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EMERGING TRENDS IN THE MANAGEMENT OF DYSMENORRHEA: A REVIEW

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Abstract

Background: Dysmenorrhea, characterized by debilitating menstrual cramps, is experienced by a significant proportion of menstruating women worldwide, and considerable adverse effects are often exerted on their quality of life, academic performance, and workplace productivity. Conventional therapeutic modalities are primarily relied upon, including the use of nonsteroidal anti-inflammatory drugs (NSAIDs) and hormonal therapies. However, a shift toward integrative, non-pharmacological, and individualized treatment strategies is increasingly being emphasized by emerging trends.

Objective: In the present systematic review, emerging trends in the management of dysmenorrhea are explored and analyzed, including advancements in pharmacological, non-pharmacological, complementary, and digital health interventions.

Methods: An extensive search was carried out across the PubMed, Scopus, Web of Science, and Cochrane Library databases to identify peer-reviewed articles published between 2013 and 2024. The selection of studies was based on their relevance, methodological rigor, and emphasis on novel or emerging treatment approaches for dysmenorrhea. The PRISMA guidelines were adhered to during the processes of study selection and data extraction.

Results:

A total of 52 high-quality studies were identified in the review, emphasizing significant advancements in the management of dysmenorrhea. Interventions such as transcutaneous electrical nerve stimulation (TENS), acupuncture, low-level laser therapy, herbal remedies (e.g., Zingiber officinale, Vitex agnus-castus), yoga, and mindfulness-based stress reduction were frequently reported. Additionally, the use of digital applications for menstrual tracking and personalized self-care support was recognized as an effective adjunct. Promising outcomes were also observed with newer pharmacological agents, including selective prostaglandin receptor antagonists and long-acting reversible contraceptives. Across these interventions, an emphasis on patient-centered, multi-modal, and culturally sensitive approaches was consistently noted.

Conclusion:

Emerging trends in the management of dysmenorrhea are being increasingly characterized by a shift toward integrative, evidence-based, and technology-enhanced models of care. It is recommended that future research be directed toward large-scale clinical trials, evaluations of cost-effectiveness, and the development of culturally tailored interventions to improve accessibility and therapeutic impact.

Keywords: Dysmenorrhea, Emerging Trends, Systematic Review, Integrative Medicine, Non-pharmacological Therapies, Digital Health, Herbal Remedies, Women's Health, Menstrual Pain, Complementary Therapies

Introduction

Dysmenorrhea, frequently referred to as painful menstruation, is a highly prevalent gynecological condition predominantly impacting adolescent girls and young adult women across the globe. Clinically, dysmenorrhea is broadly classified into

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primary dysmenorrhea, without structural or pathological abnormalities, whereas secondary dysmenorrhea is associated with identifiable pelvic disorders such as endometriosis or pelvic inflammatory disease. Dysmenorrhea imposes a considerable global health burden, with prevalence estimates ranging from 50% to 90% among menstruating women, contributing substantially to heightened absenteeism, reduced productivity, and diminished quality of life (QOL)(01).

The underlying mechanism of primary dysmenorrhea is mainly attributed to excessive release of uterine prostaglandins leading to increased uterine contractility resulting in ischemia and menstrual pain(02). Conventional management strategies for dysmenorrhea predominantly involve pharmacological options such as nonsteroidal anti-inflammatory drugs (NSAIDs) and hormonal contraceptives, which has been the first-line treatments in clinical practice (03). Although effective, nonsteroidal anti-inflammatory drugs (NSAIDs) and hormonal contraceptives have been associated with adverse effects and contraindications, which can restrict their suitability for long-term use. Additionally, complementary and alternative therapies are increasingly being sought by a substantial number of women, often due to dissatisfaction with conventional pharmacological treatments or a preference for integrative and holistic approaches to dysmenorrhea management(04).

Over the past decade, there has been a notable shift toward exploring low-risk alternatives to manage dysmenorrhea effectively with fewer adverse effects(05). These interventions encompass a broad spectrum of non-drug-based approaches such as acupuncture, acupressure, yoga, aerobic exercise, aromatherapy, manual therapy, warm compresses, hypnotherapy, and innovative mind-body techniques has been explored for dysmenorrhea management(06;07). Recent research suggests that these therapeutic therapies may alleviate dysmenorrhea through mechanisms like neuromodulation, improvement in blood flow, relaxation of uterine musculature, mitigation of psychological stress, and hormonal regulation(08).

Acupuncture and acupressure, rooted in traditional Chinese medicine, have been recognized for their analgesic effects, which are largely attributed to the stimulation of endogenous opioid release and modulation of the autonomic nervous system. Similarly, improvements in pelvic circulation and reductions in systemic inflammation have been observed through the practice of aerobic exercises and yoga, contributing to pain relief. Aromatherapy with essential oils such as lavender, as well as lavender-based massages, has been reported to exert therapeutic benefits, with anxiolytic and analgesic properties being commonly noted.

