



Research Article

Effectiveness of Advanced Physiotherapy Interventions in the Management of Primary Dysmenorrhea: A Comprehensive Literature Review

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Abstract	Manuscript Information
<p>Background: Primary dysmenorrhea (PD) is a prevalent menstrual disorder characterised by painful uterine contractions in the absence of pelvic pathology. Affecting a significant proportion of reproductive-age women, its impact on quality of life and functional capacity is profound. While pharmacological treatments such as NSAIDs and oral contraceptives are standard, their associated side effects and contraindications drive the need for effective non-pharmacological alternatives.</p> <p>Objectives: This literature review aimed to identify and analyse the effectiveness of advanced physiotherapy interventions available for managing primary dysmenorrhea, assessing the quality of evidence, and summarising the outcomes regarding pain relief and quality of life.</p> <p>Methods: A systematic literature search was performed using PubMed and Google Scholar for Randomised Controlled Trials (RCTs) and systematic reviews published between 2019 and 2023. Articles were selected based on the PICO framework, focusing on advanced physiotherapy interventions, primary dysmenorrhea, pain severity, and quality of life.</p> <p>Results: Six key advanced interventions were identified: Transcutaneous Electrical Nerve Stimulation (TENS), Kinesio taping, Sprint interval exercise (HIIT), High-intensity and low-level LASER therapy, Thermotherapy (microwave therapy), and Osteopathic uterus manipulation. Evidence from high-quality studies indicated that these strategies effectively reduced pain intensity and improved functional outcomes. Specifically, Kinesio taping provided fascial correction, TENS outperformed placebo and educational interventions, and sprint exercises modulated hormonal and inflammatory markers.</p> <p>Conclusion: Advanced physiotherapy strategies provide effective, non-invasive alternatives or adjuncts to conventional treatments. The findings support the integration of these specialised techniques into clinical practice to enhance the holistic management of menstrual pain.</p>	<ul style="list-style-type: none"> ▪ ISSN No: 2583-7397 ▪ Received: 01-04-2026 ▪ Accepted: 06-05-2026 ▪ Published: 11-05-2026 ▪ IJCRM:5(3); 2026: 125-128 ▪ ©2026, All Rights Reserved ▪ Plagiarism Checked: Yes ▪ Peer Review Process: Yes
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KEYWORDS: Physiotherapy Interventions, Physical Therapy, Exercise Therapy, Exercise, Primary Dysmenorrhea, Painful Menstruation, Menstrual Pain, and Quality of Life.

1. INTRODUCTION

Dysmenorrhea is the most significant complaint among various gynaecological problems reported by women of reproductive age [1]. It is defined as painful menstruation, characterised by crampy pain in the lower abdominal segment that may radiate to the lower spine or thighs [2,3]. The condition is often accompanied by systemic symptoms, including vomiting, headache, back pain, diarrhoea, fatigue, sweating, dizziness, and nausea [3].

The global prevalence of dysmenorrhea is estimated between 16% and 91% [1]. Specifically, it affects approximately 90% of adolescent girls and about 50% of menstruating women [6]. In India, prevalence rates range from 33% to 79.67% [5]. According to World Health Organisation data, the prevalence of pain is approximately 94% among girls aged 10–20 years and 8.8% in women aged 19–44 years [3].

Dysmenorrhea is categorised into two types. Primary Dysmenorrhea (PD): Crampy pain occurring in the absence of pelvic pathology, typically starting one or two years after menarche [6]. Secondary Dysmenorrhea: Pain associated with identifiable pelvic pathology, such as uterine fibroids, cervical stenosis, or chronic pelvic inflammation.

PD is the most common cause of pelvic pain and is largely attributed to the overproduction and release of prostaglandins, which leads to abnormal uterine activity. Elevated prostaglandin levels cause the narrowing of blood vessels supplying the uterus, resulting in abnormal contractions, ischemia, and hypoxia. This process increases the sensitivity of nerve endings, causing pain [4]. Other factors include early menarche, stress levels, premenstrual syndrome, and diet practices, though the exact pathology remains unclear [4]. While pharmacological treatments like NSAIDs and oral contraceptives are widely used, they can cause side effects such as nausea, vomiting, bloating, acne, and weight gain. Many women do not respond to these treatments or have contraindications. Consequently, alternative treatments are sought, often without a full understanding of their effectiveness. This study explores the efficacy of advanced physical therapy as a safe, non-pharmacological solution.

2. AIMS AND OBJECTIVES

The primary objectives of this study were to identify the effects of advanced physiotherapy interventions for primary dysmenorrhea, to critically analyse the quality of evidence presented in recent literature, and to summarise the findings regarding their impact on pain intensity and quality of life outcomes.

3. MATERIALS AND METHODS

This study was conducted as a literature review aimed at synthesizing evidence on pain intensity and quality of life in individuals with primary dysmenorrhea. The review focused on high-quality evidence derived from randomized controlled trials (RCTs) and relevant systematic reviews. A comprehensive literature search was performed using PubMed and Google Scholar databases, targeting studies published between 2019 and 2023. The search strategy was developed using a PICO framework, incorporating appropriate keywords, Medical Subject Headings (MeSH) terms, and Boolean operators to ensure a systematic and focused retrieval of relevant articles.

Studies were selected based on predefined eligibility criteria. Inclusion criteria comprised full-text articles published in English within the specified timeframe (2019–2023), studies focusing on primary dysmenorrhea, and those assessing outcomes related to pain intensity and quality of life, with a study design limited to randomized controlled trials. Exclusion criteria included studies available only as abstracts and articles published in languages other than English. The selected studies were then reviewed and synthesized to evaluate the effectiveness of interventions in reducing pain and improving quality of life among individuals with primary dysmenorrhea.

