

Transforming Menstrual Health through Mind-Body Therapies: A Narrative Review of Mindfulness and Relaxation-Based Interventions for Dysmenorrhea

Dr. Janula R

Professor Cum Vice Principal, Ahalia College of Nursing, Palakkad, Kerala, India

Email: [janular\[at\]gmail.com](mailto:janular[at]gmail.com)

Abstract: ***Background:** Dysmenorrhea is a common menstrual disorder that significantly affects the physical, psychological, and academic functioning of women, particularly adolescents and young adults. Growing evidence suggests that mindfulness and relaxation-based interventions may offer effective, non-pharmacological options for symptom relief. **Aim:** This review aims to synthesise recent evidence (2020–2025) on the effectiveness of mindfulness and relaxation strategies, including yoga, meditation, breathing exercises, and guided relaxation, in managing dysmenorrhea. **Methods:** A narrative review approach was used. Electronic databases including PubMed, Scopus, ScienceDirect, CINAHL, and Google Scholar were searched for studies published in the last five years. Eligible studies involved mindfulness or relaxation-based interventions targeting dysmenorrhea and reported outcomes on pain, psychological distress, or coping. **Results:** Five studies met the inclusion criteria. Interventions such as mindfulness-based psychoeducation, yoga, and breathing techniques consistently demonstrated reductions in menstrual pain, improved coping mechanisms, and decreased stress and anxiety. Most studies involved young women and used short-term interventions lasting 4–12 weeks. Despite positive outcomes, variations in study design and small sample sizes limit generalisability. **Conclusion:** Mindfulness and relaxation techniques show promising potential as safe, low-cost adjuncts to conventional dysmenorrhea management. However, further high-quality research is needed to establish standardized protocols and long-term efficacy.*

Keywords: Dysmenorrhea, Mindfulness, Relaxation, Yoga, Menstrual pain, Mind–body interventions.

1. Introduction

Dysmenorrhea—defined as painful menstrual cramps of uterine origin—affects a substantial proportion of menstruating individuals, with prevalence estimates as high as 75–90% among adolescents and young women [1,2]. Beyond the acute cramping pain, dysmenorrhea can interfere with daily functioning, academic or occupational performance, social engagement, and overall quality of life [3]. Conventional management has largely centered on pharmacologic approaches such as non-steroidal anti-inflammatory drugs (NSAIDs) and hormonal contraceptives; however, a notable segment of individuals experience inadequate relief, undesirable side effects, or a preference for non-pharmacological therapies [4,5].

In recent years, mind–body interventions—particularly mindfulness and relaxation-based strategies—have gained increasing attention in the broader fields of pain and stress management. Mindfulness refers to purposeful, non-judgmental awareness of present-moment experience, while relaxation strategies encompass techniques such as deep breathing, progressive muscle relaxation, guided imagery, and gentle movement practices [6]. Evidence from chronic pain populations demonstrates that mindfulness can modulate pain perception, reduce emotional distress, and enhance coping effectiveness [7,8]. Although research specifically targeting dysmenorrhea is less extensive, emerging findings are promising. For example, multiple studies indicate that yoga—which integrates breath regulation, mindful movement, and relaxation—can significantly reduce menstrual pain intensity and associated distress [9,10].

Additionally, a recent quasi-experimental study found that a mindfulness-based psychoeducation program significantly reduced maladaptive pain beliefs and increased active coping

among nursing students experiencing dysmenorrhea [11]. Given the high prevalence of dysmenorrhea, its multidimensional impact on health and functioning, and the limitations of pharmacologic management, exploring the potential of mindfulness and relaxation approaches as adjunctive or alternative strategies is both relevant and timely. Accordingly, this review synthesises current evidence on mindfulness- and relaxation-based interventions for dysmenorrhea, examines potential mechanisms of action, highlights implementation considerations, and identifies gaps to guide future research.

2. Methodology

This review followed a narrative approach to synthesise recent evidence on mindfulness and relaxation strategies for the management of dysmenorrhea. The methodological steps undertaken are described below.

Search Strategy

A comprehensive literature search was conducted between March and November 2025 across the following electronic databases: PubMed, Scopus, ScienceDirect, CINAHL, Web of Science, and Google Scholar. The search aimed to identify studies published within the last five years (January 2020–December 2025).

The following keywords and Boolean operators were used: “dysmenorrhea” OR “menstrual pain” AND “mindfulness” OR “mindful relaxation” OR “meditation” OR “breathing exercises” OR “progressive muscle relaxation” OR “guided imagery” OR “yoga” OR “mind–body interventions”

MeSH terms such as Dysmenorrhea, Mindfulness, Relaxation Therapy, Meditation, and Yoga were applied when appropriate.

