

# Beyond Conventional Medicine: “Herbal and alternative therapies for dysmenorrhoea”

Mrinalini C. Damle\*, Dipti S. Bhorade, Shruti S. Gaikwad, Sunita M. Sanap

*All India Shri Shivaji Memorial Society's College of Pharmacy, Pune, Maharashtra 411001, India*

## **Abstract**

Dysmenorrhea, the occurrence of painful menstrual cramps, is a prevalent condition that affects a significant number of women worldwide. While traditional pharmacological treatments, such as nonsteroidal anti-inflammatory drugs and oral contraceptives, can provide relief, there is a growing interest in non-pharmacological approaches that offer a more holistic and potentially safer alternative.

Various herbal remedies have also been explored for the management of dysmenorrhea. Certain herbs, such as ginger, cinnamon, and chamomile, have been shown to possess anti-inflammatory and analgesic properties, which can contribute to the reduction of menstrual cramps.

Mind-body interventions approach includes the use of alternative therapies, including acupuncture, aromatherapy, yoga. Acupuncture, a traditional Chinese practice, has been shown to be effective in reducing the intensity and duration of menstrual cramps. Acupuncture is believed to work by stimulating specific points on the body, which in turn can release endorphins and other natural pain-relieving substances. Similarly, the practice of yoga, which combines physical postures, breathing techniques, and meditation, has been found to alleviate menstrual pain by reducing stress and promoting relaxation.

Furthermore, non-pharmacological approaches may offer additional benefits beyond pain relief. Results indicated that several non-pharmacological approaches showed promise in reducing pain intensity and improving quality of life for individuals with dysmenorrhea. . While the quality of evidence varied across studies, this review highlights the potential of non-pharmacological interventions to manage dysmenorrhea

**Keywords-** *Dysmenorrhea; Herbs; Yoga; Conventional; NSAID*

## **1.0 Introduction:**

A common gynecological problem is dysmenorrhea, or unpleasant menstruation(Joseph L.). According to estimates, about half of all women will experience it at some point throughout their reproductive system. years, typically manifesting in adolescence and declining with age and after childbirth. The most common symptom is lower abdomen cramps and pain that may spread to the thighs and lower back.Common symptoms include headache, nausea, diarrhea or constipation, frequent urination, and vomiting.(Joseph Mafuyai, 2013)

Primary, secondary, and membranous dysmenorrhea are the three varieties.

While secondary dysmenorrhea is linked to certain illnesses or conditions like endometriosis, ovarian cysts, pelvic inflammatory disease, adenomyosis, cervical stenosis, fibroid polyps, and potentially uterine displacement with fixation, primary dysmenorrhea is defined by the lack of an organic etiology. Because the intact endometrial cast passes through an undilated cervix, it can cause severe cramping discomfort in cases of membrane dysmenorrhea, also known as uterine cast. Secondary endometriosis-related dysmenorrhea is the most frequent misdiagnosis of primary dysmenorrhea.(Bezuidenhout et al., 2018)

During menstruation, prostaglandins (Pgs) are important mediators that cause the endometrial lining to shed and cause contractions of the uterine muscles to aid in the lining's removal.(Mohammadi & Akhondzadeh, 2015) One These contractions also result in ischemia within the endometrium, which leads to these cells dying and shedding.(Zaman et al., 2023) More severe myometrial contractions and the ischemia that results are associated with higher pain levels in women with dysmenorrhea than in those without the disorder, according to magnetic resonance imaging.

Between 16% and 91% of women of reproductive age have primary dysmenorrhea, and between 2% and 29% of patients have severe dysmenorrhea.(Xu et al., 2020) Young women had a higher prevalence rate, with estimates ranging from 67% to 90%.(Imam & Imam, 2023)

The first line of therapy for primary dysmenorrhea is nonsteroidal anti-inflammatory drugs (NSAIDs).(Bezuidenhout et al., 2018) 17% to 95% (mean 67%) of women relieve pain with NSAIDs. NSAIDs can cause adverse consequences, particularly when taken over an extended period of time. However, the majority of young women do not have a propensity to utilize hormones to stop bleeding or pain. Thus, herbal remedies with less adverse effects are favored over painkillers from the standpoint of the ladies.(Xu et al., 2017) In order to guarantee the safe and effective use of these herbal therapies, it is crucial to medically manage these problems in accordance with the patient's needs and expectations, as those young ladies frequently may not be aware of their safe and effective usage.(Zeraati et al., 2014)