4. RESULTS

Six primary studies were selected and reviewed, focusing on advanced physiotherapy interventions. The findings for each intervention are detailed below.

Transcutaneous Electrical Nerve Stimulation (TENS)

Research indicates that TENS is a significant intervention for relieving menstrual pain [9]. A study conducted in Brazil compared active TENS, placebo TENS, and an educational booklet. Results showed that active TENS was more effective than placebo in reducing symptoms. Furthermore, both TENS applications yielded better clinical outcomes than the educational booklet in the short-, medium-, and long-term phases [9]. Systematic reviews have confirmed that TENS provides short-term improvements in pain compared to no intervention [4].

Kinesio Taping (Elastic Therapeutic Taping)

Elastic Therapeutic Taping (ETT) or Kinesio Taping (KT) has been identified as an effective intervention for improving pain, anxiety, and quality of life in women with PD [1]. Research by Dogan *et al.* (2020) demonstrated that applying KT for three days at equal intervals, combined with lifestyle changes, led to significant improvements in pain severity and quality of life [10]. The mechanism of action for KT includes providing fascial correction and ligament correction, which helps alleviate the physical tension associated with dysmenorrhea [1,10].

Sprint Interval Exercise

High-Intensity Interval Training (HIIT) using spinning bikes was evaluated for its impact on PD symptoms. A 10-week HIIT program was found to alleviate menstrual pain and improve physical fitness [7]. The study suggested that HIIT works through the modulation of hormones and inflammatory markers. Beyond reducing pain, the program also improved awareness of women's health and benefited those with general premenstrual symptoms and distress [7]. Meta-analyses of exercise for dysmenorrhea support the use of various resistance and aerobic exercises for symptom reduction [8].

LASER Therapy

Both high-level (High-Intensity Laser Therapy, HILT) and low-level laser therapy (LLLT) was reviewed for its management of PD. Evidence suggests that LASER therapy increases the production of morphine-mimetic substances, which inhibit pain conduction. Additionally, it helps reduce adhesions and alleviate pain intensity [13].

Thermotherapy

Microwave therapy, acting as a deep heating agent, is more beneficial than TENS in certain contexts [12]. Thermotherapy increases blood flow, promotes vasodilation, and reduces nociceptive stimulation and muscle spasms. These physiological effects are particularly effective in countering the ischemia and hypoxia associated with prostaglandin-induced uterine contractions [12].

Osteopathic Uterus Manipulation

Uterus manipulation, sometimes performed alongside Cranial Electrotherapy Stimulation (CES), focuses on reducing hypertonicity and muscle spasms in the uterine area [11]. Research indicates that these non-invasive treatments reduce pain, anxiety, and depression levels. While uterus manipulation addresses the physical tension, CES helps reduce fatigue and increases alpha activity in the brain [11]. Furthermore, a narrow anterior uterocervical angle (UCA) has been associated with increased resistance from the uterine cavity and higher pain severity; manipulation may assist in addressing the functional consequences of such anatomical features [11].

5. DISCUSSION

This review aimed to observe the impact of advanced physiotherapy on pain severity and quality of life in women with primary dysmenorrhea. The findings suggest that advanced interventions offer significant benefits over or alongside conventional methods.

Comparative Analysis of Evidence

The quality of the evidence reviewed was generally high. Four of the six primary articles showed high-quality evidence, while two showed fair quality. TENS, Kinesio taping, uterus manipulation, and thermotherapy were supported by particularly strong evidence for their roles in clinical practice.

The interventions can be categorised by their physiological impact:

Neuromodulation: TENS and CES provide pain relief through electrical stimulation that interferes with pain signalling.

Mechanical Correction: Kinesio taping and Uterus manipulation address the musculoskeletal and fascial components of pelvic pain.

Physiological/Metabolic: Sprint interval exercise and thermotherapy address the underlying hypoxia and inflammatory environment.

Photo-biomodulation: LASER therapy utilises specific light wavelengths to trigger internal analgesic and healing processes.

Benefits of Advanced Strategies

Traditional treatments often focus on pharmacological suppression of prostaglandins. In contrast, advanced physiotherapy provides a non-invasive approach with minimal side effects. For example, Kinesio taping provides ongoing support over several days, and HIIT exercise programs offer long-term metabolic and physical fitness benefits. Uterus manipulation addresses the specific physical hypertonicity that drugs may not fully resolve.

6. LIMITATIONS AND RESEARCH GAPS

Despite the positive findings, some limitations exist. The review was limited to PubMed and Google Scholar databases, potentially missing relevant studies. The studies included were conducted in various regions (e.g., Brazil, Taiwan, Turkey), and the results may not be directly generalizable to all populations, such as the Indian population, without considering local cultural and physiological variations. Additionally, while the Pedro scores for the included studies were generally good, the sample sizes varied, with some studies having as few as 46 participants [11] while others included larger cohorts or meta-analyses [1, 6, 8].

7. CONCLUSION

Advanced physiotherapy interventions, including TENS, Kinesio taping, sprint interval exercise, LASER therapy, thermotherapy, and uterus manipulation, provide effective management for primary dysmenorrhea. These strategies offer high-quality evidence for reducing pain and improving the quality of life for affected women. Given their non-invasive nature and efficacy, these advanced strategies should be considered for integration into clinical practice and further explored in localised research contexts.

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About the Corresponding Author



Tejaswini M is a postgraduate student specialising in community-based rehabilitation in physiotherapy at R.L. Jalappa College of Physiotherapy. Driven by a passion for advancing public health, she is dedicated to evidence-based research and innovative rehabilitation practices. Her clinical and academic work focuses on enhancing community health outcomes through commitment and specialised care.