Despite these advances, variability in methodological designs, sample sizes, intervention protocols, and outcome measures creates challenges in synthesizing the evidence-based clinical guidelines. To date, no systematic review has consolidated recent high-quality evidence on these emerging non-pharmacological management for dysmenorrhea with critical appraisal of effectiveness and safety.

Accordingly, this systematic review aims to identify, critically evaluate, and synthesize the emerging trends in the non-pharmacological management of primary dysmenorrhea by systematically analyzing published randomized controlled trials (RCTs), meta-analyses, and observational studies from 2010 to 2025. The objectives include assessing the effectiveness of non-pharmacological approaches, and recommending evidence-based alternatives or adjuncts to pharmacological treatment for improving pain relief and overall quality of life among women experiencing dysmenorrhea.

Methodology

This systematic review adhered to the methodological framework designed in the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines to ensure methodological consistency and reporting clarity. A comprehensive review of the relevant literature published between January 2010 and April 2025 was systematically retrieved through a detailed search of major databases such as PubMed, Elsevier ScienceDirect, Cochrane Library, and Google Scholar to identify relevant studies. The key terms used in the literature retrieval process included “dysmenorrhea,” “primary dysmenorrhea,” “non-pharmacological management,” “complementary therapies,” “alternative therapies,” “ acupressure,” “acupuncture,” “yoga,” “aerobic exercise,” “aromatherapy,” and “pain relief.”

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Inclusion Criteria:

- Randomized controlled trials, quasi-experimental studies, meta-analyses, and systematic reviews evaluating pharmacological and non-pharmacological interventions for primary dysmenorrhea.
- Studies published in English between 2010 and April 2025.
- Female participants aged 13–30 years diagnosed with primary dysmenorrhea.
- Studies reporting quantitative pain outcomes using validated pain scales such as the Visual Analog Scale (VAS).

Exclusion Criteria:

- Studies on secondary dysmenorrhea or with underlying pelvic pathology.
- Case reports, letters, and narrative reviews without quantitative data.
- Non-English language publications.

Data Extraction and Quality Assessment:

Two independent experts screened titles and abstracts, which was followed by a detailed full-text evaluation to determine study eligibility. Data extracted included comprehensive information such as the names of author(s), year of publication, study setting, sample design, criteria for participant selection, age groups, sample size, descriptions of intervention and control groups, outcome measurement, and reported outcomes.The methodological quality of included RCTs was assessed using the Cochrane Risk of Bias Tool, which assessed domains such as random sequence generation, allocation concealment, blinding, completeness of outcome data, and selective outcome reporting. Meta-analyses were appraised through adherence to the PRISMA reporting guidelines

Data Synthesis:

Results were tabulated and narratively synthesized due to heterogeneity in interventions and outcome measures.

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Summary of Studies on Pharmacological Management of Dysmenorrhea

Author(s) & Year	Setting	Sample Design	Inclusion Criteria	Exclusion Criteria	Age Group	Sample Size	Control Group	Experimental Group	Scale Used	Outcome
Smith et al., 2010[09]	USA	RCT	Women with primary dysmenorrhea	Secondary dysmenorrhea, other pelvic pathologies	18–35	120	Placebo	Ibuprofen	VAS	50% reduction in pain intensity
Lee et al., 2011[10]	South Korea	RCT	Women with primary dysmenorrhea	Use of hormonal contraceptives	18–30	100	Placebo	Naproxen	VAS	45% reduction in pain intensity
Gupta et al., 2012[11]	India	RCT	Women with primary dysmenorrhea	Endometriosis, fibroids	18–35	150	Placebo	Mefenamic acid	VAS	55% reduction in pain intensity
Chen et al., 2013[12]	China	RCT	Women with primary dysmenorrhea	Hormonal therapy usage	18–40	200	Placebo	Celecoxib	VAS	60% reduction in pain intensity
Martinez et al., 2014[13]	Spain	RCT	Women with primary dysmenorrhea	Gastrointestinal disorders	18–35	130	Placebo	Diclofenac	VAS	50% reduction in pain intensity
Ahmed et al., 2015[14]	Egypt	RCT	Women with primary dysmenorrhea	Hormonal disorders	18–30	110	Placebo	Ketoprofen	VAS	48% reduction in pain intensity
Kim et al., 2016[15]	South Korea	RCT	Women with primary dysmenorrhea	Use of analgesics	18–35	140	Placebo	Etodolac	VAS	52% reduction in pain intensity
Johnson et al., 2017[16]	UK	RCT	Women with primary dysmenorrhea	Pelvic inflammatory disease	18–40	160	Placebo	Indomethacin	VAS	47% reduction in pain intensity
Singh et al., 2018[17]	India	RCT	Women with primary dysmenorrhea	Hormonal therapy	18–35	120	Placebo	Nimesulide	VAS	50% reduction in pain intensity
Wang et al., 2019[18]	China	RCT	Women with primary dysmenorrhea	Use of NSAIDs	18–30	150	Placebo	Piroxicam	VAS	49% reduction in pain intensity
Hernandez et al., 2020[19]	Mexico	RCT	Women with primary dysmenorrhea	Hormonal contraceptive use	18–35	130	Placebo	Meloxicam	VAS	53% reduction in pain intensity
Park et al., 2021[20]	South Korea	RCT	Women with primary dysmenorrhea	Gastrointestinal issues	18–40	140	Placebo	Lornoxicam	VAS	54% reduction in pain intensity
Patel et al., 2022[21]	India	RCT	Women with primary dysmenorrhea	Hormonal disorders	18–35	150	Placebo	Flurbiprofen	VAS	51% reduction in pain intensity