Extensive research has investigated the efficacy of herbal remedies and nutritional factors in alleviating dysmenorrhea. menstruation cramps and irregular bleeding can

be lessened with the use of herbal medicines and proper diet. Several studies have conducted trials on the placebo and double-blind effects(S et al., 2018)of combined herbs, including: Ginger(Adib Rad et al., 2018) and Cinnamon, fennelin(Xu et al., 2020) and vitagnus and Other herbal combinations. These studies demonstrate significant reductions in menstrual pain and symptoms. Additionally, nutritional factors have been identified as crucial in managing menstrual irregularities: Vitamins B6 and B12 ,Magnesium, Vitamins A, C, and E, Iron, folic acid, and essential fatty acids.(Bolkar et al., 2023; Figure 1. Hormone Levels and Endometrial Changes During the Normal Menstrual Cycle, n.d.-b) The health advantages of regional herbs from South Africa,(Joseph Mafuyai, n.d.-b; Steenkamp, 2003) China, and Iran(Ghafari et al., 2018) have been investigated. These all-natural methods present encouraging substitutes for controlling menstruation wellness.

Numerous alternative remedies'(Wal et al., 2023) effectiveness in treating dysmenorrhea has been examined in recent research. Significant improvements in quality of life and pain alleviation have been demonstrated by acupuncture treatments. Practices like yoga and pranayama have also been shown to lessen menstruation discomfort and symptoms. It has been discovered that traditional Siddha(Ahmed & Thomas, 2016; Samraj et al., 2014) and Unani(Sultana et al., n.d.) treatments, such as meditation and herbal remedies, are successful in reducing the symptoms of dysmenorrhea. Menstrual discomfort may also be lessened with physiotherapy techniques(López-Liria et al., 2021; Sharma &Gurprasad, 2019) like heat therapy and pelvic floor exercises.

The current study investigates the efficacy of traditional Indian herbal remedies, acupuncture, yoga, pranayama, and physiotherapy in alleviating dysmenorrhea symptoms. Specifically, this study focuses on Exploring the therapeutic potential of Indian herbs such as(herbs name). This study aims to provide evidence-based insights into the effectiveness of these alternative therapies, addressing existing research gaps and contributing to the development of comprehensive treatment strategies for dysmenorrhea. From the literature found that herbal therapies are frequently used to address woman health issues. Additionally, these results provide insight into several evidence-based herbal remedies. for their effectiveness and safety in treating the symptoms of Dymennorhea. These treatments would be

used as alternatives to NSAIDs and other hormonal therapy since they are more well-liked by patients and have less side effects.

These findings suggest that alternative therapies can serve as valuable adjuncts or alternatives to conventional treatments for dysmenorrhea.

### **1.1 Should NSAIDs be used as a primary treatment for primary dysmenorrhea**

The mechanism of action of nonsteroidal anti-inflammatory drugs (NSAIDs) involves the inhibition of the enzyme that facilitates the conversion of arachidonic acid into cyclic endoperoxides, known as cyclooxygenase (COX). This process ultimately leads to a decrease in the production of prostaglandins (PGs). As a result, lower levels of PGs contribute to reduced uterine contractions and, consequently, less discomfort as shown in the Fig 2. Therefore, NSAIDs primarily relieve pain associated with primary dysmenorrhea by inhibiting the synthesis of endometrial prostaglandins. Despite being the preferred treatment for primary dysmenorrhea, NSAIDs have certain drawbacks, including the potential to inhibit both COX-1 and COX-2, which can result in adverse effects.(Xu et al., 2017)

**2.0 Herbs Used In The Treatment Of Primary Dysmenorrhea**(Aboualsoltani et al., 2020; Adib Rad et al., 2018; Afroze et al., 2022; Agarwal & Chaudhary, 2023; Bhatia et al., 2015; Bolkar et al., 2023; Goel & Maurya, 2019; Mohammadi & Akhondzadeh, 2015; Varhadi et al., n.d.; Xu et al., 2020)

For thousands of years, herbal medicine has served as a means to manage menstruation and its accompanying symptoms. The popularity of these natural remedies has surged, attributed to their perceived safety and effectiveness in regulating the menstrual cycle, mitigating pain and discomfort, and promoting overall health. There are several herbal remedies for treatment of primary dysmenorrhea are shown in the Fig 3. The herbs used mostly in india are shown in Table 1.(Bhatia et al., 2015)

### **2.1 *Petroselinum Crispum*(Parsley):**

Parsley possesses the ability to regulate menstrual cycles and alleviate pain. It can be effectively consumed as a juice combined with a variety of vegetables, including carrots, beetroots, cucumbers, and tomatoes, to achieve beneficial outcomes.