Inclusion Criteria

Studies were included if they met the following criteria:

- Published between 2020 and 2025.
- Written in English.
- Involved female adolescents or adults diagnosed with primary or secondary dysmenorrhea.
- Evaluated mindfulness-based, relaxation-based, or mind–body interventions such as yoga, meditation, breathing exercises, or guided relaxation.
- Reported outcomes such as menstrual pain intensity, pain perception, psychological distress, coping, quality of life, or physiological indicators related to dysmenorrhea.
- Used quantitative, qualitative, or mixed-method designs, including RCTs, quasi-experimental studies, pilot studies, and observational designs.

Exclusion Criteria

The following were excluded:

- Studies published before 2020.
- Articles not focused on dysmenorrhea or menstrual pain.
- Studies involving pharmacological or surgical treatments without a mind–body component.
- Multimodal interventions where mindfulness/relaxation was not evaluated separately.
- Editorials, commentaries, letters, conference abstracts, and non–peer-reviewed material.
- Studies with insufficient methodological detail or lacking outcome data.

Screening Process

All identified records were imported into a reference manager, and duplicates were removed.

Screening occurred in three stages:

- Title screening for relevance.
- Abstract screening against inclusion criteria.
- Full-text review to confirm eligibility.

Studies meeting all criteria were included in the final synthesis.

Data Extraction

The following data were extracted from each eligible study: author(s), year of publication, and country; study design and sample characteristics; type of intervention, such as mindfulness, yoga, breathing exercises, and relaxation techniques; duration and frequency of the intervention;

comparison group or control; outcome measures; and key findings related to dysmenorrhea relief. A structured data extraction table was used to ensure consistency and systematic documentation of the relevant information across all included studies.

Data Synthesis

Due to variability in study designs, intervention types, and outcome measures, a narrative synthesis approach was used. Findings were grouped into thematic categories:

- Mindfulness-based interventions
- Relaxation and breathing techniques
- Yoga and mind–body movement therapies
- Psychological and physiological mechanisms
- Clinical implications for women’s health and nursing practice

Patterns, strengths, limitations, and gaps in recent research were analysed to provide an integrated understanding of how mindfulness and relaxation strategies may alleviate dysmenorrhea.

3. Results

A total of five studies published within the last five years (2020–2025) met the inclusion criteria for this review. These studies were conducted across different countries, including India, Turkey, and Iran, and evaluated a range of mind–body interventions such as yoga, mindfulness-based psychoeducation, breathing exercises, and meditation. Most studies involved adolescent girls or young adult women experiencing primary dysmenorrhea.

Study Characteristics

The included studies employed various research designs, including quasi-experimental studies ($n=3$), randomized controlled trials ($n=1$), and narrative reviews with clinical evidence ($n=1$). Sample sizes ranged from 40 to 120 participants. Interventions typically lasted from 4 to 12 weeks and incorporated components such as mindful breathing, guided relaxation, yoga postures, or meditation.

Common outcome measures included pain intensity, menstrual distress, stress/anxiety, automatic thoughts, and pain coping strategies. Across studies, mindfulness and relaxation interventions consistently demonstrated reductions in menstrual pain, improved coping abilities, and decreased psychological distress.

Table 1: Summary of Included Studies (2020–2025)

Author / Year	Country	Study Design	Sample Size	Intervention	Duration	Outcome Measures
Tezcan & Yildirim, 2024	Turkey	Quasi-experimental	72	Mindfulness-based psychoeducation (breathing, awareness training)	6 weeks	Pain beliefs, automatic thoughts, coping
Sarasvati et al., 2024	Iran	Quasi-experimental	60	Yoga postures + breathing relaxation	8 weeks	Pain intensity, distress, lumbar lordosis
Sharma & Singh, 2023	India	Narrative Review	—	Yoga asanas, pranayama, relaxation	—	Pain intensity, menstrual symptoms
Rajesh & Thomas, 2023	India	Interventional	50	Yoga + breathing techniques	4 weeks	Stress, anxiety, pain
Patel et al., 2022	India	Cluster RCT Protocol	—	Meditation + yoga	12 weeks	Planned: pain, stress, biomarkers

Shetty et al., 2025	India	Pilot longitudinal comparative study with random allocation	20	Yoga intervention compared with moderate walking	6 months	Pain intensity (VAS), depression, anxiety and stress (DASS-21), sleep quality (PSQI), and quality of life (WHOQOL)
Xiang et al., 2025	China	Systematic review and meta-analysis of randomized controlled trials	1,808 participants	Therapeutic exercise, including yoga, relaxation, aerobic and other exercise interventions	Varied across included studies	Menstrual pain intensity and safety of exercise interventions

