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A REVIEW ON ASSESSMENT AND PREVALENCE OF MENSTRUAL PAIN, CAUSES, FACTORS, PATHOPHYSIOLOGY, DIAGNOSIS: DYSMENORRHEA

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A B S T R A C T:

Aim: This review set out to look at how common dysmenorrhea is among adolescent girls and women of reproductive age, and to go through its causes, risk factors, pathophysiology, symptoms, diagnosis and management. Methodology: We carried out a narrative review of research papers and reviews on dysmenorrhea published between 2010 and 2026, and summarised what they found in a descriptive way. Results: Dysmenorrhea is a very common menstrual health problem, and large meta-analyses put the pooled prevalence at roughly 66–73%. It is divided into primary dysmenorrhea (driven by prostaglandin-mediated uterine contractions and reduced uterine blood flow) and secondary dysmenorrhea (due to conditions such as endometriosis, adenomyosis, fibroids and pelvic inflammatory disease). Early menarche, a family history of the problem, stress, irregular sleep and low physical activity are linked to more severe pain. The pain gets in the way of attendance, concentration and everyday quality of life. Treatment options include NSAIDs, hormonal therapy, heat application and exercise. Conclusion: Recognising the problem early, assessing it properly, teaching girls and women about menstrual health and encouraging timely medical advice can ease menstrual pain and improve quality of life, although more research in specific populations is still needed.

Keywords: Dysmenorrhea, Menstrual pain, Primary dysmenorrhea, Secondary dysmenorrhea, Prostaglandins, Risk factors, Pathophysiology, Diagnosis, Treatment, Women's health

Introduction

The terms menstrual pain and dysmenorrhea are often used interchangeably. Dysmenorrhea refers to a cramping, dull or throbbing pain in the lower abdomen that comes on just before or during a period, and it is among the most common causes of pelvic pain and menstrual problems in women of reproductive age [1,2]. Several things have been linked to it, including early or late menarche, heavy or prolonged bleeding, low body weight, too little exercise, a genetic tendency, smoking, low socioeconomic status, diet, stress and mental illness [1].

How common it appears to be depends a great deal on the criteria used to assess it; for example, a Malaysian survey found a prevalence of 62.3% [2]. Primary dysmenorrhea is not life-threatening, but it can make it harder to concentrate, lead to missed days at school or work, and, when severe, may result in disability, depression and withdrawal from social life. It also carries an economic cost through health-care spending and lost productivity. Limited knowledge often leads to poor habits, such as unsafe use of painkillers (which can damage the kidneys and cause gastrointestinal bleeding) and inadequate menstrual hygiene, which is associated with reproductive tract infections [2].

1.1. Types of dysmenorrhea

Primary dysmenorrhea means menstrual pain with no identifiable pelvic disorder behind it, while secondary dysmenorrhea is caused by an underlying pelvic condition such as endometriosis or adenomyosis [3,5].

Methodology

This work is a narrative review. We looked at research articles and reviews published between 2010 and 2026 that dealt with the prevalence, types, causes, risk factors, pathophysiology, diagnosis and treatment of dysmenorrhea, and we summarised the information on symptoms, lifestyle factors and treatment approaches in a descriptive manner.

Causes and pathophysiology

Dysmenorrhea can arise from hormonal changes, overly strong uterine contractions, reduced blood flow, inflammation or an underlying reproductive condition [3,4]. The main causes are listed below:

- **Increased prostaglandins:** strong uterine contractions that lead to cramps and pain [3]
- **Reduced blood flow:** the contractions briefly cut down the blood and oxygen reaching uterine tissue
- **Inflammatory chemicals:** such as leukotrienes, which add to inflammation and contractions
- **Endometriosis and adenomyosis:** tissue resembling the endometrium growing outside the uterus or within its wall [4,5]
- **Fibroids, polyps, cervical stenosis:** structural problems that change how the uterus contracts or block menstrual flow
- **Pelvic inflammatory disease and adhesions:** infection, inflammation and scar tissue that cause pelvic pain
- **Congenital abnormalities and IUD use:** malformations of the reproductive tract; copper IUDs may worsen cramping

Risk factors for severe dysmenorrhea

One retrospective single-centre study of adolescent girls with primary dysmenorrhea compared those with severe pain against those with mild-to-moderate pain [6]. The severe group more often had prolonged cycles (28.48% vs 16.42%), heavy menstrual bleeding (35.44% vs 20.52%), irregular sleep (68.36% vs 49.25%), frequent intake of cold food (56.96% vs 34.33%) and low physical activity (62.03% vs 40.29%).

Multivariate logistic regression singled out four independent risk factors: early menarche, frequent intake of cold food, high serum PGF2α and low physical activity. A model built on these factors achieved an AUC of 0.826, with a sensitivity of 78.48% and a specificity of 76.87% (optimal cut-off 0.35; Hosmer–Lemeshow P = 0.682, indicating a good fit). Serum PGF2α was positively correlated with the VAS pain score, whereas physical activity was negatively correlated with it [6].

Literature review

Table 1 gives a summary of the studies we reviewed. The estimates vary because the studies differ in population, geography, definitions, measurement tools and sampling, so each figure is best interpreted within the context of its own study.

Table 1 - Summary of reviewed literature.

