Review

The Association Between Female Sexual Dysfunction and Premenstrual Syndrome: Characteristics, Epidemiology and Treatment

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Review

The Association Between Female Sexual Dysfunction and Premenstrual Syndrome: Characteristics, Epidemiology and Treatment

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Abstract

Introduction: Premenstrual syndrome (PMS) and its more severe form—premenstrual dysphoric disorder (PMDD) constitute a significant health problem among women of reproductive age. These disorders include emotional, physical, and behavioral symptoms that occur in the late luteal phase and disappear with the onset of menstrual bleeding. **Objective**: The aim of the study was to present the symptomatology of PMS and PMDD, their epidemiology, pathogenesis and treatment, and to discuss their comorbidity with female sexual dysfunctions (FSD) and sexual pain disorders. **Material and Methods:** Five independent researchers conducted a review of the literature from the last ten years using the following databases: PubMed, Web of Science, and Google Scholar, employing the keywords "pms", "pmdd" together with: "sexual dysfunction" and "sexology". **Results**: PMS and PMDD are associated with an increased risk of sexual dysfunctions such as: hypolibidemia, anorgasmia and dyspareunia. The comorbidity is presumably due to shared hormonal predictors, dysregulation of the serotonergic system and psychosocial factors. Treatment includes a multidisciplinary approach, including pharmacotherapy, dietary interventions, and physiotherapeutic methods. **Conclusions**: PMS and PMDD may significantly affect women's psychosexual functioning. Early diagnosis and comprehensive, interdisciplinary treatment may improve patients' quality of life and reduce the negative health consequences of these disorders.

Keywords: premenstrual syndrome; premenstrual tension syndrome; premenstrual dysphoric disorder; sexual dysfunctions

1. Introduction

Premenstrual syndrome is a constellation of emotional, behavioral, and physiological symptoms occurring in women of reproductive age during the late luteal phase of the menstrual cycle [1]. It was first described by the American gynecologist Frank in 1931 [2]

In the literature, a dysphoric form, namely PMDD, is also distinguished. PMDD differs from classical PMS in the specificity of its symptoms, including predominant affective symptoms and a significant impairment of daily functioning [3]. PMDD has been classified in the DSM-5 by the American Psychiatric Association as a mental disorder belonging to the group of depressive

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disorders [2]. In contrast, in the ICD-11, PMDD is placed within the chapter on diseases of the genitourinary system, under the subcategory of menstrual cycle-related disorders, reflecting a different etiological concept adopted by the World Health Organization [4].

Both PMS and PMDD represent interdisciplinary problems encompassing psychological, physiotherapeutic, gynecological, sexological, and psychiatric aspects [5]. The symptoms substantially impair women's occupational performance and personal life [3]. PMS is associated with psychological problems, engagement in self-destructive behaviors, and elevated stress levels [6]. Moreover, studies indicate that over 15% of women with PMDD attempt suicide at least once in their lifetime [2]. Recognition and treatment of psychosexual disorders associated with PMS are also of significant importance [7], which will be discussed in subsequent sections of this article. Both PMS and PMDD are associated with sexual dysfunctions, including anorgasmia, sexual pain disorders, and hypoactive sexual desire disorder (HSDD).

Epidemiological data on PMS vary depending on the diagnostic criteria applied and the research methods employed, highlighting the need for a precise definition of the syndrome [2,8]. It is estimated that at least one PMS symptom occurs in 90% of women [2], whereas approximately 2–10% experience a symptom complex of significant severity, which impairs daily functioning [7,8]. In the Polish population, the POLKA18 study showed that around 80% of adolescents experience individual PMS symptoms, while 34% meet the diagnostic criteria [6].