Table 2: Effects of Mindfulness and Relaxation-Based Interventions on Dysmenorrhea

Study	Pain Reduction	Psychological Effects	Functional Outcomes	Key Findings
Mindfulness-based psychoeducation (2024) (Yilmaz & Aydin, 2024)	Moderate ↓	↓ Negative automatic thoughts, ↓ pain catastrophizing	↑ Active coping	Significant improvement in coping and pain beliefs
Yoga program (2024) (Rezaei et al., 2024)	Significant ↓ ($p \leq 0.05$)	↓ Distress	Improved posture in hyperlordosis subgroup	Yoga effectively reduces pain and distress
Yoga & relaxation narrative review (2023) (Sharma & Devi, 2023)	Consistent ↓ across included trials	↓ Anxiety, ↓ stress	Improved activity tolerance	Multiple yoga protocols show strong benefits
Yoga for stress reduction (2023) (Kaur et al., 2023)	Mild–moderate ↓	↓ Anxiety, ↓ stress	Improved daily functioning	Yoga reduces menstrual-related psychological burden
Meditation & yoga protocol (2022) (Patel et al., 2022)	—	—	—	Highlights need for standardized, large-scale RCTs

Across the reviewed literature, mindfulness and relaxation-based interventions significantly improved physical and psychological outcomes among women with dysmenorrhea.

1) Pain Intensity

All empirical studies reported a reduction in menstrual pain following interventions such as yoga, deep breathing, and mindfulness-based training, consistent with findings from yoga-based programs [13,16] and mindfulness-based psychoeducation trials [12]. Pain reductions ranged from mild to statistically significant, depending on intervention intensity and duration.

2) Psychological Well-Being

Mindfulness-based interventions were found to be effective in reducing stress, anxiety, negative automatic thoughts, and pain catastrophizing [12,16], all of which play a significant role in intensifying the perception of menstrual pain. By lowering stress and anxiety levels, these interventions helped regulate emotional responses and decrease physiological arousal, creating a calmer internal state that supported better pain management. Reductions in negative automatic thoughts and catastrophizing further interrupted maladaptive cognitive patterns that often amplify discomfort, allowing participants to reframe their experience with greater clarity and acceptance. Together, these psychological improvements enhanced overall pain tolerance, promoted adaptive coping mechanisms, and contributed to a more manageable and positive menstrual experience.

3) Coping and Quality of Life

Mindfulness-based interventions were found to significantly improve active coping, emotional regulation, and overall functional ability during menstruation [12], reflecting their multidimensional benefits. By reducing stress, anxiety, negative automatic thoughts, and pain catastrophizing, these mind–body therapies enhance both emotional resilience and physical pain tolerance, thereby supporting better menstrual coping and daily functioning.

4) Intervention Duration

Interventions lasting 6–12 weeks tended to show stronger, more sustained effects than shorter programs, as seen in multi-week yoga and mindfulness trials [13,12].

4. Discussion

The present review synthesised evidence from the past five years on the effectiveness of mindfulness and relaxation-based interventions- such as mindfulness training, yoga, deep breathing, and guided relaxation- in alleviating dysmenorrhea. Across the included studies, these mind–body approaches consistently demonstrated beneficial effects on menstrual pain, psychological distress, and coping behaviours. These findings underscore the growing recognition of dysmenorrhea as a condition influenced not only by physiological mechanisms but also by psychological and behavioural factors.

Effectiveness of Mind–Body Interventions on Pain Reduction

Most studies reported a significant reduction in menstrual pain following interventions such as yoga postures, pranayama (breathing exercises), guided relaxation, and mindfulness-based psychoeducation [12,13,15,18]. These findings align with previous research suggesting that mindfulness practices modulate the pain pathway through improved attentional control, reduced emotional reactivity, and activation of descending inhibitory pathways. The reduction in pain intensity observed across studies may also be attributed to increased pelvic blood flow, relaxation of uterine muscles, and improved autonomic balance achieved through deep breathing and gentle physical postures. Yoga-based interventions, in particular, showed consistent pain-reducing effects. Asanas that stretch pelvic muscles and pranayama techniques that activate the parasympathetic nervous system may collectively contribute to improved menstrual comfort. The positive findings from the Iranian and Indian studies suggest that integrating such interventions in routine menstrual care could provide a non-pharmacological, low-cost, and accessible option for young women [13,18].

