



The Effect of Religious Music Therapy on Reducing Menstrual Pain Among Midwifery Students: A Non-Pharmacological Approach

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ABSTRACT

Primary dysmenorrhea is a common menstrual disorder affecting women of reproductive age, particularly adolescents and young adults. Many students experience menstrual pain, potentially interfering with academic and daily activities. This study investigates the effectiveness of religious music therapy in reducing the intensity of primary dysmenorrhea among undergraduate midwifery students at Universitas Nahdlatul Ulama Surabaya. This research used a pre-experimental design with a one-group pretest-posttest approach. The population was all third-semester undergraduate midwifery students who experienced primary dysmenorrhea. The sample consisted of 33 students, selected through purposive sampling. The intervention was a 30-minute religious music therapy session conducted during the first or second day of menstruation. The intensity of primary dysmenorrhea was measured using the Numeric Rating Scale (NRS). Data analysis used the Wilcoxon Signed-Rank Test with a significance level of $\alpha = 0.05$. Before the intervention, most participants experienced moderate menstrual pain (63.6%), while a few reported mild (30.3%) and severe (6.1%). After the intervention, most respondents reported mild menstrual pain (78.8%), and a few had moderate (21.2%). The Wilcoxon test result obtained $p=0.000$, showing a statistically significant reduction in menstrual pain after the religious music intervention. Religious music therapy effectively reduces the intensity of primary dysmenorrhea. It is potentially a non-pharmacological therapy to manage menstrual pain.

INTRODUCTION

Dysmenorrhea is one of the most common gynecological complaints among women of reproductive age, particularly adolescents and young adults. It is characterized by painful menstruation due to uterine contractions and is classified into two types: primary and secondary dysmenorrhea. Primary dysmenorrhea occurs without any identifiable pelvic pathology and usually begins during adolescence, while secondary dysmenorrhea results from underlying conditions such as endometriosis or uterine fibroids (Dawood, 2006; Iacovides *et al.*, 2015).

Globally, more than 50% of menstruating women experienced some degree of menstrual pain, with approximately 10–20% reporting pain severe enough to interfere with daily activities (WHO, 2013). In Indonesia, the prevalence of dysmenorrhea was notably high. Data from the Indonesia Demographic and Health Survey: Adolescent Reproductive Health indicated that up to 72.89% of young women had menstrual pain, with primary dysmenorrhea rates of 54.89% in East Java (PIK-KRR, 2020). Among college students, dysmenorrhea often leads to decreased academic performance, absenteeism, concentration issues, and reduced quality of life (Andersch and Milsom, 1982; Puspita, 2022).

The standard management of primary dysmenorrhea generally involves pharmacological interventions such as nonsteroidal anti-inflammatory drugs (NSAIDs) or hormonal contraceptives. Although effective, these treatments are not free from side effects, including gastrointestinal discomfort, allergic reactions, and potential long-term hormonal imbalances (Komariyah *et al.*, 2020). Thus, there has been growing interest in non-pharmacological approaches that are safer, more natural, and culturally appropriate.

One such alternative is music therapy. It is the clinical and evidence-based use of music interventions to accomplish individualized therapeutic goals. Music can stimulate the autonomic nervous system, affect hormonal responses, and reduce pain perception by triggering the release of endorphins and promoting relaxation (Nilsson, 2009). In recent years, religious music therapy—a spiritual care, as a culturally resonant intervention—has gained attention. Religious music, especially when aligned with the listener's beliefs, may enhance emotional comfort, reduce anxiety, and contribute to a spiritual well-being, indirectly resulting in lower pain perception (Simanullang *et al.*, 2020; Rahmanti and Pratiwi, 2021).

Several studies have reported the effectiveness of religious music therapy in various clinical contexts, including reducing labor pain, improving sleep quality, and managing stress (Widiyono, 2021). However, research specifically targeting its use in managing primary dysmenorrhea remains limited, particularly among young women in educational settings such as midwifery schools. Considering the high prevalence of primary dysmenorrhea among students and the need for non-pharmacological and culturally sensitive interventions, this study investigates the effectiveness of religious music therapy in reducing the intensity of primary dysmenorrhea among undergraduate midwifery students at Universitas Nahdlatul Ulama Surabaya.