The prevalence of PMDD also demonstrates considerable variation, and the heterogeneity of study results remains high due to differences in methodology, study populations, and diagnostic criteria [9]. PMDD is diagnosed in approximately 1.6% of women when strict diagnostic criteria are applied, whereas the prevalence rises to 3–7.7% under less restrictive criteria [9]. According to ICD-11, the diagnosis of PMDD requires the presence of at least one affective symptom (mood changes, irritability, low mood, anxiety) and an additional somatic or cognitive symptom (apathy, joint pain, hyperreactivity, excessive sleepiness, breast tenderness, limb edema, difficulty concentrating, forgetfulness). Symptoms appear several days before menstruation, resolve a few days after its onset, and disappear completely within approximately one week from the beginning of bleeding [4].

Regarding PMS symptoms, psychological symptoms predominated among Polish women: irritability (54.4%) and mood swings (50%) [10]. Physical symptoms included bloating, breast tenderness, and headaches [10]. Symptoms of both PMS and PMDD should persist for at least two cycles and be recorded prospectively, for example, using the Daily Record of Severity of Problems (DRSP) [1]. In Poland (the researchers' country of origin, authors' note), a validated Polish-language version of the DRSP has not yet been described, which complicates the standardization of PMS/PMDD diagnostics.

The causes of PMS and PMDD are multifactorial [1,2]. In the majority of affected women, serum levels of sex hormones fall within the normal range [7,8]. Increased sensitivity to physiological hormone levels may be significant [8]. Studies using lymphoblastoid cell lines indicated a differential response to estrogen in women with PMDD compared to healthy women, partially due to altered activity of the epigenetic ESC/E(Z) complexes [11]. Research on ESR1 polymorphisms also suggests a genetic basis for PMS [2]. Other hormones (prolactin, thyroid hormones) [8], dysregulation of the serotonergic system, and progesterone metabolites (allopregnanolone) [1,8] are also involved in the pathogenesis. A history of trauma and PTSD are additionally considered possible contributing factors [2].

PMS and PMDD should be differentiated from mood and anxiety disorders, psychosomatic disorders, chronic pain syndromes, infections, postpartum complications, endometriosis, as well as endocrine and metabolic diseases [4].

2. Materials and Methods

Five independent reviewers conducted searches of the medical databases PubMed, Web od Sciences and Google Scholar, using the following keywords and MeSH terms: premenstrual syndrome (=pms) or premenstrual dysphoric disorder (=pmdd), appearing in the article together

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with the terms: sexology (=seksualność, 463 results), female sexual disorders (=dysfunkcje seksualne kobiet, 397 results), physiotherapy (=fizjoterapia, 190 results), supplementation (=suplementacja, 142 results), dieta (=diet, 306 results) (in both English and Polish). The exclusion criteria were the following: case reports, works prior to the peer-review process (preprints), and works older than ten years.

In this article, the authors analyse aspects of the use of physiotherapy, diet, and lifestyle medicine approaches in the context of treating PMS and PMDD. The literature review was conducted from January to February 2026. The collected items were then assessed for compliance with the established inclusion and exclusion criteria based on abstract analysis.

Of the 1498 articles initially qualified for further analysis, 107 were excluded due to duplication, and 428 due to failure to meet the aforementioned criteria. The remaining articles underwent abstract analysis, of which z publications were qualified for further, detailed analysis. All included articles were evaluated in terms of form, method, type of therapy applied, therapeutic objective, and conclusions resulting from the conducted studies. Ultimately, 45 articles were included in the review (Figure 1).