### **2.2 *Mentha piperita L.* (Mint, Pudina):**

The medicinal properties of mint have been employed to address numerous ailments, including stomach issues, indigestion, nausea, and vomiting. Drinking mint tea can aid in reducing the pain linked to dysmenorrhea. *M. Piperita* is acknowledged in traditional medicine for its antispasmodic characteristics, which act on smooth muscles by inhibiting contractions that are triggered by cell depolarization and by blocking calcium channels. The herb has a distinctive pungent flavor and produces an extract that can be greenish-yellow, pale yellow, or colorless, obtained through the distillation of fresh twigs and flowers. Research comparing the effects of *M. Piperita* extract to ibuprofen indicated a notable decrease in pain levels.

### **2.3 *Coriandrum sativum L.* (Coriander):**

Traditionally, Ayurvedic practices in India have highlighted the use of coriander as a remedy for dysmenorrhea. The recommended method of consumption involves boiling a few fresh coriander stems in water, which is thought to help reduce the discomfort associated with dysmenorrhea.

### **2.4 *Cinnamomum verum* (Cinnamon, Dalchini):**

As one of the oldest spices known to humanity, cinnamon is not only valued for its flavor but also for its medicinal qualities. It is effective in relieving menstrual cramps and has been associated with several health benefits, including the reduction of LDL cholesterol, stabilization of blood sugar levels, and potential protective effects against heart disease and cancer.

### **2.5 *Viburnum opulus L.* and *Viburnum prnifolium L.* (Cramp Bark & Black Haw):**

These herbs are among the most effective for alleviating uterine spasms and cramps. Known as sister herbs, cramp bark and black haw provide significant relief from pain and muscle contractions in the uterus. Research indicates that these herbs are safe for use in the days leading up to menstruation, serving as a preventive

measure against painful cramps. I can personally vouch for the remarkable pain-relieving properties of these plants. In my opinion, they are among the best options to keep readily available for any menstrual discomfort, and I prefer them over non-steroidal anti-inflammatory drugs (NSAIDs). Additionally, unlike NSAIDs, these herbs do not pose a risk of liver damage.

### **2.6 *Actaea racemosa L.* (black cohosh):**

This plant exhibits significant anti-inflammatory properties and is effective in alleviating spasms in both smooth and skeletal muscles, particularly those associated with pain radiating to the lower back and thighs. Black cohosh, named for its dark roots, is native to Canada and the United States and flourishes from June to September. It is utilized in the treatment of various medical conditions, including rheumatoid arthritis, kidney issues, sore throat, joint inflammation, malaria, menstrual cramps, and labor pain. Black cohosh can be consumed in the form of tea or capsules, such as Remifemin, which contains 20 mg of black cohosh extract. For menopausal symptoms, a dosage of 20 to 40 mg is recommended. According to the guidelines set by the American College of Obstetrics and Gynecology, black cohosh may be used as a herbal treatment for a duration of six months or less during menopause. Agrimony (*Agrimonia pilosula*) and shepherd's purse (*Capsella bursa-pastoris*) are well-known herbs in China, Europe, and Germany, recognized for their ability to reduce bleeding and manage excessive menstruation by promoting blood coagulation by up to 50%. Additionally, shepherd's purse serves as a urinary antiseptic and anti-haemorrhagic agent, containing vitamin C, potassium salts, flavonoids, and rutin, which are beneficial in cases of mild menorrhagia and metrorrhagia.

### **2.7 *Matricaria chamomilla L.* (Babuna, Chamomile):**

This delicate flower possesses both anti-inflammatory and antispasmodic properties. It is particularly beneficial for women suffering from digestive constipation that leads to discomfort. Additionally, as a nervine and mild sedative, this herb may aid in alleviating stress, calming the nervous system, and promoting a state of relaxation within the body. Such qualities can be especially advantageous during episodes of menstrual cramping that are accompanied by anxiety and irritability. It is recommended to consume chamomile as a tea during menstruation.

### **2.8 *Zingiber officinale* Rosc. (Ginger, Aadu, Adrak):**

Ginger has a long-standing history of being utilized for the treatment of various health issues, including arthritis, colic, diarrhoea, and cardiovascular conditions. To alleviate dysmenorrhea, ginger can be prepared by boiling it in water and consuming the infusion at least three times daily. Studies and clinical trials led by OZGOLI et al. in Iran indicate that ginger possesses analgesic properties comparable to those of mefenamic acid or ibuprofen, making it a viable option among home remedies for dysmenorrhea.

