus will be on managing primary dysmenorrhea using non-pharmacological methods, specifically traditional therapies without chemical drugs. Non-pharmacological methods can be considered as one of the safer and more affordable approaches to managing primary dysmenorrhea. Methods that can be used include, among others, acupressure[6].

Based on the World Health Organization (WHO) as cited in the study by Rizky and Saputri (2022), the global incidence of primary dysmenorrhea is estimated to exceed 50% in each country, with approximately 1,769,425 women (90%) suffering from primary

dysmenorrhea, of which 10 to 15% experience severe dysmenorrhea. In Indonesia, the prevalence reaches 64.25%, particularly among women of productive age, which can interfere with daily activities for 1-2 days each month[7]. Many women in Indonesia experience primary dysmenorrhea but do not seek treatment or management and tend to ignore the condition[8,9].

Acupressure is a therapy administered by applying massage or pressure to specific sacral points on the body. Acupressure is widely used by the community to relieve primary dysmenorrhea. This therapy has a relatively high success rate with few or no complications. Additionally, acupressure is easy to perform and low in cost[10]. The effect of pressing acupressure points is the ability to increase endorphin levels, which act as the body's natural pain relievers, produced in the blood, along with endogenous opioid peptides in the central nervous system. The nerve tissue will stimulate the endocrine system to release endorphins as needed by the body, which is expected to reduce menstrual pain[11].

One of the benefits of acupressure therapy is improving blood circulation. Acupressure can help clear blockages or narrowings in the venous blood vessels, stimulate nerve nodes and nerve centers, and influence glandular functions[12]. Based on the high prevalence of dysmenorrhea and previous research, the author is interested in conducting a literature review on the Effect of Acupressure on Reducing the Intensity of Primary Dysmenorrhea Among Nursing Students at Akper Untad in Palu City.

Materials and Methods

Research Design

This study is a quantitative pre-experimental research aimed at determining the effect of acupressure therapy at the sacral point on dysmenorrhea pain among nursing students at Tadulako University in Palu. The study used a pre-experimental design, which facilitates cause-and-effect relationships in situations where true experiments cannot be conducted (Husaidah, 2021). The pre-experimental design aims to test causal relationships with a given treatment. This study applied a one-group only approach with a pretest and post-test design. The one-group only approach involves only one intervention group without a control group (Husaidah, 2021). The hypothesis is a temporary answer to the research question or problem formulation (Purwati, 2017).

Sample

The population consists of subjects (such as customers or individuals) who meet specific requirements[13]. The population in this study included 47 female students in the D3 Nursing Program at Tadulako University who experienced primary dysmenorrhea. This study involved all female students who experienced primary dysmenorrhea in the D3 Nursing Program at Tadulako University, Palu, using purposive sampling. The samples were selected based on predefined inclusion and exclusion criteria.

Inclusion criteria: female students experiencing primary dysmenorrhea with a pain scale of 1-10 measured using the Visual Analogue Scale, actively studying in the D3 Nursing Program at Tadulako University, not using pharmacological therapy such as analgesics, able to communicate verbally or non-verbally, and willing to participate in the study and follow the research procedures. Exclusion criteria: female students with secondary dysmenorrhea that may affect the menstrual period, those with wounds or bleeding in the sacral area, and those who are currently pregnant or have been pregnant.

Data Collection Technique

The researcher requested permission to conduct the study on the D3 Nursing students at Tadulako University, Palu, from the Head of the D3 Nursing Program. Subsequently, the

researcher collected data on students who had experienced primary dysmenorrhea during the past six menstrual cycles. The researcher then offered the respondents the opportunity to undergo acupressure intervention at the sacral point to reduce primary dysmenorrhea pain. The researcher individually approached the willing respondents, and after meeting the inclusion criteria and obtaining their willingness to receive the acupressure intervention at the sacral point, the respondents were asked to sign a consent form.

