

Review Article

## Getting Rid of “Bomb Pushing the Womb”: Dysmenorrhea Management-Mini Review

Abdul Kader Mohiuddin\*

Assistant Professor Department of Pharmacy, World University of Bangladesh 151/8, Green Road, Dhanmondi, Dhaka – 1205, Bangladesh

**\*Corresponding Author**

Abdul Kader Mohiuddin

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**Abstract:** According to the American Academy of Family Physicians, up to 20% of women suffer from menstrual cramping severe enough to interfere with daily activities. If prostaglandins levels are higher, more pain is often associated with the cramps. Cycle length, blood loss, period-related symptoms, fluid color, and consistency are all highly variable, even for just one person. However, severe menstrual pain is likely to be caused by a health issue such as PMS, fibroids, or endometriosis and requires medical support. When researchers analyzed frequency and duration of exercise and compared it to reports of period pain, they found exercise did little to reduce discomfort, and in fact this persisted even when a range of other factors—including weight, ethnicity, smoking and use of the birth control pill—were taken into consideration. Some women may also prefer not to use hormonal contraceptives, as they can bring unwanted side-effects such as fluctuations in weight and mood. Some methods can also slightly raise the risk of certain cancers, including breast cancer (although they reduce the risk of others, including womb cancer).

**Keywords:** dysmenorrhea, premenstrual syndrome; irregular menstruation; pelvic pain; yoga; aromatherapy; menstrual disorders.

### INTRODUCTION

There are various types of menstrual disorders, including dysmenorrhea, premenstrual symptoms, menorrhagia, polymenorrhea, abnormal vaginal bleeding, amenorrhea, oligomenorrhea, and irregular menstruation [1]. The major abnormalities are dysmenorrhea, premenstrual syndrome (PMS), and menstrual irregularities [2]. The prevalence of dysmenorrhea varies from 50% to 90% globally. Nakame *et al.* [4] reported a range of more than 50% to 85% in Europe and America for the same and 60% to 85% in Asia [4]. Approximately 75% of people experience PMS, as reported by Wilbur *et al.* [5], which includes emotional and physical symptoms that occur between one and two weeks before menstruation [5]. Total annual health care costs were approximately 2–3 times higher in patients with dysmenorrhea compared to women without the condition [6]. Endometriosis, one of the main causes of secondary dysmenorrhea, induces non-menstrual pelvic pain, dyspareunia and infertility, resulting in marked reduction of quality of life during reproductive age [7, 8]. In the Western populations, endometriosis is estimated to occur in 5% to 10% of the population; however, the prevalence of endometriosis is suspected to be higher in Asian women, affecting approximately 15% of women [9]. The estimated health care expenditures for endometriosis at nearly \$70 billion per year in the United States, \$7.4 billion in Australia, approximately 380 billion JPY Japan [10-12]. Heavy menstrual bleeding (HMB) is the second highest-ranked reason for a hospital referral and accounts for 12% of all gynecologic referrals [13]. According to Kwak *et al.* [14] prevalence of irregular menstruation varies from 5% to 35.6% depending on age, occupation, and the country of residence Rad *et al.* [14] reported that dysmenorrhea is more common in women and girls with the following characteristics: low age, early menarche, positive familial history, smoking, stress, heavy exercise, shift work, in older women, more natural births, marriage in low age and light sports [15]. According to Rafique *et al.* 2018 the most prevalent menstrual problems (dysmenorrhea and premenstrual symptoms) in the target population were strongly associated with stress [1]. Bajalan *et al.* [16] recommended psychological assessment before the choice of therapeutic methods as there is a significant relationship between depression, anxiety, stress, alcohol abuse, somatic disorders and dysmenorrhea [16]. Payne *et al.* stated that primary dysmenorrhea (PDM) is associated with enhanced pain sensitivity and temporal summation in adult women, which may reflect the presence of central pain processes [17]. Also, Yang *et al.* [18] concluded that women with PDM had