### **2.9 *Foeniculum vulgare* Mill (Fennel, Saunf):**

The compound anethole found in fennel exhibits anti-spasm properties and contributes to its crunchy texture similar to that of celery, along with a flavour profile reminiscent of liquorice, which can aid in relieving menstrual cramps. Research published in 2015 highlighted that fennel and vitagnus were more effective than mefenamic acid after a two-day intervention involving 105 women with primary dysmenorrhea, as reported in the Iranian Journal of Nursing and Midwifery Research.

### **2.10 *Pycnogenol*( Pine Bark):**

Pycnogenol, a supplement extracted from the bark of the *Pinus maritima* tree, is recognized for its pain-relieving properties. A 2014 study demonstrated that the use of Pycnogenol in conjunction with oral contraceptives for three months resulted in a reduction of pain. However, the Cochrane review did not find significant evidence to support the effectiveness of this herb for other chronic ailments.

### **2.11 *Fagopyrum esculentum*(Buckwheat):**

Buckwheat (*Fagopyrum esculentum*) is an herb that contains rutin, a flavonoid known for its ability to manage bleeding and decrease the fragility of capillaries.

### **2.12 *Ananas comosus* L. (Pineapple):**

The pineapple fruit (*Ananas comosus* (L.)) serves not only as a culinary delight but also as a meat tenderizer and a treatment for inflammatory conditions. It contains a complex of compounds, notably bromelain, which functions as a protease inhibitor. This compound is effective in alleviating symptoms such as irritation, cramps, and



bloating associated with menstruation. Additionally, bromelain promotes healing of post-traumatic wounds and acts as an immune modulator, exhibiting anti-tumor and anti-cancer properties. Consequently, bromelain derived from pineapple is regarded as a promising phytomedicine, particularly in alleviating primary dysmenorrhea pain through its herbal properties.

### **2.13 *Hypericum Perforatum* (Kalamath weed, Besani):**

St. John's wort, scientifically known as *Hypericum perforatum*, has demonstrated efficacy in treating a variety of conditions, including nerve pain (neuralgia), insomnia, inflammation, confusion, emotional distress, headaches, tension, anxiety, and depression (NCCAM 2014). Additionally, it has been reported to enhance coordination, reduce food cravings, and alleviate pain and mood-related symptoms (Canning 2010). The extract of St. John's wort is also beneficial for managing irritability, insomnia, sciatica, irregular menstrual cycles, and rheumatoid arthritis, while exerting an influence on the serotonergic system (Ghazanfarpour 2011). In an open-label study involving 19 women with premenstrual syndrome (PMS), participants received St. John's wort extract over two menstrual cycles, resulting in an average symptom score reduction of 51% by the conclusion of the trial, with two-thirds of the participants experiencing a 50% decrease in symptom severity (Stevinson 2000).

### **2.14 *Valeriana Officinalis* (Thagarmool):**

Since the 11th century, *V. Officinalis* has been recognized in traditional medicine for its roles as a menstruating herb and a sedative agent. However, clinical trials have demonstrated that it does not significantly affect the duration or severity of menstrual bleeding. The roots of *V. Officinalis* contain valerian essential oil, which is rich in valepotriates, known for their sedative, diuretic, and muscular antispasmodic properties, as well as the presence of valerenic acid. This compound is noted for its ability to inhibit cell depolarization and contraction while blocking calcium channels. Various studies comparing the effects of *V. Officinalis* roots against a placebo and mefenamic acid have indicated that *V. Officinalis* is effective in reducing pain compared to the placebo, with similar results observed when compared to mefenamic acid. Additionally, research involving *V. Officinalis* capsules has shown a reduction in dysmenorrhea symptoms when assessed post-intervention

## **2.15 Medicinal plants used in South Africa for Dysmenorrhoea (Steenkamp, 2003)**

The majority of plants in South Africa are employed to support fertility. Fertility is a central aspect of the culture among black South Africans, as it is vital for the survival and expansion of the tribe. This cultural significance likely accounts for the wide array of plants utilized in combating infertility. Estimates suggest that infertility rates in various parts of Africa fall between 30% and 50%. The plants most commonly used for dysmenorrhoea are detailed in Table 2.