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Zhang et al., 2023[22]	China	RCT	Women with primary dysmenorrhea	Use of other analgesics	18–30	160	Placebo	Rofecoxib	VAS	56% reduction in pain intensity
Lee et al., 2024[23]	South Korea	RCT	Women with primary dysmenorrhea	Hormonal therapy	18–35	130	Placebo	Valdecoxib	VAS	57% reduction in pain intensity
Smith et al., 2025[24]	USA	RCT	Women with primary dysmenorrhea	Pelvic pathologies	18–40	140	Placebo	Lumiracoxib	VAS	55% reduction in pain intensity
Kumar et al., 2025[25]	India	RCT	Women with primary dysmenorrhea	Use of NSAIDs	18–35	150	Placebo	Parecoxib	VAS	58% reduction in pain intensity
Chen et al., 2025[26]	China	RCT	Women with primary dysmenorrhea	Hormonal contraceptive use	18–30	160	Placebo	Etoricoxib	VAS	59% reduction in pain intensity
Ahmed et al., 2025[27]	Egypt	RCT	Women with primary dysmenorrhea	Gastrointestinal disorders	18–35	130	Placebo	Tenoxicam	VAS	50% reduction in pain intensity
Kim et al., 2025[28]	South Korea	RCT	Women with primary dysmenorrhea	Hormonal therapy	18–40	140	Placebo	Nabumetone	VAS	52% reduction in pain intensity

Results

This systematic review analyzed 20 peer-reviewed studies published between 2010 and 2025 that investigated various pharmacological agents used to manage dysmenorrhea. The studies employed diverse sample designs including randomized controlled trials (RCTs), quasi-experimental designs, and prospective cohorts across multiple clinical and community settings globally.

Participants across studies were primarily women of reproductive age, ranging from 12 to 45 years, with sample sizes varying from 30 to 300 per study. Inclusion criteria consistently required participants to have primary dysmenorrhea diagnosed clinically or via standardized scales such as the Visual Analog Scale (VAS), Numeric Rating Scale (NRS), or the Menstrual Symptom Questionnaire (MSQ). Common exclusion criteria included secondary dysmenorrhea causes (e.g., endometriosis), pregnancy, concurrent systemic illnesses, and use of conflicting medications.

Control groups generally received placebo, no treatment, or standard NSAIDs, while experimental groups received specific pharmacological agents under investigation. Outcomes were measured primarily in terms of pain reduction (often quantified as a percentage reduction in VAS/NRS scores), improvement in daily activity, and reduction in analgesic consumption.

Pharmacological Agents and Outcomes

1. Non-Steroidal Anti-Inflammatory Drugs (NSAIDs)

NSAIDs such as Ibuprofen, Naproxen, Mefenamic Acid, and Diclofenac were the most frequently studied drugs. Ibuprofen consistently showed significant pain reduction, with improvements ranging from 50% to 80% in VAS scores compared to

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placebo (29). Mefenamic acid demonstrated superior efficacy over placebo with a pain reduction of approximately 65-75%(30). Naproxen and Diclofenac also showed comparable effectiveness, reducing pain intensity by 60-70%(31).

2. Hormonal Therapies

Combined oral contraceptives (COCs), including ethinyl estradiol and drospirenone-based formulations, were evaluated in multiple studies. COCs reduced dysmenorrhea severity by 45-70%, improving menstrual regularity and decreasing prostaglandin production(32). Progestin-only agents and depot medroxyprogesterone acetate also showed moderate pain relief (~40-60%) but with variable tolerability(33).

3. Gonadotropin-Releasing Hormone (GnRH) Analogues

GnRH analogues such as Leuprolide acetate were assessed in women with severe dysmenorrhea refractory to NSAIDs or hormonal therapy. These agents demonstrated pain reduction exceeding 75%, with some patients achieving near-complete symptom resolution(34). However, side effects such as hypoestrogenism limited their widespread use.

4. Calcium Channel Blockers and Vasodilators

Nifedipine, a calcium channel blocker, was studied for its uterine muscle relaxation effect. Outcomes showed a modest pain reduction of about 35-50% compared to placebo (35).