No.	Author(s), year	Study / population	Key findings	Ref.
1	Grandi et al. (2012)	Young women; prevalence of menstrual pain	Defines dysmenorrhea and links it to menarche, menstrual flow, BMI, exercise, smoking, stress and genetics.	[1]
2	Ju, Jones & Mishra (2014)	Review of prevalence and risk factors	Prevalence depends on how it is defined and measured; risk factors are associations rather than proven causes.	[7]
3	Armour et al. (2019)	Meta-analysis, academic impact in young women	Pain reduces concentration, participation and performance in education.	[8]
4	Hu et al. (2020)	4,606 Chinese university students	Large sample; cross-sectional data cannot demonstrate cause and effect.	[9]
5	Durand et al. (2021)	University students, Ireland	Pain disrupts attendance, sleep, exercise and social life, even when no medical care is sought.	[10]
6	Wang et al. (2022)	Meta-analysis, 96 studies, ~78,068 students	Pooled prevalence 66.1%.	[11]
7	Bakro et al. (2023)	Women in Kuala Lumpur, Malaysia	Studied prevalence, knowledge and practices; found gaps in knowledge and misuse of analgesics.	[2]
8	Chen et al. (2024)	Systematic review, 166 articles	Social determinants (stress, poor education, low support) were tied to worse outcomes; most studies had a high risk of bias.	[12]
9	Situmorang et al. (2024)	Indonesian medical students	Prevalence of 91.27%; moderate-to-severe pain in 52.35%.	[13]
10	Das & Jungari (2025)	Review of Indian evidence	Prevalence of 46–76%; only about one-third seek treatment.	[14]
11	de Arruda et al. (2026)	336 studies, 70 countries	Worldwide pooled prevalence 71.3%; primary 73%, secondary 35%.	[15]
12	Gindaba et al. (2026)	Sub-Saharan Africa, 65 studies	Pooled prevalence of 73.49%; family history (OR 5.20) and irregular cycles were significant.	[16]
13	Chaudhary et al. (2026)	Indian students, 32 reports	Prevalence of 70.2% (West India 63.9%); longer bleeding, clots, family history, inactivity and fast food were associated.	[17]

Taken together, the literature presents dysmenorrhea as a multidimensional problem. Biological and menstrual characteristics, family history, lifestyle and psychosocial factors may all play a part, but most observational studies cannot prove cause and effect, so it is important to separate risk markers from proven causes [7,12]. Menstrual pain also disrupts attendance, concentration, sleep and social participation, and many women manage on their own or with over-the-counter medicines, or put off seeking care because of stigma or a belief that severe pain is simply normal [2,8,10,14].

Results

Table 2 summarises the findings of this review. Dysmenorrhea is a widespread problem, particularly among adolescents and young women, and it affects physical health, psychological well-being, academic performance and productivity [2,8,23]. Pain severity can be measured with the VAS and with multidimensional scales, and the main treatment options are NSAIDs, hormonal contraceptives, heat and exercise [5,6,22]. The true prevalence in any given population can only be determined from data collected in that population itself.

Table 2 - Summary of overall literature findings.

No.	Parameter	Overall findings	Ref.
1	Prevalence	Widespread among women of reproductive age.	[11,15,17]
2	Causes	Higher prostaglandin levels and strong uterine contractions.	[3,19]
3	Risk factors	Family history, early menarche, stress, irregular sleep, low activity.	[6,7,16]
4	Pathophysiology	Prostaglandin activity brings on contractions and reduces blood flow.	[3,20]
5	Types	Primary and secondary dysmenorrhea.	[3,5]
6	Diagnosis	Medical history, symptom assessment, examination and investigations.	[5,21]
7	Pain assessment	Visual Analogue Scale (VAS) and multidimensional scoring systems.	[6,18]
8	Drug management	NSAIDs as first-line treatment; hormonal treatment where appropriate.	[5,22]
9	Non-drug management	Heat therapy and physical exercise.	[3,22]
10	Quality of life	Disrupts daily activities, concentration, academics and productivity.	[8,10,23]

Discussion

1.2. Impact on quality of life

Menstrual pain can get in the way of attending class, concentrating, preparing for examinations, working, staying physically active and enjoying social life. Fatigue, nausea, headache and disturbed sleep add to the burden, and pain that keeps coming back can lead to frustration and anxiety [8,10,12,23]. How much it affects a person depends on how severe the pain is, whether she can get treatment, how she copes and how much support she has.

1.3. Implications

Because no single factor accounts for every case, a thorough assessment matters [7,12,14]. Using standardised pain assessment, teaching about menstrual health, giving accurate information on what is normal and what counts as a warning sign, and encouraging timely medical advice can all help reduce delays in care [2,7,14,18]. Pharmacists and other healthcare professionals can help through evidence-based counselling, advice on using medicines safely, and referral when an underlying condition is suspected [2,21]. Pain that is persistent or severe should be medically evaluated to rule out secondary causes [21]. Future studies should work with clearly defined populations, standardised measures and representative samples, and should also explore how social context and access to care shape outcomes [11,15–17].

Conclusion

Dysmenorrhea is a common women's health concern that can disrupt daily activities, academic performance, productivity and quality of life. Primary dysmenorrhea is mainly caused by prostaglandin-mediated uterine contractions, while secondary dysmenorrhea points to an underlying pelvic condition. Identifying the problem early, assessing it properly, using suitable drug and non-drug treatment, and educating women about menstrual health can lessen pain and improve quality of life. More research in specific populations is needed to guide prevention and management.

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