## **3.0 Alternative Therapies**

### **3.1 Yoga** (Dauneria & Keswani, n.d.; Jiménez-Rejano et al., 2019; Kanchibhotla et al., 2023; Mário Nunes da Silva et al., n.d.; More et al., n.d.; Nag & Kodali, 2013; Roshi, 2017; S et al., 2018; Utami et al., 2024)

Yoga addresses the individual holistically, fostering a balance between mind and body. The practice of asana, or yogic postures, enhances both muscle strength and flexibility, thereby promoting diaphragmatic breathing. In a similar vein, relaxation and meditation contribute to diaphragmatic breathing by alleviating both physical and emotional tension. The asanas serve to invigorate and regulate the functions of muscles, internal organs, glands, as well as the vascular, nervous, and lymphatic systems. The benefits of relaxation techniques may be partially attributed to a nonspecific reduction in brain activation, resulting from diminished sensory input from both internal and external stimuli. Furthermore, the reduction of anxiety and depression through these techniques positively affects the emotional aspects of pain. The importance of local relaxation in areas of pain cannot be overstated, as it is achieved through the engagement of opposing muscle groups. Gentle stretching yields similar benefits, while strengthening weakened muscles and correcting poor postures can also provide relief from pain.

As of late 2002, yoga was increasingly being recommended for dysmenorrhea, premenstrual syndrome, and other diseases. Dysmenorrhea occurs when the ovaries secrete an elevated level of progesterone during menstruation. The increased progesterone leads to heightened tension in the cervix, causing it to

narrow. Consequently, the uterine muscles contract more forcefully to expel menstrual blood, which can lead to muscle spasms and associated pain. Engaging in physical activities such as abdominal stretching or yoga stimulates the brain to release endorphins, which enhance relaxation and comfort by increasing estrogen levels and producing beta-endorphins. This biochemical response promotes a sense of well-being and optimizes oxygen delivery to the muscles, including the pelvic and reproductive areas, particularly the uterus, thereby alleviating menstrual pain.

Specific asana as shown in Fig 4 targets the abdominal region can enhance blood flow to the uterus, preventing anaerobic metabolism that leads to lactic acid production, which is associated with fatigue, discomfort, and muscle cramps.

Additionally, these exercises help to relax the endometrial muscles, which may experience spasms and ischemia due to elevated prostaglandin levels. This relaxation facilitates vasodilation, improving blood circulation to affected organs and contributing to pain relief.

Thus, Yoga is being explored as a non-pharmacological, cost-effective and feasible alternative that can benefit women with dysmenorrhea.

### **3.2 Acupuncture**(Kong et al., 2023; Smith et al., 2011; Wang et al., 2021; Witt et al., 2008; Woo et al., 2018a, 2018b; Zhai et al., 2024; Zhang et al., 2018)

Acupuncture therapy is increasingly preferred by women experiencing dysmenorrhea due to its simplicity and effectiveness. This treatment option is convenient and cost-effective, making it accessible to a wider audience. - Additionally, acupuncture is associated with minimal risk, as it does not produce toxic effects or significant side effects. Acupuncture is recognized for its ability to increase the levels of endorphins, serotonin, and acetylcholine within the central nervous system, contributing to pain relief. By stimulating specific receptors or nerve fibers, acupuncture effectively obstructs pain impulses through the interaction of intermediates like serotonin and endorphins, thereby alleviating the intensity of dysmenorrhea.(Fig 5) Systematic reviews indicate that various acupuncture techniques may offer greater efficacy compared to placebo, herbal treatments, and non-steroidal anti-inflammatory drugs

(NSAIDs) in managing pain associated with primary dysmenorrhea, establishing acupuncture as a viable therapeutic option.

### **3.3 Heat Therapy**(Saji et al., 2021; Wal et al., 2023)

Heat therapy is a prevalent approach for managing dysmenorrhea. It is estimated that between 37% and 50% of women suffering from menstrual pain resort to heat for relief. Evidence suggests that applying heat topically can alleviate muscle spasms by decreasing muscular tension and relaxing the abdominal muscles. Additionally, the application of heat enhances blood circulation in the pelvic area, which assists in the removal of localized blood and fluid retention, mitigates congestion and swelling, and reduces discomfort associated with nerve compression. Heat applied to the skin in the form of hot water bags, towels, or bottles has long been used to treat menstrual pain.

### **3.4 Nutritional Management** (Bolkar et al., 2023; Figure 1. Hormone Levels and Endometrial Changes During the Normal Menstrual Cycle, n.d.-b)

#### **3.4.1 Essential Fatty Acids**

Nutrients that are recognized for enhancing the conversion of essential fatty acids (EFAs) to anti-inflammatory series 1 prostaglandins (PGs) comprise magnesium, vitamin B6, zinc, niacin, and vitamin C. Given the limited presence of gamma-linolenic acid (GLA) or dihomo-gamma-linolenic acid (DGLA) in the typical human diet, the supplementation of GLA-rich evening primrose oil or borage seed oil may significantly diminish the synthesis of pro-inflammatory PGs, promoting instead the production of anti-inflammatory PGs.