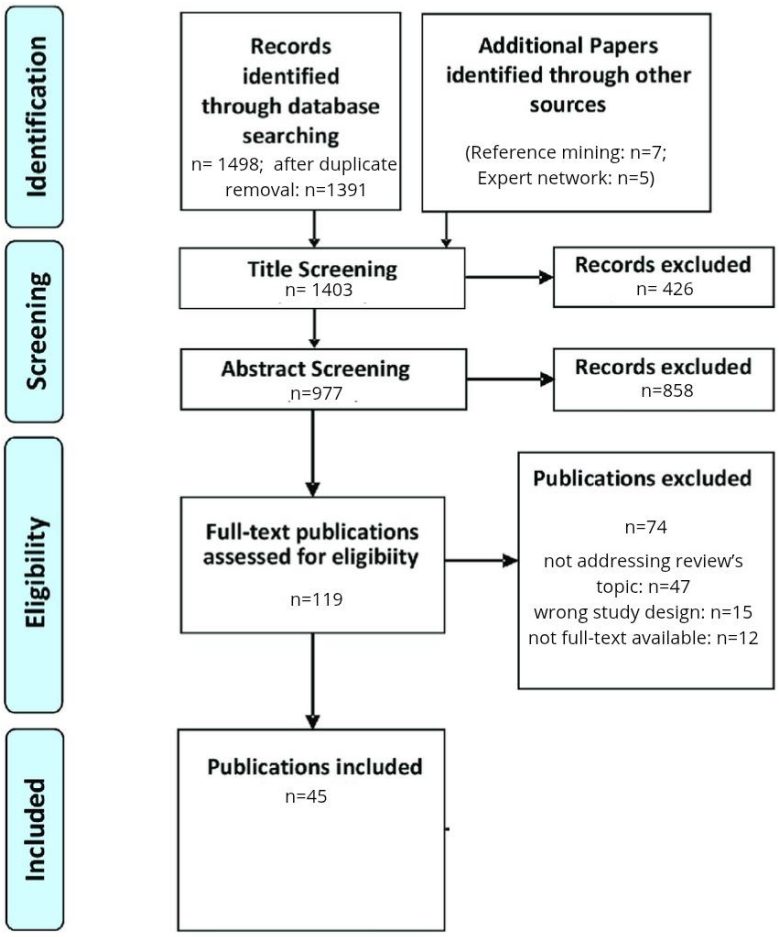

Figure 1. Flow chart showing the method of literature selection for the review.

3. Results and Discussion

3.1. Comorbidity with FSD

Female sexual dysfunctions affect approximately 41% of women of reproductive age and represent a complex problem due to the influence of biological, psychological, socio-cultural, and relational factors. The prevalence of FSD increases among women with chronic gynecological conditions and affective disorders. Given the complex etiology of PMS and the fact that this syndrome

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combines gynecological and affective symptoms, our research team hypothesized a high rate of comorbidity.

The most common disorder within the FSD spectrum is HSDD, occurring in approximately 28% of women in the general population. Other frequent dysfunctions include orgasmic disorders in approximately 26%, sexual arousal disorders in 23%, while both lubrication disorders and sexual pain syndromes affect around 21% of respondents [12].

Symptoms of PMS and PMDD, such as impaired emotion regulation, sensory hypersensitivity, and impulsivity, may reduce self-confidence, self-esteem, and affirmation of femininity, negatively affecting sexual functioning. Furthermore, PMS is associated with an increased risk of obesity, which, along with complications such as metabolic syndrome or cardiovascular diseases, contributes to a higher risk of FSD [13].

The research team led by Nowosielski et al. demonstrated that 77.73% of women with PMS reported reduced sexual life satisfaction and more frequently experienced sexual distress compared to the control group (women not meeting PMS criteria). Moreover, 28.65% of women with PMS met the criteria for some form of FSD. Factors associated with higher satisfaction in the intimate sphere included: age between 25 and 30 years, higher education, history of pregnancies, presence of a stable partner, living in a smaller town, and more frequent sexual intercourse [14].

In a study conducted by Ilhan et al., some form of FSD was reported by 80–82% of women with PMS. Compared to the control group, the prevalence of HSDD was 28% higher; orgasmic disorders were 32% higher; sexual arousal disorders were 31% higher; and reduced lubrication was 30% higher [15].

In the study by Estibeiro et al., women diagnosed with vulvodynia reported premenstrual symptoms significantly more frequently, and severe PMS symptoms that disrupted daily functioning occurred 2.7 times more often than in women without vulvodynia [16].

