

## HERBAL AROMATHERAPY IN MENSTRUAL CRAMP MANAGEMENT: A REVIEW OF EVIDENCE

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### ABSTRACT

The menstrual cycle frequently causes a wide range of painful sensations. The most frequent problems, such as minor cramps and exhaustion, are referred to as premenstrual syndrome (PMS), however these symptoms typically go away when your period starts. But there could also be other, more severe menstruation issues. Too thick or light of a menstrual flow, or no menstruation at all, are indications of problems that might lead to an irregular menstrual cycle. Allopathic medications have demonstrated numerous noteworthy outcomes in the management of menstruation disorders. Thus, attention has shifted to natural therapies. Herbal remedies are a valuable tool in the treatment of menstruation disorders such as dysmenorrhea and amenorrhea. This article provides comprehensive details on a range of medicinal plants and some DIY therapies that are used to cure the menstrual cramp.

**KEYWORDS:** Menstrual pain, dysmenorrhea, pathophysiology, treatment, aroma therapy.

### BACKGROUND

Dysmenorrhea remains a significant public health issue that may negatively affect a woman's social life, academic performance, psychological state, and general health.

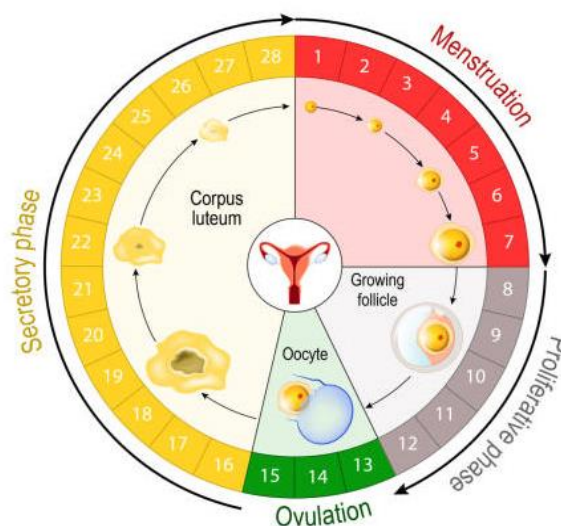
### METHODS

Gaining more knowledge about the epidemiology of dysmenorrhea and its impact on public health is the goal of this review. Using the keywords "dysmenorrhea," "adolescents," and "epidemiology," published studies in English that contained pertinent information on dysmenorrhea were found by searching PubMed, Embase, and Google. The population was then limited to women in their teens and early twenties, and the publications' publication dates were set from 2010 to August 2015. The reference lists of the chosen papers were also looked through.

### INTRODUCTION

**MENSTRUATION** is the natural bodily process of releasing blood and associated matters from the uterus through the vagina as part of the menstrual cycle. It usually starts at about 12 years old and can vary in timing. The menstrual cycle is primarily regulated by the estradiol and progesterone hormones.

## Menstrual cycle



**Dysmenorrhea:-** One of the most prevalent gynaecological conditions affecting teenage girls is dysmenorrhea. Numerous physical (and emotional) symptoms are known to be included in the dysmenorrhea syndrome.<sup>[1-6]</sup> There are two main types of dysmenorrhea: primary and secondary.

### Types of dysmenorrhea

- Primary dysmenorrhea: - When there is no discernible pelvic pathology, recurring, cramping pain during menstruation is known as primary dysmenorrhea (PD). Symptoms rarely appear in the first six months following menarche. Women who are affected typically have sharp, sporadic spasmodic pain that is centred in the suprapubic region. The lower back or the back of the legs may experience pain. Dysmenorrhea is associated with mood swings, exhaustion, headaches, nausea, and edema during the menstrual cycle.<sup>[1-6]</sup> Dysmenorrhea can have detrimental effects on one's social and personal life, as well as mood issues, sleep disturbances, and the inability to perform everyday activities.<sup>[3,4-6]</sup> Usually, the pain starts a few hours before or a few hours after the monthly flow starts. When there is no discernible pelvic pathology, recurring, cramping pain during menstruation is known as primary dysmenorrhea (PD). It's usually lasting less than a day, symptoms peak with maximum blood flow, but they might linger for two or three days.<sup>[3,4-6]</sup> Comparably, symptoms can be replicated from one menstrual cycle to the next.<sup>[1,2]</sup> Depending on the adolescent's description, level of activity constraint, and need for medication, pain intensity can be classified as low, moderate, or severe.<sup>[1,2]</sup>
- Secondary dysmenorrhea: - (SD) refers to menstrual pain that arises from an underlying pelvic condition, which may include endometriosis, pelvic