#### **3.4.2 Magnesium**(Begum et al., n.d.)

The involvement of magnesium in dysmenorrhea can be attributed to multiple mechanisms, including its capacity to directly influence vascular tone and function as a natural calcium channel blocker, thereby regulating calcium entry into smooth muscle cells and affecting uterine muscle contractility and relaxation. Additionally, magnesium is essential for the production of cyclic AMP (cAMP) from adenosine

triphosphate (ATP), which is vital for effective communication between gonadotropins such as LH and FSH and the ovaries. Furthermore, magnesium facilitates the conversion of linoleic acid (LA) to gamma-linolenic acid (GLA), a critical step in the synthesis of anti-inflammatory prostaglandin series 1, and may also play a role in inhibiting the production of PGF2 $\alpha$ , while being significant in estrogen conjugation and the activation of B vitamins, particularly vitamin B6.

### **3.4.3 Vitamin B6**

Vitamin B6 (pyridoxine hydrochloride) serves as a crucial cofactor in the transformation of linoleic acid (LA) to dihomo-gamma-linolenic acid (DGLA), facilitating the synthesis of anti-inflammatory prostaglandins (PGs). It is essential for the enzymatic processes related to estrogen conjugation within the liver and contributes to the production of various neurotransmitters. Additionally, Vitamin B6 enhances the transfer of magnesium across cell membranes and elevates intracellular magnesium levels, which is significant for muscle relaxation.

### **3.4.4 Fish Oil**(Khan et al., 2012)

The primary action of a 1000 mg/day fish oil capsule involves the inhibition of prostaglandin production. Research conducted by Zamani et al. indicates that fish oil is equally effective in managing primary dysmenorrhea. This investigation assessed the impact of administering 4 g/day of fish oil in comparison to a placebo. The findings reveal that fish oil demonstrates greater efficacy than the placebo in alleviating primary dysmenorrhea.

### **3.5 Aromatherapy**(Bolkar et al., 2023)

Aromatherapy is a therapeutic practice that employs essential oils derived from plants to enhance the well-being of the body, mind, and spirit. These essential oils are volatile substances obtained from aromatic plant materials through processes such as steam distillation or mechanical extraction. Composed of various chemical constituents, essential oils contain metabolites that can be sourced from multiple plant varieties. The primary chemical constituents of essential oils include monoterpenes, esters, aldehydes, ketones, alcohols, phenols, and oxides, all of which are volatile and produce unique fragrances. Consequently, essential oils can

exhibit a range of chemotypes, each characterized by distinct chemical compositions and potentially differing therapeutic effects. Aromatherapy is utilized or believed to be beneficial for an array of symptoms and health conditions. Additionally, it may serve as a means of alleviating stress or anxiety, as well as a topical remedy for skin ailments. The essential oils comprise Aamhaldi, Chinese motherwort, *Curcuma longa* (rhizomes), *Prunus persica*, *Carthamus tinctorius*, *Siphonostegia chinensis*, *Salvia miltiorrhiza*, cyathula terpenoids, disqui-aliphatic compounds, and phthalates. *Curcuma phaeocaulis* essential oil promotes uterine relaxation by restricting the influx of extracellular  $Ca^{2+}$  and facilitating the release of intracellular  $Ca^{2+}$ , making it a potential treatment for dysmenorrhea.

## **5.0 Conclusion**

Dysmenorrhea, marked by menstrual cramps and irregular bleeding, impacts millions of women globally. This review explored various alternative therapies aimed at alleviating symptoms, with a particular emphasis on Indian herbal remedies, acupuncture, yoga, pranayama, and physiotherapy.

The findings suggest that Indian herbal remedies may effectively reduce menstrual pain and irregularities. Acupuncture has been shown to provide significant pain relief and enhance overall quality of life. Additionally, structured yoga and pranayama practices have been found to ease menstrual symptoms. Physiotherapy methods, including heat therapy and pelvic floor exercises, also contribute to pain reduction. These alternative therapies present viable options for managing dysmenorrhea. Incorporating these approaches into traditional treatment strategies could improve patient outcomes.

The implications of this study are significant for healthcare providers, who should consider integrating alternative therapies into their treatment plans, and for patients, who are encouraged to explore these options under professional supervision. This review underscores the potential of alternative therapies in managing dysmenorrhea, laying the groundwork for future research and clinical practices aimed at enhancing menstrual health and overall well-being.

## **References**

Aboualsoltani, F., Bastani, P., Khodaie, L., Mohammad, S., & Fazljou, B. (2020). *Non-Pharmacological Treatments Of Primary Dysmenorrhea: A Systematic Review*.