Data Analysis Technique

Data analysis in this study included univariate and bivariate analyses. Univariate analysis was used to describe the demographic data and menstrual characteristics of women experiencing primary dysmenorrhea, presented in tables or graphs. Meanwhile, bivariate analysis was conducted to examine the relationship between two variables, namely the independent and dependent variables, using the Paired T-test since the data were normally distributed. This test aimed to observe changes in functional status before and after the intervention, with a confidence level of 0.05. After assessing the intervention effect, an Eta Square test was performed to measure the effectiveness of the intervention, where the eta value indicates the strength of the relationship: strong if eta > 0.14, moderate if eta > 0.06–0.13, and weak if eta > 0.01–0.05.

Ethical Consideration

This study adhered to ethical principles by ensuring that each participant was provided with complete information regarding the objectives, procedures, risks, and benefits of the study and obtained written informed consent before participation. The confidentiality of respondent data was strictly maintained, and the research findings were presented anonymously. Participants had the right to withdraw from the study at any time without negative consequences. The study ensured that no actions would harm the physical or psychological well-being of the respondents (non-maleficence) and was expected to provide benefits in the form of knowledge about primary dysmenorrhea (beneficence). This study complied with applicable ethical standards and obtained approval from the Research Ethics Committee of the Faculty of Medicine, Tadulako University.

Results

This study involved 47 female student respondents at the Nursing Academy of Tadulako University (Akper UNTAD) who experienced primary dysmenorrhea. The data on respondent characteristics, previous pain management, as well as pain scale before and after the acupressure intervention are presented in the following tables.

Based on the research results presented in the tables, the characteristics of the respondents include age, previous pain management, and pain scale before and after the acupressure intervention. Out of a total of 47 respondents, the majority were 20 years old (46.8%), while the youngest respondents were 19 years old (10.6%) and the oldest were 22 years old (17.0%).

Regarding pain management before the study, most respondents (40.4%) did not perform any previous pain management. Others managed the pain by resting (34.0%) and sleeping (25.5%).

For the pain scale before the acupressure intervention, the majority of respondents (83.0%) experienced severe pain, while the remaining respondents (17.0%) experienced moderate pain, and none reported mild pain. After the acupressure intervention, a significant change occurred, with most respondents (70.2%) reporting mild pain, while 29.8% experienced moderate pain, and no respondents reported severe pain.

Based on the results of the bivariate analysis, acupressure therapy was proven effective in reducing the intensity of primary dysmenorrhea among nursing students at Akper Untad in Palu City. The average pain intensity before the intervention was recorded at 7.77 with a standard deviation of 1.237, while after the acupressure intervention, the average pain intensity decreased to 3.00 with a standard deviation of 1.000. This reduction indicates a significant change, with a mean difference of 4.77. The results of the Paired T-Test showed a t-value of 34.854 and a p-value of 0.000 ($p < 0.05$), which is statistically significant. Therefore, it can be concluded that acupressure therapy has a significant effect in reducing the intensity of primary dysmenorrhea pain among the respondents in this study.

Table 1. Characteristics of Respondents, Pain Management, and Pain Scale Before and After Acupressure Intervention

Category	Variable	Frequency	Percentage (%)
Age	19 Years	5	10.6%
	20 Years	22	46.8%
	21 Years	12	25.5%
	22 Years	8	17.0%
Previous Pain Management	None	19	40.4%
	Rest	16	34.0%
	Sleep	12	25.5%
Pain Scale Before	Mild	0	0%
Acupressure Intervention	Moderate	8	17.0%
	Severe	39	83.0%
Pain Scale After	Mild	33	70.2%
Acupressure Intervention	Moderate	14	29.8%
	Severe	0	0%
Total		**47**	**100**

Source: Primary Data, 2024.

Table 2. The Effect of Acupressure on Reducing the Intensity of Primary Dysmenorrhea Among Nursing Students at Akper Untad in Palu City

Variable	Pre-Test		Post-Test		M-Df	t	P Value
	M	SD	M	SD			
Dysmenorrhea Intensity	7.77	1.237	3.00	1.000	46	34.854	0.000

Source: Primary Data, 2024.