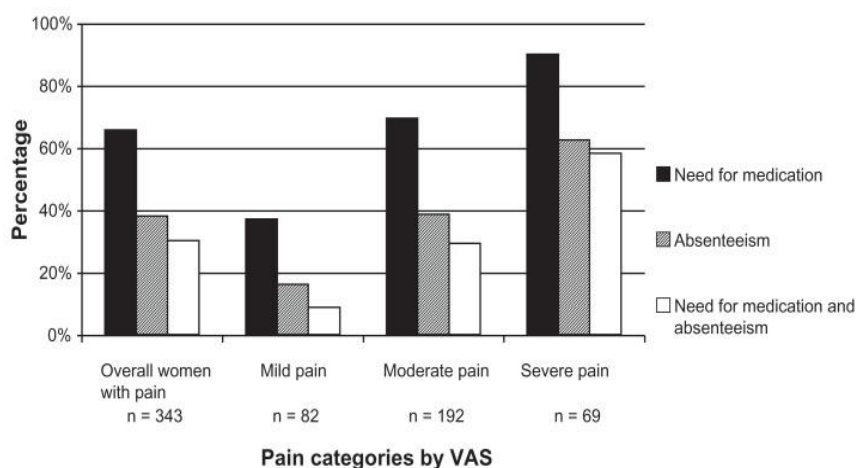
inflammatory disease, congenital mullerian anomalies, and ovarian cysts. The onset of this condition can occur many years after menarche has begun.<sup>[1,2,5]</sup> Various physiological, environmental, and behavioural factors may contribute to the development of SD. These factors include early menarche<sup>[7-9,12]</sup>, smoking<sup>[8,10,11]</sup>, a higher body mass index (BMI),<sup>[12]</sup> nulliparity<sup>[13]</sup>, prolonged and heavier menstrual bleeding<sup>[9,12,14]</sup> and a family history of dysmenorrhea.<sup>[15-17]</sup> Additionally, both depression and stress have been shown to elevate the risk of experiencing dysmenorrhea.<sup>[18]</sup> Additionally, both depression and stress have been shown to elevate the risk of experiencing dysmenorrhea.<sup>[8,9,16]</sup> Other factors, such as educational background and alcohol consumption, tend to yield largely negative or inconclusive findings regarding their impact on dysmenorrhea.<sup>[8,9,11,15]</sup> The relationship between dysmenorrhea and economic factors requires additional investigation.

### OBJECTIVE

This research sought to assess the prevalence of dysmenorrhea, as defined by various criteria, within a cohort of young women, and to explore the factors linked to this condition.

### MATERIALS AND CONCLUSION

A concluding cohort of 408 young women participated in a self-assessment questionnaire. This constituted a cross-sectional analytical study.



### SYMPTOMS

#### Symptoms of menstrual cramps include

- Throbbing or cramping pain in your lower abdomen that can be intense.
- Pain that starts 1 to 3 days before your period, peaks 24 hours after the onset of your period and subsides in 2 to 3 days.
- Dull, continuous ache.
- Pain that radiates to your lower back and thighs.

#### Some women also have

- Nausea
- Loose stools
- Headache
- Dizziness

#### Causes

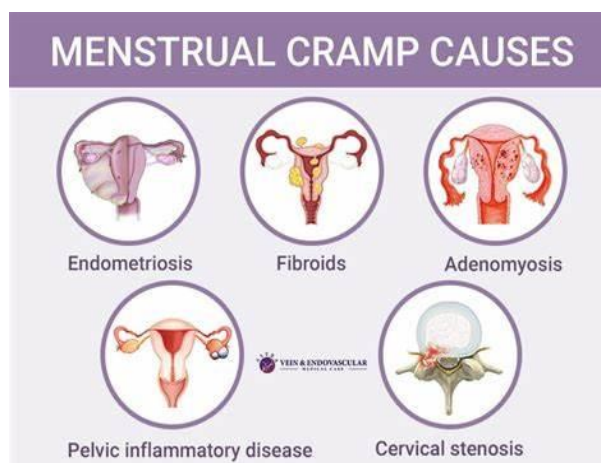
During menstruation, the uterus undergoes contractions to facilitate the shedding of its lining. Prostaglandins, which are hormone-like substances linked to pain and inflammation, initiate these contractions in the uterine muscles. Elevated levels of prostaglandins are correlated

with increased intensity of menstrual cramps.

