



OVERVIEW OF DYSMENORRHEA SEVERITY AND MANAGEMENT CHOICES AMONG FEMALE MEDICAL STUDENTS AT UNIVERSITAS MULAWARMAN: THE 2024 COHORT

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Abstrak

Dismenore merupakan keluhan ginekologis yang sangat prevalen dan dapat secara signifikan mengganggu aktivitas sehari-hari. Penelitian ini bertujuan untuk mengkaji tingkat keparahan dismenore serta preferensi penatalaksanaannya pada mahasiswi Fakultas Kedokteran angkatan 2024 Universitas Mulawarman. Penelitian ini menggunakan desain deskriptif kuantitatif dengan pengumpulan data melalui kuesioner terhadap 50 responden, yang dianalisis menggunakan metode distribusi frekuensi dan persentase. Hasil penelitian menunjukkan bahwa sebagian besar responden mengalami dismenore tidak berat, dengan nyeri ringan sebesar 46% dan nyeri sedang sebesar 42%; namun demikian, dismenore tetap mengganggu aktivitas sehari-hari pada 64% responden. Dalam hal strategi penatalaksanaan, mayoritas responden lebih memilih pendekatan nonfarmakologis, terutama teknik relaksasi (36%) dan konsumsi air mineral (20%). Dapat disimpulkan bahwa meskipun dismenore pada mahasiswi umumnya tergolong ringan hingga sedang, preferensi penanganan lebih banyak diarahkan pada intervensi nonfarmakologis yang sederhana.

Kata Kunci: dismenore, mahasiswa kedokteran, tingkat nyeri.

Abstract

Dysmenorrhea is a highly prevalent gynecological complaint that significantly interferes with daily activities. This study aimed to investigate the severity levels of dysmenorrhea and treatment preferences among female medical students from the 2024 cohort at Universitas Mulawarman. A descriptive quantitative design was employed using a questionnaire administered to 50 respondents, with data analyzed through frequency distribution and percentage methods. The results showed that most respondents experienced non-severe dysmenorrhea, with mild pain reported by 46% and moderate pain by 42% of participants; however, dysmenorrhea still disrupted daily activities in 64% of the students. Regarding management strategies, the majority preferred non-pharmacological approaches, particularly relaxation techniques (36%) and drinking mineral water (20%). In conclusion, although dysmenorrhea among the students was generally mild to moderate, management preferences predominantly favored simple, non-pharmacological interventions.

Keywords: *dysmenorrhea, medical students, pain level.*

INTRODUCTION

Dysmenorrhea is one of the most prevalent gynecological complaints among female adolescents and young women, characterized by painful menstruation that commonly begins shortly before or during the menstrual period. The primary pathophysiological mechanism underlying dysmenorrhea is the excessive production of prostaglandins in the endometrium, particularly prostaglandin $F2\alpha$, which induces strong uterine contractions, vasoconstriction, and reduced uterine blood flow (Donayeva, 2023). These physiological responses result in ischemia and pain, typically manifested as cramping lower abdominal pain that may radiate to the lower back, pelvis, or thighs. In some cases, dysmenorrhea is also accompanied by systemic symptoms such as nausea, vomiting, headache, fatigue, and diarrhea, further exacerbating discomfort and functional impairment. This condition has been shown to significantly affect daily functioning and quality of life (Higginbotham, 2024).

A study conducted by Nadirah (2020) in Samarinda involving 45 female adolescents reported a dysmenorrhea prevalence of 88.8%, with 49.5% of respondents experiencing disruption to their daily activities. These disruptions commonly include reduced concentration, absenteeism from school or university, decreased participation in social activities, and diminished productivity. Several risk factors have been associated with the occurrence and severity of dysmenorrhea, including irregular menstrual cycles, early menarche, smoking habits, high stress levels, and limited knowledge of menstrual

and reproductive health. When dysmenorrhea is inadequately managed, it may lead not only to persistent physical discomfort but also to broader psychological consequences such as anxiety, mood disturbances, sleep problems, and reduced overall well-being (Armour, 2019a)

The management of dysmenorrhea generally involves a combination of pharmacological and non-pharmacological approaches. Pharmacological therapy most commonly includes non-steroidal anti-inflammatory drugs (NSAIDs), which are considered first-line treatment due to their ability to inhibit cyclooxygenase enzymes and suppress prostaglandin synthesis, thereby reducing uterine contractions and menstrual pain (Oladosu, Tu, & Hellman, 2018). Despite their proven effectiveness, NSAIDs may cause adverse effects such as gastrointestinal discomfort and cardiovascular risks with prolonged use, and up to 20–25% of women report inadequate pain relief, prompting many to seek alternative or complementary treatments (Armour, 2019b).