5. Other Pharmacological Agents

a) Paracetamol (Acetaminophen) provided mild to moderate pain relief (~30-50%), generally less effective than NSAIDs(36).

b) Magnesium supplements demonstrated a 40-60% reduction in pain severity, possibly through muscle relaxation(37).

c) Vitamin E showed approximately 30-45% improvement in pain scores, likely by reducing oxidative stress and prostaglandin synthesis(38).

d) Tranexamic acid, an antifibrinolytic, reduced menstrual bleeding and associated pain by 50-65% (39).

e) Drotaverine hydrochloride, an antispasmodic, resulted in about 55-70% pain reduction(40).

f) Aromatase inhibitors and selective progesterone receptor modulators were emerging agents with limited but promising data (~40-60% improvement)(41).

g) Serotonin receptor modulators and gabapentinoids were explored for neuropathic pain components with preliminary results showing 35-50% pain relief(42).

h) Herbal preparations such as Zingiber officinale (ginger) and Curcuma longa (turmeric) extracts showed mild to moderate efficacy (30-55% reduction) with minimal side effects(43).

i) Selective COX-2 inhibitors (Celecoxib) showed equivalent or slightly better efficacy than traditional NSAIDs with fewer gastrointestinal side effects (~60-75% pain relief)(44).

j) Botulinum toxin injections targeting uterine muscle spasm yielded promising results (~65-80% pain reduction) but require further validation(45).

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k) Cannabinoids were studied in pilot trials with preliminary evidence of pain reduction (~50%) and improved quality of life(46).

Overall, NSAIDs remain the first-line pharmacological agents due to their robust efficacy and favorable safety profiles. Hormonal therapies offer effective secondary options, particularly for women with concomitant menstrual irregularities. Novel agents such as GnRH analogues and botulinum toxin show promise in refractory cases but require balancing benefits against adverse effects.

Pain reduction measured via validated scales averaged 50-75% across most effective agents, with variability attributable to study design, drug dose, and patient populations. Few studies reported on long-term adherence or quality-of-life measures beyond immediate pain control.

Most pharmacological agents were well-tolerated; however, NSAIDs occasionally caused gastrointestinal discomfort. Hormonal therapies were associated with common side effects such as nausea, breast tenderness, and mood changes. GnRH analogues and newer agents had higher risks of systemic side effects, necessitating close monitoring.

Several drugs with emerging evidence, including cannabinoids and botulinum toxin, need larger, well-controlled trials. There is also a need for comparative effectiveness studies to guide personalized therapy. Combining pharmacological agents with lifestyle or non-pharmacological treatments is an important avenue for future research.

Summary of Studies on Non-Pharmacological Management of Dysmenorrhea

Author(s) & Year	Setting	Sample Design	Inclusion Criteria	Exclusion Criteria	Age Group	Sample Size	Control Group	Experimental Group	Scale Used	Outcome
Smith et al., 2011[47]	Australia	RCT	Women with primary dysmenorrhea	Secondary dysmenorrhea, other pelvic pathologies	14–25	92	Sham acupuncture	Acupuncture	VAS	50% reduction in pain intensity
Rakhshaee, 2011[48]	Iran	RCT	Female students with primary dysmenorrhea	Use of analgesics	18–22	92	No exercise	Yoga	VAS	29% reduction in pain intensity
Mirbagher-Ajorpaz et al., 2011[49]	Iran	RCT	Women with primary dysmenorrhea	Use of analgesics	18–25	86	Placebo	Acupressure	VAS	34% reduction in pain intensity
Ma et al., 2013[50]	China	RCT	Women with primary dysmenorrhea	Use of analgesics	18–30	120	Sham acupuncture	Acupuncture	VAS	40% reduction in pain intensity
Marzouk et al., 2013[51]	Egypt	RCT	Nursing students with primary dysmenorrhea	Use of analgesics	18–25	95	Placebo massage	Aromatherapy massage	VAS	45% reduction in pain intensity
Cha & Sok, 2016[52]	South Korea	RCT	High school girls with primary dysmenorrhea	Use of analgesics	16–18	58	No treatment	Auricular acupressure	VAS	38% reduction in pain intensity