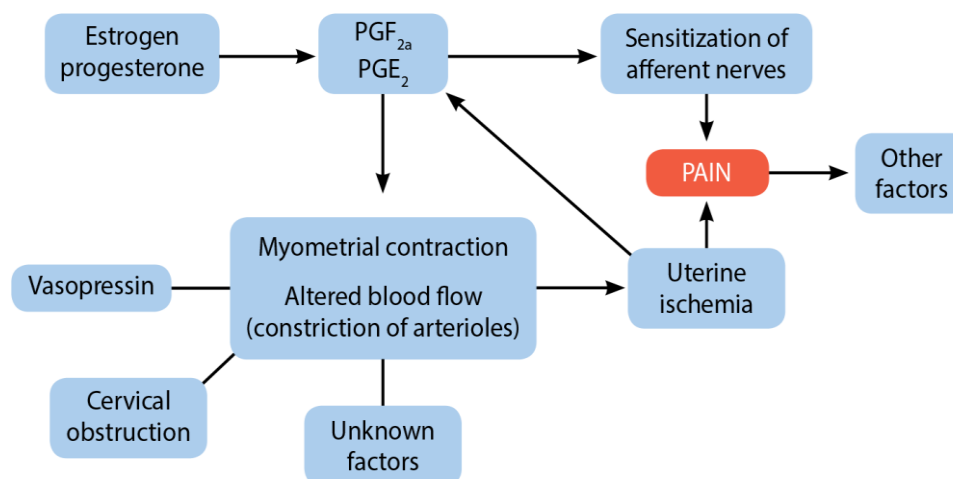
#### Menstrual cramps can be caused by

- **Endometriosis.** Tissue that acts similar to the lining of the uterus grows outside of the uterus, most commonly on fallopian tubes, ovaries or the tissue lining your pelvis.
- **Uterine fibroids.** These noncancerous growths in the wall of the uterus can cause pain.
- **Adenomyosis.** The tissue that lines your uterus begins to grow into the muscular walls of the uterus.
- **Pelvic inflammatory disease.** This infection of the female reproductive organs is usually caused by sexually transmitted bacteria.
- **Cervical stenosis.** In some women, the opening of the cervix is small enough to impede menstrual

flow, causing a painful increase of pressure within the uterus.



**Figure 2: Pathophysiology of (primary) dysmenorrhea**



**Source:** Lefebvre G, Pinsonneault O, Antao V, Black A, Burnett M, Feldman K, Lea R, Robert M; SOGC. Primary dysmenorrhea consensus guideline. *J Obstet Gynaecol Can.* 2005 Dec;27(12):1117-46.

#### Risk factors

You may be susceptible to experiencing menstrual cramps if you meet the following criteria:-

- You are under the age of 30.
- You began puberty at the age of 11 or earlier. - You experience heavy menstrual bleeding (menorrhagia).
- Your menstrual cycles are irregular (metrorrhagia).
- There is a familial tendency towards menstrual cramps (dysmenorrhea).
- You engage in smoking.

#### Complications

Menstrual cramps do not lead to additional medical issues; however, they can disrupt educational, professional, and social engagements. Certain conditions related to menstrual cramps may lead to complications.

For example, endometriosis can result in issues with

fertility. Additionally, pelvic inflammatory disease can create scarring in the fallopian tubes, which heightens the risk of a fertilized egg implanting outside the uterus, resulting in an ectopic pregnancy.