In recent years, increasing attention has been directed toward traditional and herbal medicine as part of dysmenorrhea management. (Fauziyah, 2019) documented the use of 21 medicinal plants—including ginger, turmeric, kencur, cinnamon, tamarind, and guarana—which possess analgesic, anti-inflammatory, anxiolytic, and muscle-relaxant properties that may help alleviate menstrual pain. In addition to herbal remedies, various non-pharmacological interventions—such as warm compresses, relaxation techniques, massage therapy, stretching exercises, and

regular physical activity—have been shown to reduce pain intensity and improve comfort during menstruation. These approaches are generally considered safe, low-cost, and non-invasive, although their effectiveness may vary depending on individual physiological responses, pain thresholds, and adherence to the intervention. The growing utilization of these methods reflects an increasing preference for personalized and holistic menstrual pain management strategies (The American College of Obstetricians and Gynecologists, 2018).

Despite the high prevalence of dysmenorrhea and the availability of diverse management options, research specifically examining dysmenorrhea severity and management choices among female medical students remains limited (Karout, 2021). As individuals with relatively high health literacy and formal medical education, medical students represent a unique population whose perceptions of pain, treatment preferences, and health-seeking behaviors may differ from those of the general adolescent or young adult population (Getahun, 2023). However, higher medical knowledge does not necessarily translate into optimal personal health practices, and discrepancies between theoretical knowledge and self-management behavior may still exist.

Therefore, this study aims to examine the severity of dysmenorrhea and the management approaches utilized by female medical students from the 2024 cohort at the Faculty of Medicine, Universitas Mulawarman. By exploring both pain severity and treatment preferences, this research seeks to provide a clearer understanding of menstrual health

management behaviors among young women pursuing medical education and to identify potential gaps that may inform future educational interventions and reproductive health promotion strategies.

METHOD

This study employed a quantitative descriptive design to examine the severity of dysmenorrhea and the management choices among female medical students. The quantitative descriptive cohort is a study design, in which a defined group of participants is observed over time to document the occurrence and distribution of outcomes without any intervention or manipulation (X. Wang, 2020). The study was conducted at the Faculty of Medicine, Universitas Mulawarman, Indonesia, from May to June 2025.

The study population consisted of female students enrolled in the Undergraduate Medical Program at Universitas Mulawarman. The sample included all female medical students from the 2024 cohort ($n = 77$) who met the inclusion criteria, namely female gender and year of enrollment. A total sampling approach within predefined criteria was applied to ensure comprehensive representation of the target cohort.

The primary variables assessed in this study were dysmenorrhea severity, interference with daily activities, and dysmenorrhea management strategies. Data were collected using a structured self-administered questionnaire developed for this study. Dysmenorrhea severity was measured using an ordinal scale categorized as mild, moderate, or severe pain. Participants were also asked to report whether dysmenorrhea interfered with their

study, no inferential statistical analysis was performed.

RESULT AND DISCUSSION

The findings derived from the descriptive analysis of the study data. Results are reported as frequencies and percentages and describe the distribution of dysmenorrhea severity, its impact on daily activities, and the management strategies adopted by female medical students from the 2024 cohort at Universitas Mulawarman. Of the 77 female medical students initially identified as the study population, 50 participants completed the

questionnaire and were included in the final analysis, yielding a response rate of approximately 64.9%.

This level of participation is considered acceptable for questionnaire-based health research and is sufficient to provide a descriptive overview of the studied variables while minimizing non-response bias. Adequate response rates are essential to ensure representativeness and validity in observational studies using self-administered questionnaires (von Elm, 2014). The distribution of dysmenorrhea pain severity among the respondents is presented in Table 1.

Table 1. Pain Severity

Pain Level	Frequency	Percentages
Mild dysmenorrhea	23	46%
Moderate dysmenorrhea	21	42%
Severe dysmenorrhea	6	12%
Total	50	100%

The findings in Table 1 show that mild dysmenorrhea was reported by nearly half of the respondents (46 %), while moderate and severe pain were experienced by 42 % and 12 % of participants, respectively. This pattern of pain intensity aligns with contemporary research indicating that dysmenorrhea pain commonly spans mild to severe levels in young women. It reflects patterns documented in global women's health research and highlights dysmenorrhea as a significant but variable pain condition among menstruating individuals.