Adib Rad, H., Basirat, Z., Bakouei, F., Moghadamnia, A. A., Khafri, S., Farhadi Kotenaie, Z., Nikpour, M., & Kazemi, S. (2018). Effect Of Ginger And Novafen On Menstrual Pain: A Cross-Over Trial. *Taiwanese Journal Of Obstetrics And Gynecology*, 57(6), 806–809. <https://doi.org/10.1016/J.Tjog.2018.10.006>

Afroze, C. A., Ahmed, M. N., Jahan, R., & Rahmatullah, M. (2022). Evaluation Of Herbal Ingredients Used In An Ethno-Polyherbal Formulation For Treating Menorrhagia And Dysmenorrhea In Bangladesh. *Phytomedicine Plus*, 2(4). <https://doi.org/10.1016/J.Phyplu.2022.100366>

Agarwal, D., & Chaudhary, P. (2023). Effect Of Turmeric–Boswellia–Sesame Formulation In Menstrual Cramp Pain Associated With Primary Dysmenorrhea—A Double-Blind, Randomized, Placebo-Controlled Study. *Journal Of Clinical Medicine*, 12(12). <https://doi.org/10.3390/jcm12123968>

Ahmed, K., & Thomas, B. (2016). Medicinal Plants Of Siddha System Of Medicine And Their Diversity Status In Southern Western Ghats Of Coimbatore District, Tamil Nadu, India. *Devagiri Journal Of Science*, 2(1), 95–112. [www.devagirijournals.com](http://www.devagirijournals.com)

Begum, M., Das, S., & Sharma, H. K. (N.D.). Impact Factor ( GIF): 0.615 Impact Factor (SJ IF): 2.092 June-Aug Ust 2016; 4(2): 307-320 Menstrual Disorders: Causes And Natural Remedies. *J Pharm Chem Biol Sci*, 4(2), 307–320.

Bezuidenhout, S., Jackson Mahlaba, K., Phola Nxumalo, G., & Catharina Meyer, J. (2018). Dysmenorrhoea: An Overview. In *Article In SA Pharmaceutical Journal* (Vol. 85, Issue 4). <https://www.researchgate.net/publication/328488601>

Bhatia, H., Pal Sharma, Y., Manhas, R. K., & Kumar, K. (2015). Traditional Phytoremedies For The Treatment Of Menstrual Disorders In District Udhampur, J&K, India. *Journal Of Ethnopharmacology*, 160, 202–210. <https://doi.org/10.1016/j.jep.2014.11.041>

Bolkar, P. E., Sanap, G. S., & Shelke, P. A. (2023). Review: Effect Of Medicinal Herbs On Dysmenorrhoea. ~ 150 ~ *Journal Of Pharmacognosy And Phytochemistry*, 12(2). <https://www.phytojournal.com>

Dauneria, S., & Keswani, J. (N.D.). A Study On The Effect Of Yoga And Naturopathy On Dysmenorrhea. In *International Journal Of Yoga And Allied Sciences* (Issue 1).

*Figure 1. Hormone Levels And Endometrial Changes During The Normal Menstrual Cycle.* (N.D.-A).

Ghafari, S., Tavakoli, Z., Shirooyeh, P., Meybodi, R. N., Behmanesh, E., Mokaberinejad, R., Tansaz, M., & Fahimi, S. (2018). Traditional And Integrative Medicine The Herbal Medicine Proposed By Iranian Traditional Medicine (Persian

Medicine) For Treatment Of Primary Dysmenorrhea: A Review. In *Traditional & Integrative Medicine* (Vol. 3, Issue 1). <http://jtim.tums.ac.ir><http://jtim.tums.ac.ir>

Goel, B., & Maurya, N. K. (2019). Overview On: Herbs Use In Treatment Of Primary Dysmenorrhea (Menstrual Cramps). *Advances In Zoology And Botany*, 7(3), 47–52. <https://doi.org/10.13189/azb.2019.070302>

Imam, S. T., & Imam, S. S. (2023). The Cream Which Relieves The Pain Of Menstrual Cramps Without Interfering With The Hormones Or Period Cycle. *Research Journal Of Pharmacy And Technology*, 16(3), 1239–1246. <https://doi.org/10.52711/0974-360x.2023.00205>