In turn, the study by Kılıç et al. assessed potential factors associated with sexual dysfunctions in healthy Turkish women. In this group, 37.6% of participants reported PMS. No statistically significant association was found between PMS and sexual dysfunctions, and PMS was not an independent risk factor in multivariate analysis [17].

Research on the impact of PMDD on sexuality remains limited. Nowosielski et al. demonstrated that there is no significant difference in sexual life satisfaction between patients with and without PMDD; however, women with PMDD engaged in sexual intercourse more frequently [14].

It should be noted that SSRIs, although potentially beneficial in treating many PMS or PMDD symptoms, double the risk of developing sexual dysfunctions—most commonly HSDD, orgasmic disorders, and lubrication disorders [18]. Treatment methods for these dysfunctions remain largely unknown at present.

Table 1. Types of sexual problems and FSDs associated with PMS and PMDD.

Type of dysfunction	Frequency	Reference
any sexual dysfunction	80-82%	Ilhan et al. [15]
sexual dissatisfaction	77,73%	Nowosielski et al. [14]
sexual distress	28,65%	Nowosielski et al. [14]
vulvodynia	more common, but no data available	Estibeiro et al. [16]
dyspareunia	0-22,6%	Kiliç. [17]

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HSDD	~28% more than in women PMS (-)	Ilhan et al. [15]
orgasm disorder	~32% more than in women PMS (-)	Ilhan et al. [15]
sexual arousal disorder	~31% more than in women PMS (-)	Ilhan et al. [15]
lubrication difficulties	~30% more than in women PMS (-)	Ilhan et al. [15]

3.2. Role of Physiotherapy

Currently, appropriately selected physiotherapeutic interventions constitute an effective approach for reducing inflammation and alleviating symptoms associated with pelvic pain, one of the potential causes of which may be premenstrual syndrome [19]. Physiotherapy represents a specialized field of medicine focused on improving body function through physical activity. Evidence suggests that recreational forms of physical activity, including relaxation therapy, core strengthening, stretching, deep-breathing exercises, yoga, and aquatic exercises, may positively influence the reduction of premenstrual syndrome symptoms [20].

Furthermore, studies indicate that an 8-week stretching program may reduce both the severity and progression of premenstrual syndrome and its associated symptoms. This effect is attributed to stimulation of neurotransmitter release, including endorphins and dopamine, as well as improved uterine blood flow, which may decrease pain perception and intensity while simultaneously enhancing quality of life [20].

Additionally, stretching, yoga, pelvic floor muscle exercises, and relaxation techniques performed for 50 minutes three times per week have been shown to reduce pain perception, depressive symptoms, and anxiety in individuals with PMS. These effects are associated with activation of A-beta sensory fibers and inhibition of pain signal transmission at the spinal cord level [20].

Other observations indicate that exercises aimed at improving respiratory efficiency are effective in alleviating symptoms commonly associated with PMS, including headache, nausea, gastrointestinal disturbances, abdominal bloating, loss of appetite, excessive dehydration, and menstrual pain [21]. Moreover, both physical and psychological symptoms of PMS are frequently correlated with fluctuations in estrogen, progesterone, and serotonin levels. A study involving 150 minutes of moderate-to-vigorous aerobic activity performed once weekly for 16 weeks demonstrated significant metabolic improvement, including reduced estrogen levels and alleviation of symptoms [21].

The use of transcutaneous electrical nerve stimulation (TENS) has also been reported as a method for reducing symptoms of premenstrual syndrome. High-frequency pulsed currents of 80–100 Hz are applied, producing an analgesic effect through activation of mechanisms that inhibit pain stimulus conduction at the spinal level [22]. A study evaluating this therapy in 47 women over three consecutive menstrual cycles demonstrated statistically significant pain reduction, with an approximate decrease of 2 points on an 11-point scale, which was considered clinically meaningful relief [23].