#### Treatment options for managing menstrual pain

Menstrual pain is a common experience for many women. Although it significantly impacts attendance, social engagement, work performance, concentration levels, and overall quality of life, a majority of women perceive menstrual pain as a "normal" aspect of their lives and endure it in silence, viewing it as an inherent part of womanhood.<sup>[19]</sup> In a meta-analysis conducted by Xuan Fend et al. in 2018, which encompassed 72 randomized controlled trials (RCTs) comparing 13 medications commonly used for pain relief in the management of dysmenorrhea, it was determined that Flubipropen and Tiaprofenic acid emerged as the most

effective options. Additionally, a cross-sectional study by Amena Ali et al. in 2022, involving 562 female university students aged 18 to 30, examined preferences for pain relief medications for dysmenorrhea. The findings revealed that 42% of participants utilized ibuprofen, 40% opted for paracetamol, while only 3% reported using mefenamic acid.<sup>[20]</sup> In a separate investigation conducted by Sayako Akimiya and colleagues in 2018, an online survey was administered to female participants aged 18 to 49 years. The survey aimed to gather information regarding their treatment preferences for alleviating menstrual pain and associated symptoms. The findings revealed that a majority of the participants favored over-the-counter analgesics.<sup>[21]</sup> In a separate investigation conducted by Sayako Akimiya and colleagues in 2018, an online survey was administered to female participants aged 18 to 49 years. The survey aimed to gather information regarding their treatment preferences for alleviating menstrual pain and associated symptoms. The findings revealed that a majority of the participants favored over-the-counter analgesics.<sup>[22]</sup> In a separate investigation conducted by Sayako Akimiya and colleagues in 2018, an online survey was administered to female participants aged 18 to 49 years. The survey aimed to gather information regarding their treatment preferences for alleviating menstrual pain and associated symptoms. The findings revealed that a majority of the participants favored over-the-counter analgesics.<sup>[23]</sup> In a 2019 study conducted by Mike Armour and colleagues, approximately 55% of women expressed a preference for self-care in conjunction with both pharmacological and non-pharmacological treatments. Paracetamol emerged as the most frequently utilized medication, with 11% of participants seeking medical advice from a physician. Additionally, a 2017 study by Minaleswara et al. focused on pain relief during menstruation, revealing that 63.8% of participants favored home remedies, while the remainder opted for Ibuprofen and Diclofenac.<sup>[24]</sup> Numerous other studies have similarly found that women favored therapeutic exercises and non-pharmacological approaches that alleviated their pain related to dysmenorrhea.

In a 2018 study conducted by Gemma Matthewman and colleagues, participants reported that engaging in regular physical activity contributed to a reduction in menstrual pain.<sup>[25]</sup> A recent systematic review and meta-analysis involving women aged 16 to 25 revealed that therapeutic exercises were effective in reducing both the intensity and duration of menstrual pain, while also enhancing the overall quality of life for the participants.<sup>[26]</sup> A similar conclusion was reached in another systematic review and meta-analysis carried out by Egzersiz et al. in 2016.<sup>[27]</sup>

### Benefits of Aroma therapy for Painful Menstrual Cramps

- 1. Essential oil massage blends or hot compresses serve as effective methods for alleviating menstrual cramps. Engaging in aromatherapy massage on a daily basis between menstrual cycles can lead to a

notable decrease in the duration of menstrual discomfort. Below are some of the most effective aromatherapy options for managing painful cramps.

- Heat is another simple yet effective approach to managing menstrual cramps. Applying warmth to the lower abdomen can significantly ease discomfort, as heat promotes the relaxation of the uterine muscles. One can use a heating pad on the lower abdomen and lower back, or alternatively, a plastic bottle filled with hot water can be applied to the area until the pain subsides.<sup>[28]</sup>
- German Chamomile (*Matricaria chamomilla* L.; Asteraceae) oil is renowned for its anti-inflammatory properties. The oil exhibits a deep blue hue, attributed to the presence of azulene. Additionally, it possesses analgesic effects, aids in soothing the nervous system, and alleviates feelings of anger, irritability, and depression, which are frequently experienced during menstruation.<sup>[29]</sup>
- Sweet Marjoram (*Origanum majorana* L.; Lamiaceae) is an effective oil for alleviating menstrual cramps, as it diminishes pain on multiple levels. For optimal results, it is recommended to apply it in conjunction with a hot compress on the abdomen during episodes of menstrual discomfort.<sup>[30]</sup>
- Sweet Fennel (*Foeniculum vulgare* Mill; Apiaceae) possesses essential oil that can aid in stimulating menstruation and regulating the monthly cycle. Additionally, these oils are beneficial in alleviating pain associated with menstruation.
- Lavender oil (*Lavandula latifolia*; Lamiaceae) is an essential oil derived through the distillation process from the flower spikes of specific lavender species, particularly *Lavandula latifolia*. This oil has been recognized for its potential to alleviate anxiety, depression, and menstrual pain.<sup>[31]</sup>
- Clary Sage oil (*Salvia sclarea*; Labiatae) is derived through steam distillation from the buds and leaves of the Clary Sage plant, *Salvia sclarea*. This essential oil is known for its ability to regulate menstrual cycles and to relieve symptoms associated with menopause.<sup>[32]</sup>
- Physical activity for menstrual disorder:** Engaging in physical activity is crucial for managing menstrual disorders, as it facilitates the circulation of qi within the body. Insufficient exercise may exacerbate the intensity and length of symptoms related to dysmenorrhea. Alongside a consistent exercise routine, practices such as moving meditation can aid in emotional balance, alleviate stress, enhance organ function, and help regulate menstrual cycles. Regular physical activity,