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structural and functional abnormalities in the amygdala, which associated with stress hormone levels, pain intensity and negative mood, may reflect disturbed emotional and pain modulation in women with PDM [18]. Dysmenorrhea was considerably higher in girls who were consistently eating fast food. Because junk foods are rich in saturated fatty acids, and these acids affect the metabolism of progesterone in the menstrual cycle [2]. Junk foods also lack micronutrients, which might be responsible for triggering dysmenorrhea, premenstrual symptoms, and menstrual irregularities [19]. Mohiuddin, 2019 stated that diet limitation and skipping breakfast lead obesity and gynecological problems [20], specifically the hormonal changes which cause menstrual disorders in most of the females [21]. An android body fat distribution is associated with the least amount of menstrual bleeding. In addition, obesity can increase the production of estrogen, which in turn is related to body weight and its fat content. Adipose tissue stores various lipids which are able to metabolize steroids such as androgens [22]. Kafei-Atrian *et al.* [23] stated that menstrual bleeding was found to be higher in obese women. Moreover, it has been reported that excessive weight is an important factor for uterine cramps during menstruation and increases the likelihood of prolonged pain [23]. Menstrual disorders have a wide range of manifestations. However, some of them can lead to significant problems and can even be considered as important causes of infertility [23]. Another 2 reviews by Mohiuddin [8] reported that during puberty, alteration of the sebaceous lipid profile, dysmenorrhea, stress, irritation, cosmetics and potential dietary factors lead to inflammation and formation of different types of acne lesions [25, 26]. Sharghi *et al.* [27] pointed to both used of NSAIDs and steroids in dysmenorrhea pain management. Their long-term use has been associated with common complications like headache, dizziness, drowsiness, loss of appetite, nausea, vomiting, gastrointestinal bleeding, increased acute asthma, dysuria, and acne [27]. Comparable pain intensity of dysmenorrhea and renal colic has been reported by Akiyama *et al.* and Iacovides *et al.* [28,29]. Chen *et al.* 2018 reported that dysmenorrhea is also associated with other pain conditions such as migraines, fibromyalgia (FM), and IBS [30]. Galvani *et al.* also reported that FM is frequently diagnosed in women with a history of headache, dysmenorrhea, IBS, temporomandibular joint disorders or other regional pain syndromes [31]. Terzi *et al.* also reported an increased frequency of premenstrual syndrome and dysmenorrhea in FM patients [32]. Other studies also revealed that, decrements in health utilities for dysmenorrhea were similar to those associated with chronic migraine [33, 34]. The prevalence of menstrual migraine is 3% in the general population, but it afflicts 35%–70% of female migraineurs [35]. The pain is due to increased level of prostaglandins causing uterine contraction, uterine ischemia, and increased sensitivity to pain fibers and ultimately causes pelvic pain [36-38]. In some studies, there is also a link between levels of hormones such as progesterone, estrogen, vasopressin and sex-bound hormones (SHBG) [15, 39-41]. Dehnavi *et al.* reported that sports activity decreases the level of serum aldosterone by reducing the level of renin and increasing estrogen and progesterone and thus decreases and improves physical symptoms [42]. Although, Chinese Olympic medalist Fu Yuanhui acknowledged that menstrual pain affected her Olympic swimming performance [43]. Armour *et al.* also reported absenteeism from work or school, reduced participation in sport and social activities, altered pain perception and sleeping problems [44]. Lack of satisfactory pain relief and effective medical interventions in primary dysmenorrhea leads to an uptake of self-care strategies by women [45]. Non-pharmacological self-care techniques or lifestyle interventions, either physical or psychological, that can be practiced by women themselves such as exercise (including yoga and Pilates), heat, meditation, aromatherapy, self-massage or acupressure may fulfil these criteria, allowing women to potentially reduce their menstrual pain and need for analgesics, and improve their HRQoL [46]. McGovern *et al.* improvement method for women with primary dysmenorrhea [47-50]. The application of local heat can reduce muscle tension and relax abdominal muscles to reduce pain caused by muscle spasms. Jo *et al.* also reported that heat can also increase pelvic blood circulation to eliminate local blood and body fluid retention and diminish congestion and swelling, thereby enabling a reduction in pain caused by nerve compression [51]. Aromatherapy, the use of essential oils for a therapeutic purpose, is a popular type of CAM in the UK, USA, Australia and Canada [52-54]. Essential oils can be absorbed via olfaction, through the external skin, internal skin, and ingestion and the applications are divided into inhalation, topical use, and oral use. Song *et al.* [52], Lee *et al.* [56] and Fernández-Martínez *et al.* [3] reported that aromatherapy massage was an effective intervention for reducing dysmenorrhea [3, 52, 56]. Chinese herbal medicines (CHM) are well-accepted in the treatment of primary dysmenorrhea in East Asia, such as China, Korea, and Japan. Reviews from Gao *et al.* [57] showed a significant advantage compared with other treatments Sharghi *et al.* [57]. demonstrated that medicinal plants, drugs, and acupressure seem to suppress pain by reducing the level of prostaglandins, mediating nitric oxide, increasing beta-endorphin levels, blocking the calcium channel, and enhancing circulatory flow through the uterine pathway [27]. Traditional Chinese medicine (TCM) or Korean medicine identified blood stagnation as the main factor causing abdominal pain during menstruation [58]. Mirabi *et al.*, 2014 revealed advantage of several plant parts or plant derived medicines like *Foeniculum vulgare*, *Zingiber officinale*, Menastil® (calendula oil and mint essential oil), *Cuminum cyminum*, Menstrugol® (saffron, celery and aniseed), *Matricaria chamomilla*, *Valeriana officinalis*, *Cinnamomum zeylanicum*, *Stachys lavandulifolia*, *Zataria multiflora*, *Mentha piperita*, *Vitex agnus-castus*, *Echinophora platyloba*, *Achillea williamsii* etc Kartal *et al.* [59] recommended diet therapy including balanced nutrition, low-fat diet, some herbal teas, reducing salt intake in the diet, fish oil, magnesium, zinc, Vitamins B and E and protein intake that were found to be effective in pain reduction in earlier studies [60].



Fig-1: A symbolic figure of woman with depression, Menstruation can exacerbate incapacitating physical or mental health problems including endometriosis and depression; it can also be distressing or problematic for people with gender dysphoria (Source: Davis N. 'We don't need to bleed': why many women are giving up on periods. *The Guardian*, 18 July 2019).

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## Abbreviations

Premenstrual Syndrome (PMS); Heavy menstrual bleeding (HMB); Premenstrual Syndrome (PMS); Primary dysmenorrhea (PDM); irritable bowel syndrome (IBS); Chinese Herbal Medicines (CHM); Complementary And Alternative Medicine (CAM); Traditional Chinese medicine (TCM); fibromyalgia (FM); sex-bound hormones (SHBG); Health-Related Quality Of Life (HRQoL); Primary Dysmenorrhea (PDM); Non-Steroidal Anti-Inflammatory Drugs (NSAIDs)

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