

An In-Depth Systematic Review on the Frequency, Risk Contributors and Implications of Dysmenorrhea Among Female University Students

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ABSTRACT

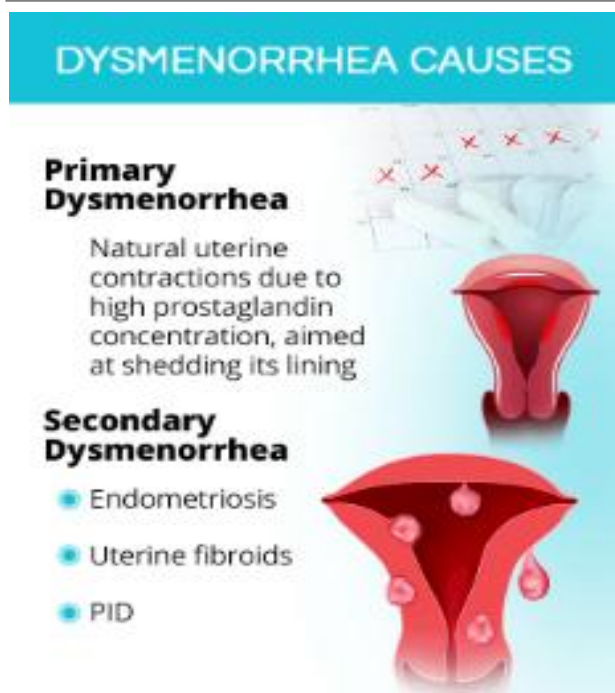
Dysmenorrhea is one of the most common gynecological problems among young women, with studies from India, Ethiopia, and Turkey reporting prevalence rates ranging from 25.5% to 93%. Contributing factors include early menarche, low body weight, family history, lifestyle habits, and specific menstrual characteristics. The condition frequently interferes with social participation and academic responsibilities, yet many affected women do not seek medical attention. The present review aims to assess the prevalence of dysmenorrhea among university students, identify major contributing factors, evaluate its impact on health and academic performance, and examine commonly adopted management and coping strategies. A comprehensive literature search was conducted using Web of Science, Scopus, Cochrane Library, and MEDLINE (via PubMed) to ensure high sensitivity in identifying relevant studies. Findings indicate that dysmenorrhea is highly prevalent among female university students, with significant implications for their well-being and educational engagement. These results emphasize the need for greater awareness, early diagnosis, and holistic management approaches to improve outcomes.

Keywords- Dysmenorrhea, Women, Gynaecological conditions, Lifestyle habits and well-being.

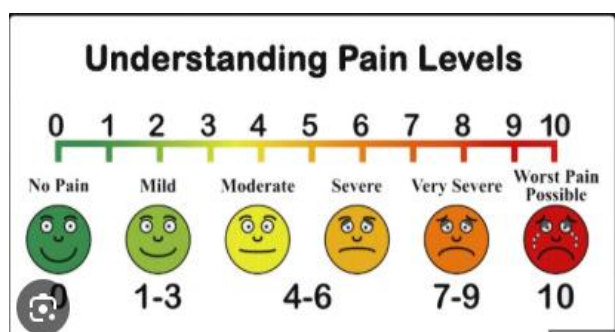
I. INTRODUCTION

Dysmenorrhea, defined as menstrual pain of uterine origin, is among the most frequently reported gynecological problems in women of reproductive age and is particularly common in university students, where it can adversely affect academic performance and overall quality of life. It is classified into primary dysmenorrhea, which occurs without underlying pelvic pathology, and secondary dysmenorrhea, which is associated with identifiable gynecological conditions. Primary dysmenorrhea is primarily attributed to elevated

prostaglandin levels, leading to intensified uterine contractions, reduced blood flow, and subsequent pain (Unsal et al., 2010). The condition typically begins during adolescence and affects a large proportion of young women worldwide—estimated at up to 90%—with severity ranging from mild discomfort to profound disruption of daily activities (Karanth et al., 2018; Thomas et al., 2025). Several risk factors, including age, family history, psychological stressors such as depression and anxiety, menstrual cycle characteristics, and lifestyle behaviors, have been implicated in the occurrence and severity of dysmenorrhea.



A pain scale is a tool used to quantify the intensity of pain, often ranging from 0 to 10, where 0 indicates no pain and 10 represents the worst possible pain. These scales help healthcare professionals assess and monitor pain levels, track treatment effectiveness, and guide pain management strategies.



Impact of Quality of Life Due to Dysmenorrhoea:

- **Physical Health** – Severe pelvic pain, fatigue, gastrointestinal disturbances (nausea, vomiting) and sleep disruption.
- **Psychological Health** – Heightened stress, anxiety, irritability, and low mood.
- **Academic/Work Performance** – Increased absenteeism, reduced productivity, and impaired concentration.
- **Social Life** – Withdrawal from social interactions and reduced participation in recreational or sports activities.
- **Economic Burden** – Expenses related to medical care and medications, alongside loss of income or opportunities due to absenteeism.