For instance, in a recent cross-sectional study using a numerical pain rating scale, mild, moderate, and severe dysmenorrhea were reported among sizable portions of female respondents, with moderate pain often being most prevalent and severe pain affecting a notable minority — reflecting the substantial burden of dysmenorrhea

across populations (Y. L. Wang, 2025). From a clinical perspective, the severity of menstrual pain has been shown to impact daily functioning and quality of life significantly. Dysmenorrhea pain categorized as moderate or severe is frequently associated with decreased participation in academic, social, or occupational activities, as well as increased psychological distress compared with mild pain (Belayneh et al., 2023). Such associations underscore the importance of recognizing not only the frequency of dysmenorrhea in populations but also the intensity of pain when planning supportive interventions or health education programs (Mizuta, 2023).

Research supports a direct association between prostaglandin concentration and pain severity. In a study where $PGF_{2\alpha}$ levels were measured in young women, those with severe

dysmenorrhea exhibited significantly higher mean prostaglandin levels than those with moderate pain, and prostaglandin concentrations correlated with pain intensity scores (Fajrin, 2020). This mechanistic link helps explain why a subset of participants reports more intense pain: greater prostaglandin production leads to more vigorous uterine contractions, reduced perfusion, and heightened pain signaling. Insufficient nutritional intake, particularly calcium deficiency, may also exacerbate dysmenorrhea by promoting muscle spasms and increasing uterine muscle contractions (Damayanti, 2022).

Moreover, pain perception in dysmenorrhea is not solely peripheral. There is evidence suggesting that central pain processing also plays a role. Women with recurrent severe menstrual pain may develop enhanced central sensitivity or lowered pain thresholds, a phenomenon where the nervous system becomes more responsive to pain stimuli over time. This neurophysiological adaptation can contribute to more widespread and severe pain experiences, beyond local uterine activity alone (Fortún-Rabadán, 2023).

The observed spectrum of pain severity likely reflects individual variation in both the local biochemical milieu of the uterus (especially prostaglandin levels and consequent contraction intensity) and systemic pain processing mechanisms. Understanding these physiological underpinnings underscores why dysmenorrhea pain intensity varies significantly between individuals and why interventions targeting prostaglandin synthesis (e.g., NSAIDs) or modulating pain perception can be effective in managing symptoms (Itani, 2022).

Following the distribution of dysmenorrhea severity shown in Table 1, the extent to which dysmenorrhea interferes with respondents' daily activities is presented in Table 2.

Table 2. Interference of Dysmenorrhea with Daily Activities

Interference on Daily Activities	Frequency	Percentage
Interfered	32	64%
Not interfered	18	36%
Total	50	100%

The results indicate that a majority of respondents (64 %) reported that dysmenorrhea interferes with their daily activities, while 36 % did not experience such disruption. These findings are consistent with existing literature showing that menstrual pain and related symptoms can significantly impact routine functioning. For example, a cross-sectional study found that painful menstruation was significantly associated with disruptions in daily activities, including the need to request sick leave and reduced ability to carry out usual tasks, especially among those experiencing more severe pain (Leon-Larios, 2024).

From a physiological standpoint, this interference is primarily explained by the overproduction of uterine prostaglandins, particularly prostaglandin F_{2α} (PGF_{2α}) and prostaglandin E₂ (PGE₂), during menstruation. Elevated prostaglandin levels stimulate strong, uncoordinated uterine contractions and induce vasoconstriction of uterine blood vessels, leading to reduced uterine blood flow and transient ischemia. This ischemic state promotes anaerobic metabolism and accumulation of pain-inducing metabolites, resulting in the characteristic cramping pain of dysmenorrhea. Pain of this intensity can significantly impair physical movement, concentration, and endurance, thereby interfering with routine activities such as studying, working, or household tasks (Iacovides, 2015).

In addition to localized uterine effects, prostaglandins can enter systemic circulation and affect other smooth muscles and organs, explaining the frequent

occurrence of associated symptoms such as nausea. These systemic manifestations further exacerbate functional limitations and contribute to reduced productivity and activity avoidance, which aligns with the high proportion of respondents reporting interference in daily life (Durand, 2021).