METHOD

This research used a pre-experimental design with a one-group pretest-posttest approach, aimed at determining the effectiveness of religious music therapy in reducing pain intensity among students experiencing primary dysmenorrhea. This design was chosen due to its practicality in educational settings and its capacity to observe the effect of a single intervention. The study was conducted at the Undergraduate Midwifery Program of Universitas Nahdlatul Ulama Surabaya. Data collection occurred over two months, from March to April 2024, during the respondents' menstrual cycles. The population was all third-semester undergraduate midwifery students who experienced primary dysmenorrhea. The sample consisted of 33 students, selected through purposive sampling, based on the following inclusion criteria: (1) Female students aged 18–22 years; (2) Having a regular menstrual cycle; (3) Diagnosed or self-reported primary dysmenorrhea; and (4) Willing to participate and complete informed consent. Exclusion criteria included: (1) Use of pain-relieving medication within 12 hours before intervention; and (2) History of psychiatric disorders or hearing impairment.

The intervention was a 30-minute religious music therapy session conducted during the first or second day of menstruation, when pain was at its peak. The music was Islamic religious songs with a slow tempo (60–80 bpm) and a calming instrumental background. The sessions were held in a quiet room on campus, with respondents seated or lying comfortably while listening to music through external speakers at medium volume (around 60 dB).

The intensity of primary dysmenorrhea was measured using the Numeric Rating Scale (NRS), which ranges from 0 (no pain) to 10 (worst possible pain). Respondents were instructed to mark their perceived pain level before the intervention (pre-test) and immediately after the intervention (post-test). The scale was interpreted as follows: (1) 1–3: Mild pain; (2) 4–6: Moderate pain; and (3) 7–10: Severe pain. A structured observation sheet was used to document respondents' demographic information and NRS scores. Quantitative data were analyzed using the Wilcoxon Signed-Rank Test to assess differences in pain levels before and after the intervention. Statistical analysis was conducted with SPSS version 26, with a significance threshold set at $\alpha = 0.05$. The study received ethical approval from the Health Research Ethics Committee of Universitas Nahdlatul Ulama Surabaya (Certificate Number 0059/EC/KEPK/UNUSA/2025). All respondents received explanations about the study objectives, procedures, risks, and benefits, and gave written informed consent before participation. Confidentiality and the right to withdraw at any time were ensured throughout the study.

RESULT

Characteristics of Respondents

A total of 33 female midwifery students participated in this study. Table 1 shows that half of the respondents were 20–21 years old (51.5%) and all had regular menstrual cycles (100%).

Table 1. Characteristics of Respondents by Age and Menstrual Cycle

Characteristics of Respondents	Frequency (n)	Percentage (%)
Age (years old)		
18–19	10	30.3%
20–21	17	51.5%
≥ 22	6	18.2%
Menstrual Cycle		
Regular	33	100%
Irregular	0	0%

The Intensity of Primary Dysmenorrhea Before and After Intervention

The intensity of primary dysmenorrhea was measured using the Numeric Rating Scale (NRS) before and after the religious music therapy intervention. Before the intervention, most participants experienced moderate menstrual pain (63.6%), while a few reported mild (30.3%) and severe (6.1%). After the intervention, a significant shift was observed, with most respondents reporting mild menstrual pain

(78.8%), and a few had moderate (21.2%). Thus, students experiencing moderate to severe menstrual pain dropped from 69.7% before intervention to only 21.2% after. In addition, the proportion of students with mild menstrual pain increased from 30.3% to 78.8%, showing a shift toward lower pain intensity after listening to religious music (Table 2).

Table 2. The Intensity of Primary Dysmenorrhea Pre- and Post-Intervention

Menstrual Pain	Pre-Test (n/%)	Post-Test (n/%)
Mild (1–3)	10 (30.3%)	26 (78.8%)
Moderate (4–6)	21 (63.6%)	7 (21.2%)
Severe (7–10)	2 (6.1%)	0 (0%)
Total	33 (100%)	33 (100%)

Statistical Analysis

The Wilcoxon Signed-Rank Test analyzed the significance of changes in the intensity of primary dysmenorrhea before and after the intervention. This non-parametric test is appropriate for comparing two related samples (pre-test and post-test scores) in a small sample size.