Another recognized method for alleviating menstrual pain is balneotherapy, which involves the use of thermal waters and therapeutic baths [24]. Premenstrual syndrome is often associated with elevated cortisol levels. Bathing in thermal waters resulted in an approximately 20% reduction in cortisol levels, representing a direct therapeutic effect. Additionally, a decrease in heart rate of 4–6

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beats per minute was observed, corresponding to a 15.8% reduction in anxiety on a psychometric scale, thereby alleviating anxiety and feelings of overwhelm associated with PMS [25].

The aforementioned studies indicate that regular, appropriately selected physical activity for women with PMS, particularly interventions focusing on stretching, mobility, and endurance, may positively influence the course of premenstrual syndrome by reducing pain intensity and other associated symptoms. Moreover, such interventions appear to improve overall well-being as well as emotional and mental health. However, current evidence does not provide sufficient data to determine which specific type of physical activity is most effective for alleviating or treating PMS. Nevertheless, it can be concluded that all forms of physical activity described above may contribute to improved overall health in women with PMS, provided they are performed with appropriate frequency.

3.3. The Role of Diet

Dietary interventions may represent a strategy for reducing PMS-related symptoms. However, data linking PMS symptoms with the intake of specific nutrients or particular dietary patterns are limited. Nutrient deficiencies, in turn, may result from an imbalance in hormonal and neurotransmitter regulation [26,27]. There is, however, an association between a high-fiber, low-fat diet and lower plasma estrogen levels, as well as a shorter duration of premenstrual symptoms [28]. A plant-based vegan diet contributes to an increase in sex hormone-binding globulin (SHBG), which binds and inactivates estrogens [28]. Reducing fat intake has been shown to decrease symptoms such as bloating, tenderness, and breast pain [29]. Additionally, the consumption of foods rich in omega-3 fatty acids (e.g., fatty fish) facilitates the reduction of both psychological and somatic PMS symptoms [30].

Attention should also be paid to the influence of diet on the exacerbation of PMS. PMS induces increased appetite and cravings for specific foods and may lead to greater overall food consumption [31]. Excessive consumption of sweets, fast food, deep-fried products, and a reduced intake of fruits and vegetables (Western diet) is positively associated with PMS symptoms [32]. Moreover, consumption of egg yolk and higher total cholesterol levels significantly exacerbate PMS symptoms [33,34].

A Western diet, rich in sodium, lowers magnesium levels, which may intensify symptom severity [35]. Individuals experiencing PMS are more likely to consume cakes and desserts during the late luteal phase, and intake of simple sugars increases at the expense of complex carbohydrates [36]. This is associated with reduced serotonin activity (estrogen decline leads to lower noradrenaline levels, resulting in decreased serotonin), which co-occurs with depressive mood disorders and specific food cravings in patients with PMS [36,37]. Foods high in simple sugars are thought to increase tryptophan availability (a serotonin precursor) in the brain, potentially supporting better emotional regulation and temporarily improving mood [36]. Alcohol consumption, on the other hand, is associated with a moderate increase in PMS-related symptoms, with excessive intake leading to a more pronounced effect. This may be related to the influence of alcohol on steroid sex hormone and gonadotropin levels throughout the menstrual cycle [38]. Overall, a Western diet may be associated with PMS symptoms both due to its low nutritional value, leading to deficiencies, and its increased content of pro-inflammatory substances combined with a low intake of antioxidants [26].

Additionally, short-term intermittent fasting has been shown to reduce cortisol levels in the luteal phase, which may result in symptom alleviation [39].

Regarding vitamin and mineral supplementation, evidence indicates that supplementation with calcium, zinc, magnesium, vitamin D, as well as high doses of thiamine and riboflavin from food, positively impacts the reduction of premenstrual symptoms [39,40]. Supplementation with calcium and vitamin D has been identified as an easily accessible and low-cost intervention that reduces both mood-related symptoms, water retention, food cravings, and pain in PMS, while also potentially limiting the occurrence of osteoporosis and certain cancers [39,41].