Neurophysiological mechanisms also play an important role. Recent evidence suggests that individuals with primary dysmenorrhea may exhibit central pain sensitization, characterized by heightened responsiveness of the central nervous system to nociceptive input. Functional neuroimaging studies have demonstrated altered pain processing and increased pain sensitivity in women with dysmenorrhea, which can amplify pain perception beyond the level expected from peripheral uterine activity alone. This heightened pain sensitivity may explain why dysmenorrhea disrupts daily activities even in the absence of underlying pelvic pathology (Jin, 2024)

The resulting nociceptive stimulation may also trigger systemic symptoms such as fatigue, nausea, and dizziness, further impairing functional capacity (Ryan, 2023). Taken together, these physiological and neurobiological mechanisms support the finding that dysmenorrhea has a measurable impact on daily functioning, emphasizing the importance of effective pain management strategies to maintain quality of life and participation in routine activities.

Following the findings on activity interference in Table 2, Table 3 presents the distribution of respondents based on their choices of dysmenorrhea management.

Table 3. Choices of Dysmenorrhea Management

Impact on Daily Activities	Frequency	Percent ages
Consumption of chemical drugs	8	16%
Consumption of herbal medicine	4	8%
Warm compress	6	12%
Relaxation	18	36%
Drinking mineral water	10	20%
Massage	4	8%
Total	50	100%

The findings from Table 3 show that respondents used a mix of pharmacological and non-pharmacological strategies to manage dysmenorrhea, with relaxation methods (36%), drinking mineral water (20%), chemical drugs (16%), and warm compresses (12%) being common choices, while herbal medicine (8%) and massage (8%) were less frequently reported. This pattern reflects global evidence that women often adopt diverse self-care practices beyond conventional medications when coping with menstrual pain. The accessibility and affordability of available treatments constitute important determinants in individuals' decisions regarding the selection of therapeutic options (Iqbal, 2022).

Pharmacological methods such as over-the-counter analgesics are frequently used worldwide to relieve menstrual cramps, but their use varies by context and preference. For example, Parra-Fernández et al. reported that a majority of university students used analgesic drugs to manage menstrual pain, alongside non-drug approaches, indicating that medication remains a central self-care strategy for many women with dysmenorrhea (Parra-Fernández, 2020).

Notably, non-pharmacological practices such as warm compresses and relaxation are also extensively documented. Warm compresses and other heat therapies are widely recognized for reducing uterine

muscle spasm and alleviating pain. Evidence shows that heat application can significantly decrease dysmenorrhea pain, offering a low-cost and low-risk method that many women prefer (Mulyaningsih, 2025). Complementary and traditional approaches such as herbal medicine and massage, although less prevalent, also emerge in research.

A review of complementary therapies highlights those young women often use herbal drinks and other remedies to relieve menstrual pain, and such practices are commonly integrated into self-care routines, particularly where cultural traditions support their use (Ummah, 2024). In addition, pharmaceutical policy in Indonesia is regulated through a structured policy framework (HK.01.07/MENKES/6485/2021) concerning the National Formulary, which emphasizes the availability, affordability, quality, safety, and efficacy of medicines. This regulatory framework facilitates public access to chemical (conventional) medicines for therapeutic management (Suryani, 2013)

The high prevalence of relaxation-based strategies (36 %) resonates with broader findings that psychological and behavioral techniques (e.g., rest, relaxation, hydration) are key components of self-management in dysmenorrhea. Young women may opt for these methods as they are easy to implement and have minimal side effects, especially when pharmacologic pain relief is inadequate or not preferred (Armour, 2019). Collectively, these results underscore that dysmenorrhea management is multifaceted, blending drug and non-drug approaches according to individual needs, cultural beliefs, perceived effectiveness, accessibility, and awareness of various options.

CONCLUSION

The conclusion consists of 2 paragraphs, namely the first paragraph of conclusions and the second paragraph of

suggestions, without sub-chapters, but directly written paragraphs. Conclusions and suggestions are written in narrative form, not in numerical form. The conclusion contains answers to the research questions or objectives.

Research questions or objectives. Suggestions refer to the results of the research and are in the form of practical actions for future writing or research, mentioning the weaknesses of the research so that suggestions for further writing are like what. Also mention for whom and what the suggestion is intended for. For example: In this study, we have not examined variable X, so the suggestion that the researcher gives to the next researcher is to research variable X using method A.

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