particularly during the days leading up to and throughout the menstrual period, can significantly reduce the intensity of menstrual cramps. Additionally, swimming has been shown to decrease menstrual flow and alleviate cramping.<sup>[33]</sup>

- **Self-Acupressure** for Menstrual Discomfort  
Acupressure and reflexology are alternative therapeutic methods grounded in the principle of holistic self-healing through the application of physical pressure. By exerting pressure on designated points, these techniques enhance the circulation of life energy along the meridians and alleviate blockages. Premenstrual syndrome (PMS) encompasses a range of symptoms associated with the menstrual cycle, which can significantly interfere with a woman's daily life for several days.<sup>[34]</sup>

## RESULTS

Menstrual pain was experienced by 84.1% of women surveyed, with 43.1% indicating that they suffered from pain during every menstrual cycle, while 41% reported experiencing pain in some cycles. Those who reported menstrual pain tended to have an earlier onset of menarche ( $P = 0.0002$ ) and a longer duration of menstrual flow ( $P = 0.006$ ). This group also exhibited a higher prevalence of smoking ( $P = 0.031$ ) and a lower prevalence of hormonal contraceptive use ( $P = 0.015$ ). Furthermore, pain intensity showed a positive correlation ( $r = 0.302$ ,  $P < 0.0001$ ) with the length of menstrual flow ( $CR = 0.336$ ), a history of abortions ( $CR = 3.640$ ), and the presence of gynaecological conditions ( $CR = 0.948$ ). Conversely, it was negatively correlated with the age at which menarche began ( $CR = -0.225$ ), the use of hormonal contraception ( $CR = -0.787$ ), and a history of gynaecological surgeries ( $CR = -2.115$ ). The prevalence of dysmenorrhea is significantly influenced by various factors, including menstrual pain, the necessity for medication, and the inability to engage in normal activities, such as academic or social participation. Specifically, the prevalence rates are 84.1% when solely menstrual pain is considered, 55.2% when examining the link between menstrual pain and the need for medication, 31.9% when assessing the relationship between menstrual pain and absenteeism, and 25.3% when all three factors—menstrual pain, medication requirement, and absenteeism—are taken into account ( $P < 0.0001$ ). Furthermore, the likelihood of experiencing more severe dysmenorrhea correlates directly with the intensity of pain as evaluated by a visual analogue scale, although this correlation does not always align perfectly.

## CONCLUSION

Menstrual pain is a prevalent issue; however, the necessity for medication and the inability to carry out daily activities is less common. Nonetheless, approximately one in four women endures significant menstrual pain, which is often accompanied by a requirement for medication and a tendency to miss educational or social engagements. In this review, we

examined medicinal plants and various alternative home remedies for addressing menstrual disorders. Menstrual issues, such as dysmenorrhea, are chronic conditions that can result in numerous complications if left untreated. Conventional allopathic medications often prove ineffective and may cause several adverse effects. Therefore, medicinal plants present a viable alternative for managing menstrual problems. Numerous plant species have demonstrated their effectiveness in alleviating these issues. Folklore medicinal plants are predominantly utilized in rural regions due to the abundant availability of these resources in such areas.

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