II. METHODOLOGY

This systematic review was conducted in accordance with PRISMA guidelines. It considered cross-sectional and observational studies published between 2010 and 2025 that addressed dysmenorrhea among female students in higher education. Relevant literature was retrieved from PubMed, Google Scholar, and ResearchGate. Based on predefined inclusion criteria, ten peer-reviewed articles focusing on prevalence, associated factors, and university settings were selected for analysis.

III. RESULTS

Prevalence:

Studies examining the prevalence of dysmenorrhea among female university students reveal substantial variation across regions and populations. In India, the condition was highly prevalent, with Kural et al. (2015) reporting an incidence of 84.2% among female students and Manjunath et al. (2020) observing a slightly higher rate of 85.3% among medical students. Karanth et al. (2018) documented a prevalence of 62.5% among nursing students, while Muralidhar et al. (2020) found a prevalence of 61.5% in students from North Kerala. Among MBBS participants, Syed et al. (2020) reported a lower prevalence of 45%. In Turkey, Unsal et al. (2010) identified a prevalence of 72.7%, reflecting a similarly high burden. A more recent study by Thomas et al. (2025) indicated that while only 25.5% of participants received a formal diagnosis, a striking 92.5% reported experiencing menstrual discomfort, highlighting the potential underdiagnosis of the condition. In Ethiopia, Belayneh et al. (2023) reported that 80% of university students experienced dysmenorrhea. These findings collectively underscore that dysmenorrhea is a widespread concern among female students, with prevalence influenced by factors such as geographic location, study population, and methodological differences across investigations.

Associated Factors:

The occurrence and severity of dysmenorrhea among female university students are influenced by a range of biological, behavioral, and psychosocial factors. Early menarche has been consistently identified as a significant determinant, with studies by Thomas et al. (2025) and Kural et al. (2015) indicating that students who experience menstruation at a younger age are more likely to report dysmenorrhea. Genetic predisposition also plays a crucial role, as evidenced by multiple studies demonstrating that a positive family history increases susceptibility to menstrual pain (Kural et al., 2015; Unsal et al., 2010; Belayneh et al., 2023). Body composition appears to be relevant as well, with lower body mass index associated with higher prevalence and severity of symptoms (Karanth et al., 2018; Unsal et al., 2010). Menstrual characteristics such as prolonged bleeding

duration further exacerbate the condition (Unsal et al., 2010; Kural et al., 2015). Lifestyle and behavioral factors also contribute significantly to dysmenorrhea. Irregular eating patterns, elevated stress levels, and excessive caffeine intake have all been linked to increased menstrual pain and discomfort (Thomas et al., 2025; Unsal et al., 2010). Psychological influences, including heightened stress, anxiety, and sexual activity, have been identified as additional determinants in certain populations (Belayneh et al., 2023). Collectively, these findings highlight that dysmenorrhea is a multifactorial condition, arising from an interplay of genetic, physiological, lifestyle, and psychosocial factors, which underscores the need for comprehensive assessment and tailored management strategies among female university students.

Impact on Wellbeing and Academic Activities:

Dysmenorrhea significantly affects academic performance and overall quality of life among female university students. Class absenteeism due to menstrual pain has been reported to range from 16% to 50% (Karanth et al., 2018; Syed et al., 2020; Manjunath et al., 2020), reflecting the substantial disruption caused by the condition. Beyond attendance, students frequently experience reduced academic engagement, impaired concentration, and incomplete assignments (Belayneh et al., 2023; Syed et al., 2020; Muralidhar et al., 2020), indicating broader cognitive and functional consequences. Additionally, dysmenorrhea has been shown to negatively affect overall quality of life, as evidenced by diminished scores across multiple domains of the SF-36 health survey, including physical, mental, and social functioning (Unsal et al., 2010). These findings underscore the pervasive impact of dysmenorrhea on both educational outcomes and general well-being, highlighting the need for effective management strategies within university settings.

Management and Coping Strategies:

Management of dysmenorrhea among female university students encompasses both medical and non-medical approaches, though a substantial proportion of students do not seek formal healthcare. Pharmacological interventions are commonly employed, with non-steroidal anti-inflammatory drugs (NSAIDs), particularly ibuprofen and mefenamic acid in combination with dicyclomine, being the most frequently used (Manjunath et al., 2020; Karanth et al., 2018). Non-pharmacological strategies are also widely adopted and include the application of heat to the lower abdomen, engagement in regular physical activity, adequate fluid intake, and prioritizing rest (Manjunath et al., 2020; Syed et al., 2020). Despite these options, a significant proportion of students—73.8% in the study by Manjunath et al. (2020)—reported avoiding clinical consultation, indicating a potential gap in awareness, accessibility, or utilization of formal medical care for menstrual pain.

IV. CONCLUSION

The considerable variation in dysmenorrhea prevalence among female university students highlights the influence of cultural practices, dietary habits, and behavioral factors. Despite its high occurrence, many students underreport symptoms or refrain from seeking medical care, often due to cultural beliefs or limited awareness. Key contributing factors consistently identified include familial predisposition, inadequate nutrition, low physical activity, and psychological stressors. Dysmenorrhea not only affects physical and mental health but also significantly impairs academic performance and daily functioning. These findings underscore the need for comprehensive strategies that promote awareness, facilitate early diagnosis, and incorporate both medical and non-medical management approaches to effectively address the multifaceted impact of dysmenorrhea in this population.

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