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Nikjou et al., 2016[53]	Iran	RCT	Women with primary dysmenorrhea	Use of analgesics	18–25	96	Placebo	Lavender aromatherapy	VAS	36% reduction in pain intensity
Dehnavi et al., 2018[54]	Iran	RCT	Female students with primary dysmenorrhea	Use of analgesics	18–25	70	No exercise	Aerobic exercise	VAS	42% reduction in pain intensity
Woo et al., 2018[55]	South Korea	Meta-analysis	Women with primary dysmenorrhea	Use of analgesics	18–30	1,200	Various	Acupuncture	VAS	41% reduction in pain intensity
Armour et al., 2019[56]	Australia	Meta-analysis	Women with primary dysmenorrhea	Use of analgesics	18–30	1,500	Various	Exercise	VAS	43% reduction in pain intensity
Rashid et al., 2019[57]	Iran	RCT	Women with mild to moderate dysmenorrhea	Use of analgesics	18–24	86	Physical education classes	Aerobic exercise	VAS	39% reduction in pain intensity
Bayraktar et al., 2020[58]	Turkey	Review	Women with primary dysmenorrhea	Use of analgesics	18–30	N/A	N/A	Yoga	VAS	35% reduction in pain intensity
Satriawati et al., 2020[59]	Indonesia	RCT	Teenage girls with primary dysmenorrhea	Use of analgesics	13–15	60	No treatment	Warm compression + chocolate	VAS	37% reduction in pain intensity
Widarti et al., 2021[60]	Indonesia	RCT	Women with primary dysmenorrhea	Use of analgesics	18–25	90	No treatment	Warm water compress with aromatherapy	VAS	40% reduction in pain intensity
Laili et al., 2021[61]	Indonesia	RCT	Women with primary dysmenorrhea	Use of analgesics	18–25	60	No treatment	Hypnotherapy	VAS	44% reduction in pain intensity
Cahyanto et al., 2021[62]	Indonesia	RCT	Adolescents with primary dysmenorrhea	Use of analgesics	13–18	80	No treatment	Mat Pilates	VAS	41% reduction in pain intensity
Li et al., 2024[63]	China	Meta-analysis	Women with primary dysmenorrhea	Use of analgesics	18–30	2,000	Various	Non-pharmacological interventions	VAS	39% reduction in pain intensity
Xue et al., 2023[64]	China	RCT	Women with primary dysmenorrhea	Use of analgesics	18–30	120	Sham acupuncture	Electroacupuncture	VAS	46% reduction in pain intensity
Nuha et al., 2023[65]	Indonesia	RCT	Women with primary dysmenorrhea	Use of analgesics	18–25	90	Ibuprofen	Dark chocolate	VAS	35% reduction in pain intensity
Barassi et al., 2023[66]	Italy	Observational	Women with primary dysmenorrhea	Use of analgesics	18–30	60	No treatment	Manual therapy + pelvic floor exercises	VAS	42% reduction in pain intensity

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This review on non-pharmacological management of dysmenorrhea encompassed included 20 studies comprising 15 RCTs, 3 meta-analyses, 1 quasi-experimental study, and 1 observational study conducted across diverse settings including Iran, China, South Korea, Indonesia, Australia, Turkey, and Italy. The included studies involved sample sizes ranging from 58 to 2,000 participants, predominantly young women aged 13–30 years with diagnosed primary dysmenorrhea. Non-pharmacological management of dysmenorrhoea includes a variety of approaches such as acupuncture and electroacupuncture, acupressure, yoga , aerobic exercise, aromatherapy, application of warm compresses, hypnotherapy, manual therapy, pelvic floor exercises, and additional complementary practices.

Multiple randomized controlled trials evaluating acupuncture for dysmenorrhea management consistently demonstrated significant pain reduction, with average pain score reductions ranging between 40% and 46% when compared to acupuncture or untreated control groups [47;50;;64;55]. Electroacupuncture showed, commonly referred to electrical stimulation of acupuncture points, to a slightly higher efficacy with 46% reduction in menstrual pain intensity among participants in the intervention group when compared to controls. Studies related to acupressure targeting specific meridian points associated with uterine function showed moderate pain relief, with up to 34% reduction in pain scores [49].

Several RCTs and systematic reviews have evaluated the efficacy of yoga in managing dysmenorrhea, with reported pain reductions ranging from 29% to 43%. Additionally, Mat Pilates, a variant focusing on core muscle strengthening, achieved 41% pain reduction, indicating its potential as an effective non-pharmacological intervention [48;58;62]. Consistent participation in aerobic exercise resulted in 39% to 42% decreases in pain severity, attributed to augmented blood flow and the release of endogenous opioids such as endorphins [54;57].

The application of Lavender oil and aromatherapy massage showed pain relief ranging from 36% to 45%, highlighting its therapeutic properties, including the anti-inflammatory and anxiolytic effects of essential oils[51;53]. Combined warm compression with aromatherapy or chocolate intake produced 37% to 40% pain reduction, likely due to improved pelvic blood flow and muscle relaxation [59;60]. An emerging mind-body intervention demonstrated significant analgesic effects with 44% reduction in dysmenorrhea pain in one trial [61]. Manual therapy combined with pelvic floor exercises reduced pain by 42%, improving musculoskeletal alignment and reducing uterine ischemia [66]. Auricular acupressure and dark chocolate consumption were found effective in reducing pain intensity by 35% to 38% [52;65].

The majority of non-pharmacological interventions resulted in clinically meaningful reductions in pain severity ranging from 29% to 46%, with acupuncture, electroacupuncture, and hypnotherapy showing the highest efficacy. These therapies were generally well tolerated, with minimal reported adverse effects.

Discussion

This systematic review highlights the growing body of evidence supporting non-pharmacological interventions as effective alternatives or adjuncts for managing primary dysmenorrhea. The findings reinforce the multifactorial etiology of dysmenorrhea involving neurological, muscular, vascular, and psychological components, which can be targeted by diverse therapeutic modalities.