Discussion

The discussion of this study's results indicates that acupressure has a significant effect on reducing the intensity of dysmenorrhea among nursing students at Akper UNTAD in Palu City, as shown by the Paired T-Test statistical result with a p-value of 0.000 ($p < 0.05$). The majority of respondents experienced a decrease in pain intensity after receiving acupressure therapy. Before the intervention, most respondents (83%) reported severe dysmenorrhea pain (pain scale 7-10). However, after acupressure was applied to specific points on the body according to the standard operating procedure (SOP), 70.2% of respondents reported a reduction in pain to the mild category (pain scale 1-2). This indicates that acupressure is effective in reducing dysmenorrhea pain, particularly in cases of primary dysmenorrhea.

Acupressure is a complementary therapy technique that involves massaging specific meridian points on the body to improve the flow of vital energy, known as Qi in Chinese medicine[14]. One of the working mechanisms of acupressure is through the increased production of endorphins, which are natural compounds produced by the body that act as pain relievers, as well as endogenous opioid peptides present in the central nervous system[15]. In the context of dysmenorrhea, acupressure applied to the Sanyinjiao point (SP6), which is known to relieve menstrual pain, as well as the LI4 (Hegu) and ST36 (Zusanli) points, which stimulate the release of endorphins, has been proven to reduce pain intensity and provide a relaxing effect[16].

The results of this study are consistent with previous findings that demonstrate the effectiveness of acupressure in reducing dysmenorrhea pain. A study by Neny Yuli Susanti (2024)[17] showed that acupressure therapy can significantly reduce menstrual pain, with similar statistical results (p = 0.000). This positive effect was also reported by Kasih et al. (2024)[18], who found that acupressure can enhance relaxation and boost the body's immunity. Additionally, Solt and Dolgun (2022)[19] demonstrated that applying acupressure at the LI4 point is effective in reducing dysmenorrhea pain in adolescent girls (p = 0.001).

The researcher assumes that the reduction in dysmenorrhea intensity experienced by the respondents after acupressure therapy is due to improved blood circulation and hormonal stimulation resulting from the massage. This positive effect may be further enhanced by other factors such as physical fitness and a healthy lifestyle. However, some respondents still reported significant pain. This may be influenced by other conditions such as excessive stress, irregular eating patterns, nutritional status, or medical conditions such as polycystic ovary syndrome (PCOS), endometriosis, or fibroids[20].

Based on the results of this study, it can be seen that acupressure has been proven effective in reducing the intensity of dysmenorrhea among nursing students at Akper Untad in Palu City. Before the intervention, most respondents experienced high-intensity pain, with an average pain scale of 7.77. This indicates that dysmenorrhea can significantly disrupt daily activities, especially for students who require concentration during the learning process.

After the acupressure therapy was applied, the average intensity of dysmenorrhea decreased to 3.00. This reduction demonstrates that acupressure can be a safe and effective alternative in menstrual pain management. The acupressure process, applied to specific points such as the Sanyinjiao (SP6), LI4, and ST36 points, is expected to stimulate the release of endorphins, which are hormones that function as the body's natural pain relievers[21,22].

In addition, this study supports previous findings that acupressure is effective in reducing dysmenorrhea[23,24]. In this context, it is important to note that the effectiveness of acupressure is also influenced by other factors, such as stress levels, dietary patterns, and healthy lifestyle habits. Some respondents still experienced pain after the intervention, which may have been caused by these factors. Therefore, the management of dysmenorrhea should not rely solely on physical interventions but also requires a holistic approach that includes lifestyle changes and mental health care.

Therefore, it is recommended that healthcare providers and health educators inform the community about the benefits of acupressure and how to properly perform it as one of the methods to manage dysmenorrhea. This is important to enhance the understanding and skills of female students in independently managing menstrual pain, which can help them address reproductive health issues that are commonly experienced among young women.

Conclusion

Based on the results of this study, it can be concluded that the average intensity of dysmenorrhea among nursing students at Akper Untad in Palu City before the intervention was 7.77, while after the acupressure therapy, the average intensity decreased to 3.00. This study also showed that there is a significant effect of acupressure on reducing the intensity of primary dysmenorrhea, with a p-value of 0.000 (p < 0.05).

Based on these findings, it is recommended that acupressure interventions be considered as a reference in the development of nursing services and be promoted as part of health

education efforts to provide more effective nursing care in managing primary dysmenorrhea, especially for students in the D3 Nursing Program at Tadulako University in Palu City.

Acknowledgment

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