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Data on the efficacy of herbal therapies for PMS are limited. The most commonly used herbal preparation in PMS treatment is Vitex agnus-castus (VAC). A 2017 meta-analysis compared 14 studies using VAC with trials employing other supplements or placebo for PMS symptom management. In 13 of the 14 studies, VAC use reduced PMS-related symptoms. Moreover, VAC use was comparable to oral contraceptives or fluoxetine, with fewer side effects. The mechanism of VAC in alleviating PMS symptoms remains unclear. In vitro studies have demonstrated interactions with D2 dopaminergic receptors, opioid receptors, and selective binding to the β-estrogen receptor [42]. Women using VAC reported reductions in irritability, mood swings, anger, breast swelling, and headaches [43]. In another study, no significant difference was observed between VAC and placebo, except for a reduction in feelings of agitation and anxiety [42].

Additionally, in the context of PMS supplementation, preparations of Ginkgo biloba were effective in reducing symptoms related to mood disturbances and inflammation; saffron reduced general and depressive symptoms; and soy isoflavons alleviated cramps and edema [44,45].

3.5. Pharmacotherapy

Treatment of PMS has undergone significant changes over the past decade. Despite incomplete understanding of its pathophysiology, effective management is possible in the majority of patients [5]. Patients should receive multidisciplinary care involving a gynecologist, psychiatrist, psychologist, and endocrinologist [2]. In cases of milder symptoms, non-pharmacological approaches are recommended initially, including dietary interventions, supplementation with vitamin B6, calcium, Vitex agnus-castus extract, and physical exercise [1,2,5]. Some studies indicate that cognitive-behavioral therapy demonstrates efficacy comparable to fluoxetine [1,2].

First-line pharmacotherapy involves SSRIs, such as sertraline, fluoxetine, paroxetine, or escitalopram [2,5]. Combined oral contraceptives (COCP) require careful selection, with the most effective current combination being ethinylestradiol with drospirenone [1,2]. COCP reduce somatic symptoms but not psychological symptoms [5]. A reduced hormone-free interval (shortening the period without exogenous hormones) is also beneficial in alleviating symptoms, as fluctuations in estrogen and progesterone during the standard hormone-free interval are associated with symptom exacerbation [2]. Estradiol or progesterone alone do not demonstrate efficacy [5].

GnRH analogues are used for ovarian suppression and diagnostic purposes; lack of symptom resolution after 12 weeks indicates an incorrect diagnosis [1]. Allopregnanolone antagonists (spironolactone) and 5-alpha-reductase inhibitors (dutasteride) remain under investigation [1,2]. Hysterectomy with bilateral oophorectomy demonstrates high therapeutic efficacy but is considered a last-resort intervention [1,5].

5. Conclusions

1. PMS and PMDD are common disorders occurring in the late luteal phase. In approximately 7–8% of women, they lead to a significant deterioration in quality of life and co-occur with sexual dysfunctions. Our research highlights the marginalized issue of coexisting FSD and PMS.
2. Due to the multifactorial pathogenesis, including individual hypersensitivity to allopregnanolone, estrogen dominance, exposure to xenoestrogens, dietary errors, tension within the pelvic floor, and psychological and psychosocial factors, treatment is complex and requires cooperation between a gynecologist, sexologist, physiotherapist, and dietitian.
3. It also underscores the importance of a holistic approach to the care of patients with these conditions and emphasizes available treatment options, such as pharmacotherapy, dietary interventions, and physiotherapy (Table 2). The role of a healthy lifestyle should be emphasized, including sleep hygiene, meditation, appropriate supplementation, and emotion regulation techniques. It is important to follow a low-inflammatory diet based on plant products and containing omega-3 fatty acids, with a significant reduction of highly processed foods.

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4. However, the topic is still understudied, and further research may be needed, focusing on the prevalence and treatment of specific types of sexual dysfunction in women with PMS.

Table 2. Types of therapeutic interventions to reduce PMS/PMDD symptoms.