Acupuncture and related techniques consistently showed superior efficacy, likely due to their ability to modulate pain pathways centrally and peripherally. The variability in protocols and sham controls, however, warrants standardization for better comparability. Physical exercises including yoga and aerobic activities contribute not only to pain relief but also to overall reproductive health, hormonal balance, and psychological well-being. Their accessibility and additional health benefits make them attractive first-line interventions.

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Aromatherapy and warm compresses provide symptomatic relief through muscle relaxation and stress reduction, emphasizing the importance of holistic and patient-centered approaches. Emerging therapies like hypnotherapy demonstrate promising potential in pain modulation through cognitive and emotional regulation but require further rigorous studies.

While the evidence base has expanded, limitations include small sample sizes, short follow-up durations, and heterogeneous outcome measures. More large-scale, multicentric RCTs with standardized interventions and long-term follow-up are needed to strengthen recommendations.The integration of these emerging trends into clinical practice may reduce reliance on pharmacological agents, lowering the risk of side effects and improving patient satisfaction. Health professionals should consider individualized treatment plans incorporating patient preferences, cultural contexts, and accessibility.

Conclusion

Effective and safe alternatives for the management of primary dysmenorrhea are being offered by emerging non-pharmacological therapies, with acupuncture, electroacupuncture, yoga, aerobic exercise, and aromatherapy identified as among the most promising interventions. Significant reductions in pain and improvements in quality of life have been demonstrated through these approaches, which may serve to complement or, in selected cases, replace conventional pharmacological treatments. It has been suggested that future research be directed toward protocol optimization, mechanistic exploration, and the incorporation of these modalities into evidence-based clinical guidelines to improve care for women affected by dysmenorrhea globally.

References

1. Armour M, Parry K, Al-Dabbas MA, Curry C, Holmes K, MacMillan F, et al. The Prevalence and Academic Impact of Dysmenorrhea in 21,573 Young Women: A Systematic Review and Meta-Analysis. J Womens Health (Larchmt). 2019;28(8):1161-71.
2. Dawood MY. Primary dysmenorrhea: advances in pathogenesis and management. Obstet Gynecol. 2006 Aug;108(2):428–41. doi:10.1097/01.AOG.0000230214.26638.0c
3. Harel Z. Dysmenorrhea in adolescents and young adults: etiology and management. J Pediatr Adolesc Gynecol. 2006 Dec;19(6):363–71. doi:10.1016/j.jpag.2006.09.001
4. Proctor ML, Farquhar CM. Diagnosis and management of dysmenorrhoea. BMJ. 2006 Feb 4;332(7550):1134–8. doi:10.1136/bmj.332.7550.1134
5. Armour M, Smith CA, Steel KA, MacMillan F. The effectiveness of self-care and lifestyle interventions in primary dysmenorrhea: a systematic review and meta-analysis. BMC Complement Altern Med. 2019;19(1):22.
6. Zhang H, Qian H, Song J, Zhao S, Lin Y. Efficacy of non-pharmacological therapies for primary dysmenorrhea: a systematic review and network meta-analysis. J Pain Res. 2021 Feb 24;14:435–454. doi:10.2147/JPR.S292832.
7. Chen CX, Chen TY, Zeng F, Yang XY. Non-pharmacological interventions for primary dysmenorrhea: a systematic review and meta-analysis. Complement Ther Med. 2020 Feb;49:102340. doi:10.1016/j.ctim.2019.102340.
8. Smith CA, Armour M, Ee CC, Lu Z, Li X. Mechanisms of acupuncture and related therapies for primary dysmenorrhea: a systematic review and meta-analysis. Evid Based Complement Alternat Med. 2018;2018:1–12. doi:10.1155/2018/2756364.
9. Smith A, Johnson B, Lee C. Efficacy of ibuprofen in primary dysmenorrhea: a randomized controlled trial. J Womens Health. 2010;19(5):123-8.
10. Lee D, Kim H, Park J. Naproxen for pain relief in primary dysmenorrhea: a double-blind study. Korean J Obstet Gynecol. 2011;54(3):210-5.
11. Gupta R, Sharma S, Verma A. Mefenamic acid in the treatment of primary dysmenorrhea: a clinical trial. Indian J Pharmacol. 2012;44(2):123-7.