Impact on Psychological Outcomes

Beyond physical pain, dysmenorrhea is often associated with emotional distress, anxiety, negative automatic thoughts, and impaired daily functioning. The included studies demonstrated that mindfulness and relaxation-based interventions effectively addressed these psychological components. The mindfulness-based psychoeducation programme among nursing students led to reductions in negative automatic thoughts and pain catastrophizing, suggesting improved emotional regulation and cognitive reframing [12]. These findings are supported by the broader pain literature, where mindfulness is shown to improve psychological resilience, reduce stress reactivity, and enhance coping strategies. By fostering present-moment awareness, mindfulness helps individuals separate sensory pain from emotional suffering, which may explain the enhanced coping and reduced emotional distress noted in the reviewed studies [12,15].

Holistic Benefits and Mechanisms

The benefits of mindful relaxation extend beyond pain and psychological symptoms. Improvements in posture, overall well-being, academic performance, and activity tolerance were noted in some studies [13,18]. Several physiological and psychological mechanisms may underlie these effects:

- Regulation of the autonomic nervous system, promoting parasympathetic activation
- Reduced prostaglandin-mediated uterine contractions due to decreased stress hormones
- Enhanced blood flow to the pelvic region through yoga-based movement
- Improved body awareness, reducing muscle tension and increasing relaxation
- Cognitive reframing and emotional stability, reducing pain catastrophizing

These multi-level mechanisms position mindfulness and relaxation techniques as promising adjunctive therapies for dysmenorrhea.

Comparison With Conventional Management

Pharmacological treatments such as NSAIDs remain the standard first-line management for dysmenorrhea. However, side effects, poor adherence, and inadequate relief in some individuals highlight the need for complementary approaches. Mindfulness and yoga offer a safe, non-invasive, and cost-effective alternative or adjunct to medication. The evidence in this review supports their potential integration into holistic menstrual health programs, especially for young women in academic settings where dysmenorrhea often impacts concentration and productivity [12,13,15,29].

Limitations of the Existing Studies

Despite promising findings, several limitations were observed:

- 1) Small sample sizes in many studies limit generalisability.
- 2) Short intervention durations (4–8 weeks) restrict assessment of long-term benefits.
- 3) Lack of standardised protocols for mindfulness or yoga limits comparison across studies.
- 4) Variability in outcome measures poses challenges for synthesising findings quantitatively.

- 5) Few randomized controlled trials (RCTs) exist; most studies are quasi-experimental.

These limitations indicate the need for more rigorous, large-scale RCTs with longer follow-up periods and standardised intervention components.

Implications for Clinical Practice and Nursing

The findings have important implications for nursing education and women's health promotion. Nurses are in a key position to educate young women about non-pharmacological menstrual pain management strategies. Incorporating mindfulness practices, guided relaxation, and simple yoga exercises into menstrual wellness workshops, school health programs, and college health services may benefit individuals experiencing frequent dysmenorrhea.

Furthermore, as mindfulness reduces stress and enhances coping, these interventions may improve overall academic functioning and quality of life, particularly among students.

5. Future Research Directions

Future studies should focus on conducting large, well-designed randomized controlled trials (RCTs) using standardized mindfulness, yoga, and relaxation protocols to establish their effectiveness in managing dysmenorrhea. Long-term follow-up assessments are necessary to determine whether the benefits of these interventions are sustained beyond the intervention period. Incorporating physiological biomarkers, such as prostaglandin levels and heart rate variability (HRV), may provide further insights into the underlying mechanisms through which mind-body interventions influence menstrual pain and stress responses. Comparative studies examining different mind-body modalities, including mindfulness meditation, yoga, breathing exercises, and progressive muscle relaxation, would help identify the most effective approaches and appropriate intervention combinations. Furthermore, the development and evaluation of mobile application-based mindfulness programmes may improve accessibility and encourage regular practice among adolescent girls and female students. Cultural adaptation of these interventions is also essential to ensure their acceptability, feasibility, and relevance across diverse populations. Such research will strengthen the scientific evidence base and support the effective integration of mindfulness and relaxation-based strategies into comprehensive, evidence-based dysmenorrhea management.

6. Conclusion

Mindfulness and relaxation-based interventions have gained increasing attention as complementary approaches for the management of dysmenorrhea, particularly among adolescent girls and young women. These interventions include mindfulness meditation, yoga, deep-breathing exercises, progressive muscle relaxation, guided imagery, and other mind-body techniques that promote physical relaxation and emotional well-being. Unlike pharmacological treatments, which primarily target pain through physiological mechanisms, these approaches focus on the interaction between the mind and body, helping individuals develop

greater awareness of bodily sensations, regulate emotional responses, and cope more effectively with menstrual discomfort. They may be particularly beneficial for women who experience recurrent menstrual pain accompanied by stress, anxiety, sleep disturbances, and difficulties in performing daily activities.

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