Treatment category	Intervention	Mechanism	References
Pharmacological	SSRIs	First-line pharmacotherapy for PMS and PMDD, primarily mitigate psychological symptoms.	Cary et al. [2], Carlini et al. [5]
	COCP (ethinylestradiol + drospirenone)	Alleviate somatic symptoms of PMS, efficacy is enhanced by a shortened hormone-free interval.	Takeda et al. [1], Cary et al. [2], Carlini et al. [5]
	Gonadotropin-releasing hormone (GnRH) analogs	Suppress ovarian function, may have diagnostic utility in PMS/PMDD.	Takeda et al. [1]
	Allopregnanolone antagonists (e.g., spironolactone)	Experimental agents targeting progesterone metabolites implicated in PMS pathophysiology.	Takeda et al. [1], Cary et al. [2]
	5-alpha-reductase inhibitors (e.g., dutasteride)	Modulate steroid hormone metabolism, currently under investigation.	Takeda et al. [1], Cary et al. [2]

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Surgical	Hysterectomy with bilateral oophorectomy	Considered in refractory PMS/PMDD, demonstrates high therapeutic efficacy.	Takeda et al. [1], Carlini et al. [5]
Psychotherapy	Cognitive-behavioral therapy (CBT)	Evidence suggests comparable efficacy to fluoxetine in alleviating PMS symptoms.	Takeda et al. [1], Cary et al. [2]
Diet	Dietary fiber	Associated with a reduction in duration of PMS symptoms.	Barnard et al. [28]
	Low-fat diet	Reduces symptom duration and alleviates bloating, breast tenderness, and pain.	Barnard et al. [28], Hafiz et al. [29]
	Omega-3 fatty acids	Mitigate both psychological and somatic manifestations of PMS.	Mohammadi et al. [30]
	Intermittent fasting	Decreases luteal-phase cortisol levels and reduces symptom severity.	Siminiuc et al. [39]

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Calcium, zinc, magnesium	Attenuates symptoms.	Siminiuc et al. [39], Jarzabek-Bielecka et al. [40]
Calcium and vitamin D	Improves mood, reduces fluid retention and food cravings, alleviates pain; additionally reduces risk of osteoporosis and certain cancers.	Siminiuc et al. [39], Arab et al. [41]
VAC (Vitex agnus-castus)	Reduces irritability, mood swings, anger, nervousness, breast tenderness, and headache.	Cerqueira et al. [43]
Ginkgo biloba	Alleviates mood disturbances and inflammatory symptoms associated with PMS.	Sultana et al. [45]
Saffron	Reduces general and depressive PMS symptoms.	Sultana et al. [45]
Soy isoflavones	Mitigate dysmenorrhea and fluid retention.	Robinson et al. [44]

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Physical / Physiotherapeutic	Stretching	Decreases severity of symptoms.	Verma et al. [20]
	Yoga and pelvic floor exercises	Modulate pain perception via inhibition of nociceptive signaling at the spinal level.	Verma et al. [20]
	Aerobic exercise	Improves metabolic function and alleviates general PMS symptoms.	Ravichandran et al. [21]
	Respiratory training / breathing exercises	Contributes to reduction of general PMS symptoms.	Ravichandran et al. [21]
	Transcutaneous electrical nerve stimulation (TENS)	Inhibits pain signal transmission at the spinal level.	Bańburski et al. [22]
	Balneotherapy	Reduces cortisol levels	Rapolienė et al. [25]

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Abbreviations

The following abbreviations are used in this manuscript:

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PMS	Premenstrual Syndrome
PMDD	Premenstrual Dysphoric Disorder
FSD	Female Sexual Disorder
HSDD	Hypoactive Sexual Desire Disorder
PTSD	Posttraumatic Stress Disorder
SSRI	Selective Serotonin Reuptake Inhibitor
COCP	Combined Oral Contraceptive Pill
TENS	Transcutaneous Electrical Nerve Stimulation
SHGB	Sex Hormone Binding Globulin
VAC	Vitex Agnus Castus

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