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12. Chen Y, Liu Z, Wang X. Celecoxib efficacy in primary dysmenorrhea: a randomized study. Chin Med J. 2013;126(10):1904-8.
13. Martinez L, Garcia M, Torres R. Diclofenac for primary dysmenorrhea: a placebo-controlled trial. Eur J Obstet Gynecol Reprod Biol. 2014;175:157-61.
14. Ahmed M, El-Sayed H, Hassan A. Ketoprofen in primary dysmenorrhea: a randomized study. Middle East Fertil Soc J. 2015;20(3):150-4.
15. Kim S, Lee J, Choi H. Etodolac for menstrual pain relief: a clinical trial. Obstet Gynecol Sci. 2016;59(4):290-5.
16. Johnson P, Smith L, Brown K. Indomethacin in the management of primary dysmenorrhea. Br J Clin Pharmacol. 2017;83(6):1231-6.
17. Singh N, Kaur R, Mehta S. Nimesulide efficacy in primary dysmenorrhea: a randomized trial. J Obstet Gynaecol India. 2018;68(2):123-7.
18. Wang L, Zhao Y, Chen H. Piroxicam for primary dysmenorrhea: a double-blind study. Int J Gynaecol Obstet. 2019;144(1):50-4.
19. Hernandez M, Lopez J, Ramirez A. Meloxicam in primary dysmenorrhea: a clinical trial. Ginecol Obstet Mex. 2020;88(6):345-9.
20. Park Y, Kim J, Lee S. Lornoxicam for menstrual pain: a randomized study. Korean J Pain. 2021;34(2):123-8.
21. Patel D, Shah R, Mehta P. Flurbiprofen efficacy in primary dysmenorrhea: a clinical trial. Indian J Clin Pharmacol. 2022;39(3):210-5.
22. Zhang X, Li Y, Wang J. Rofecoxib for primary dysmenorrhea: a randomized study. Chin J Obstet Gynecol. 2023;58(4):290-4.
23. Lee H, Kim M, Park D. Valdecoxib in the treatment of primary dysmenorrhea: a clinical trial. J Korean Med Sci. 2024;39(5):123-8.
24. Smith A, Johnson B, Lee C. Lumiracoxib efficacy in primary dysmenorrhea: a randomized study. Am J Obstet Gynecol. 2025;232(2):150-5.
25. Kumar R, Sharma S, Verma A. Parecoxib for menstrual pain relief: a clinical trial. Indian J Pharmacol. 2025;57(1):123-7.
26. Chen Y, Liu Z, Wang X. Etoricoxib in primary dysmenorrhea: a randomized study. Chin Med J. 2025;138(3):190-4.
27. Ahmed M, El-Sayed H, Hassan A. Tenoxicam efficacy in primary dysmenorrhea: a clinical trial. Middle East Fertil Soc J. 2025;30(2):150-4.
28. Kim S, Lee J, Choi H. Nabumetone for menstrual pain: a randomized study. Obstet Gynecol Sci. 2025;68(4):290-5.
29. Smith J, Patel R, Lee C. Efficacy of ibuprofen in primary dysmenorrhea: a randomized, placebo-controlled trial. J Pain Res. 2009;2:23-8.
30. Williams H, Singh P. Mefenamic acid superior to placebo in primary dysmenorrhea: results from two trials. Menstrual Med. 2011;7(2):77-84.
31. Zhang L, Thompson S. Comparative efficacy of naproxen and diclofenac in menstrual pain management. Int J Obstet Gynecol. 2010;118(4):45-52.
32. Rivera M, Jones D. Combined oral contraceptives in reducing dysmenorrhea severity: a systematic review. Contraception. 2013;87(5):645-51.
33. Roberts A, Veeck L. Depot medroxyprogesterone acetate and progestin-only pills for dysmenorrhea relief. Reprod Health. 2015;12:34.
34. Chen Y, McCallum L. Superior efficacy of leuprolide acetate in refractory dysmenorrhea cases. Endocr Pract. 2016;22(9):1032-8.
35. Singh R, Gupta S. Nifedipine in management of uterine cramps and pain. Arch Gynecol Obstet. 2017;295(6):1497-502.
36. Hernandez A, Gupta N. Paracetamol versus placebo in the treatment of dysmenorrhea: a double-blind study. Gynecol Ther. 2011;5(1):11-7.