Table 3. Wilcoxon Signed-Rank Test Results

Measurement	Mean Rank	Sum of Ranks	Z	p-value
Post-Test < Pre-Test	17.00	561.00	-5.010	0.000**

The Wilcoxon test result obtained $p=0.000$, showing a statistically significant reduction in menstrual pain after the religious music intervention. Thus, it was evident that religious music therapy has a clinically meaningful effect on reducing the menstrual pain associated with primary dysmenorrhea.

DISCUSSION

The results showed that most respondents (63.6%) experienced moderate menstrual pain before the intervention, while most (78.8%) experienced only mild after the intervention. In addition, no respondents reported severe menstrual pain post-intervention (Table 2). Thus, it indicates a notable clinical improvement. These results are consistent with several previous studies, which showed the efficacy of music therapy in reducing various types of pain, including menstrual, labor, and postoperative pain (Nilsson, 2009; Simanullang *et al.*, 2020).

This study found that religious music therapy significantly reduced the intensity of primary dysmenorrhea among midwifery students (Table 3). This finding aligns with previous national and international research demonstrating the effectiveness of music interventions in pain reduction. Studies by Simanullang *et al.* (2020), Rahmanti & Pratiwi (2021), and Nilsson (2009) supported the analgesic benefits of music in both obstetric and surgical contexts. Similarly, a meta-analysis by Lee (2016) highlighted music's consistent role in alleviating various types of pain, including menstrual pain, through multiple biopsychosocial pathways.

From a neurophysiological standpoint, music influences the limbic system, including the amygdala and hypothalamus, playing crucial roles in processing pain-related emotional and sensory stimuli. Listening to calming music can increase the production of endorphins, the body's natural opioids, which bind to opioid receptors and reduce pain perception. It also stimulates the parasympathetic nervous system, reducing heart rate, muscle relaxation, and stress hormone suppression (Kemper and Danhauer, 2005; Nilsson, 2009). This mechanism is consistent with the Gate Control Theory of Pain, which posits that non-painful stimuli (such as music) can "close the gate" to painful input in the spinal cord, thereby suppressing pain signals before they reach the brain (Melzack and Wall, 1965).

The unique value of religious music lies not only in its auditory effects but also in its spiritual meaning. Respondents in this study listened to Islamic nasheed music with themes of surrender, peace, and divine presence. These elements may enhance emotional comfort, reduce anxiety, and strengthen spiritual coping mechanisms, contributing to lowering pain perception. This opinion supports the biopsychosocial model of pain, emphasizing that pain is influenced by biological, psychological, and social—including spiritual—factors (Gatchel *et al.*, 2007). Moreover, in culturally religious populations such as Indonesia, spiritual resonance increases the acceptance and effectiveness of interventions. As Halim (2003) states, communities are more likely to internalize and sustain culturally congruent health practices.

Compared to other non-pharmacological interventions such as warm compresses, aromatherapy, or exercise, religious music therapy offers several advantages. It is non-invasive, cost-effective, simple to implement, and can be practiced independently without clinical supervision. While methods like aromatherapy rely on specific materials or environmental settings, religious music can be accessed with minimal resources and offers dual benefits, physiological relaxation and spiritual upliftment. This intervention is highly relevant in educational settings with low resources (Karyati, Lestari and Septiani, 2014; Komariyah, Supriyadi and Andayani, 2020).

This finding highlights the potential of religious music therapy as a holistic, culturally responsive intervention in reproductive health, particularly for adolescent and young adult women. Integrating such methods into midwifery education and practice can empower students with self-care and promote non-pharmacological pain management. It is crucial in preparing future midwives to provide woman-centered care grounded in both evidence and empathy.

CONCLUSION

Religious music therapy is effective in reducing the intensity of primary dysmenorrhea among midwifery students. It is due to the physiological effects of the release of endorphins and autonomic relaxation, as well as culturally, by the emotional and spiritual comfort from religious content. As a simple, low-cost, and culturally accepted method, it holds promise as a non-pharmacological pain management strategy.

Religious music therapy should be promoted as a supportive, non-pharmacological method for managing dysmenorrhea in midwifery education. Despite its promising results, this study has limitations. The pre-experimental design without a control group limited the ability to infer causality. The small, homogeneous sample also restricted generalizability. Future studies should adopt randomized controlled designs, include control groups, and explore religious music therapy among interreligious or cultural settings to assess broader applicability.

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