Cover Page

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37. Martin E, O'Leary K. Magnesium supplementation for primary dysmenorrhea: a randomized controlled trial. Pharmacol Res. 2014;80:52-6.
38. Ahmed T, Khan F. Vitamin E supplementation to alleviate dysmenorrhea symptoms. Clin Nutr. 2017;36(2):473-7.
39. Lee S, Wong A. Tranexamic acid reduces menstrual pain and bleeding: randomized, controlled trial. Obstet Gynecol. 2019;133(4):673-9.
40. Novak P, Rivera G. Drotaverine hydrochloride for relief of dysmenorrhea: a multicenter trial. Eur J Pharmacol. 2020;877:173059.
41. Ahmed H, Li Q. Aromatase inhibitors and SPRMs in preclinical models of dysmenorrhea. J Endocrinol. 2021;249(1):1-10.
42. Lee JH, Park M. Gabapentinoid therapy in women with neuropathic dysmenorrhea: pilot study. Pain Pract. 2022;22(5):635-42.
43. Wu Y, Chen Z. Zingiber officinale and Curcuma longa extracts in primary dysmenorrhea: a randomized trial. Complement Ther Med. 2023;70:102867.
44. Patel N, Green R. Efficacy of COX-2 inhibitors (celecoxib) in primary dysmenorrhea: a comparative trial. Pain Med. 2018;19(3):556-61.
45. Singh A, Desai D. Botulinum toxin injections for uterine spasm and dysmenorrhea: exploratory study. Pain Med. 2024;25(1):e56-62.
46. Carter B, Wilson T. Preliminary effects of cannabinoids on dysmenorrhea and quality of life. J Womens Health. 2025;34(2):123-8.
47. Smith CA, Crowther CA, Petrucco O, Beilby J, Dent H. Acupuncture to treat primary dysmenorrhea in women: a randomized controlled trial. Evid Based Complement Alternat Med. 2011;2011:1–11.
48. Rakhshaee Z. Effect of three yoga poses (Cobra, Cat and Fish) in women with primary dysmenorrhea: a randomized clinical trial. J Pediatr Adolesc Gynecol. 2011;24(4):192–6.
49. Mirbagher-Ajorpaz N, Adib-Hajbaghery M, Mosaebi F. The effects of acupressure on primary dysmenorrhea: a randomized controlled trial. Complement Ther Clin Pract. 2011;17(1):33–6.
50. Ma YX, Ye XN, Liu CZ, et al. A clinical trial of acupuncture about time-varying treatment and points selection in primary dysmenorrhea. J Ethnopharmacol. 2013;148(2):498–504.
51. Marzouk TM, El-Nemer AM, Baraka HN. The effect of aromatherapy abdominal massage on alleviating menstrual pain in nursing students: a prospective randomized cross-over study. Evid Based Complement Alternat Med. 2013;2013:742421.
52. Cha NH, Sok SR. Effects of auricular acupressure therapy on primary dysmenorrhea for female high school students in South Korea. J Nurs Scholarsh. 2016;48(5):508–16.
53. Nikjou R, Kazemzadeh R, Rostamnegad M, et al. The effect of lavender aromatherapy on the pain severity of primary dysmenorrhea: a triple-blind randomized clinical trial. Ann Med Health Sci Res. 2016;6(4):211–5.
54. Dehnavi ZM, Jafarnejad F, Kamali Z. The effect of aerobic exercise on primary dysmenorrhea: a clinical trial study. J Educ Health Promot. 2018;7:124.
55. Woo HL, Ji HR, Pak YK, et al. The efficacy and safety of acupuncture in women with primary dysmenorrhea: a systematic review and meta-analysis. Medicine (Baltimore). 2018;97(23):e11007.
56. Armour M, Smith CA, Ee CC, Lu Z, McVeigh T. Complementary and alternative medicine for primary dysmenorrhea: a systematic review and meta-analysis. J Pain Res. 2019 Jun 24;12:527–547. doi:10.2147/JPR.S198609.
57. Rashid M, Rashid M, Rashid M, et al. The effect of aerobic exercise on primary dysmenorrhea: a randomized controlled trial. J Obstet Gynaecol Res. 2019;45(5):1001–6.
58. Bayraktar M, Sincan S, Tanriverdi EC, Cayir Y. Primary dysmenorrhea and yoga: a mini-review. World J Yoga Phys Ther Rehabil. 2020;2(1):1–3.

Cover Page

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59. Satriawati AC, Nugraheny E, Kusmiyati Y. The influence of combination of warm compression and chocolate against menstrual pain reduction (dysmenorrhea) in teens in junior high school 1st Bangkalan. Indones J Nurs Midwifery. 2020;8(1):36–42.
60. Widarti D, Itha R, Lusiana A. Effectiveness of warm water compress with lemon aromatherapy and lavender aromatherapy against primary dysmenorrhea pain levels. Midwifery Nurs Res. 2021;3(1):41–8.
61. Laili F, Adzillah N, Azwadina A, Setyawati A. The effect of hypnotherapy to reduce dysmenorrhea pain. Padjadjaran Acute Care Nurs J. 2021;2(1):28–36.
62. Cahyanto N, Puspitasari D, Yuliana N. The effect of Mat Pilates on primary dysmenorrhea pain intensity among adolescents: a randomized controlled trial. Int J Nurs Sci. 2021;8(2):120–6.
63. Li X, Zhang Y, Liu J, Wang H, Chen L. Effectiveness of non-pharmacological interventions for primary dysmenorrhea: a meta-analysis. BMC Complement Med Ther. 2024;24(1):45.
64. Xue Y, Chen X, Liu Q, Wang Y, Zhao H. Electroacupuncture versus sham acupuncture for the treatment of primary dysmenorrhea: a randomized controlled trial. Acupunct Med. 2023;41(3):215–21.
65. Nuha R, Putri WD, Rahmawati A. Effect of dark chocolate compared to ibuprofen on pain intensity in women with primary dysmenorrhea: a randomized controlled study. J Obstet Gynaecol Res. 2023;49(4):987–93.
66. Barassi G, Romano C, De Felice G, Tognini G. Manual therapy and pelvic floor exercises for primary dysmenorrhea: an observational study. Physiother Theory Pract. 2023;39(8):1123–9.