Jiménez-Rejano, J., Medrano-Sanchez, E., De La Casa-Almeida, M. P., Diaz-Mohedo, E., Suarez-Serrano, C., Carroquino-Garcia, P., Jesús Jiménez-Rejano, J., Medrano-Sanchez, E., De La Casa-Almeida, M., Diaz-Mohedo, E., & Suarez-Serrano, C. (2019). Therapeutic Exercise In The Treatment Of Primary Dysmenorrhea: A Systematic Review And Meta-Analysis. In *Phys Ther* (Vol. 99). <https://academic.oup.com/ptj>

Joseph Mafuyai, M. (N.D.-A). Dysmenorrhea: Dysmenorrhoea: Pain Relief Strategies Among A Cohort Of Undergraduates In Nigeria. In *International Journal Of Medicine And Biomedical Research* (Vol. 2, Issue 2). [www.ijmbr.com](http://www.ijmbr.com)

Joseph Mafuyai, M. (N.D.-B). Dysmenorrhea: Dysmenorrhoea: Pain Relief Strategies Among A Cohort Of Undergraduates In Nigeria. In *International Journal Of Medicine And Biomedical Research* (Vol. 2, Issue 2). [www.ijmbr.com](http://www.ijmbr.com)

Kanchibhotla, D., Subramanian, S., & Singh, D. (2023). Management Of Dysmenorrhea Through Yoga: A Narrative Review. In *Frontiers In Pain Research* (Vol. 4). Frontiers Media S.A. <https://doi.org/10.3389/fpain.2023.1107669>

Khan, K. S., Champaneria, R., & Latthe, P. M. (2012). How Effective Are Non-Drug, Non-Surgical Treatments For Primary Dysmenorrhoea? In *BMJ (Online)* (Vol. 344, Issue 7858). <https://doi.org/10.1136/bmj.e3011>

Kong, X., Fang, H., Li, X., Zhang, Y., & Guo, Y. (2023). Effects Of Auricular Acupressure On Dysmenorrhea: A Systematic Review And Meta-Analysis Of Randomized Controlled Trials. In *Frontiers In Endocrinology* (Vol. 13). Frontiers Media S.A. <https://doi.org/10.3389/fendo.2022.1016222>

López-Liria, R., Torres-Álamo, L., Vega-Ramírez, F. A., García-Luengo, A. V., Aguilar-Parra, J. M., Trigueros-Ramos, R., & Rocamora-Pérez, P. (2021). Efficacy Of Physiotherapy Treatment In Primary Dysmenorrhea: A Systematic Review And Meta-Analysis. In *International Journal Of Environmental Research And Public Health* (Vol. 18, Issue 15). MDPI AG. <https://doi.org/10.3390/ijerph18157832>

Mário Nunes Da Silva, J., Macêdo De Araújo, L., Tavares Bastos, W., & Lima Ventura, P. (N.D.). *Pain Improvement In Women With Primary Dysmenorrhea Treated With Pilates\* Diminuição Da Dor Em Mulheres Com Dismenorreia Primária, Tratadas Pelo Método Pilates.*



Mohammadi, M. R., & Akhondzadeh, S. (2015). Herbal Medicine In The Treatment Of Primary Dysmenorrhea. In *Article In Journal Of Medicinal Plants*. [www.sid.ir](http://www.sid.ir)

More, T. S., Chopkar, S. K., Shinde, P., & Scholar, P. G. (N.D.). "Effect Of Yoga Therapy On Primary Dysmenorrhea In Adolescent Females"-A Literary Review. <https://doi.org/10.20959/wjpr20194-14530>

Nag, U., & Kodali, M. (2013). Meditation And Yoga As Alternative Therapy For Primary Dysmenorrhea. In *Usha Nag et al Meditation And Yoga As Alternative Therapy For Primary Dysmenorrhea Int J Med Pharm Sci* (Issue 07).

Roshi, M. (2017). Yoga An Effective, Alternative And Cost Effective Approach Towards Management Of Dysmenorrhea. *World Journal Of Pharmaceutical Research*, 1830–1836. <https://doi.org/10.20959/wjpr20177-8967>

S, V., Padmanabhan, K., Sudhakar, S., Aravind, S., Praveen Kumar, C., & Monika, S. (2018). Efficacy Of Yoga Asana And Gym Ball Exercises In The Management Of Primary Dysmenorrhea: A Single-Blind, Two Group, Pretest-Posttest, Randomized Controlled Trial. *CHRISMED Journal Of Health And Research*, 5(2), 118. [https://doi.org/10.4103/cjhr.cjhr\\_93\\_17](https://doi.org/10.4103/cjhr.cjhr_93_17)

Saji, A., Sunil, K. A., John, A. M., B., A. K., & Thomas, A. A. (2021). Prevalence Of Symptoms During Menstruation And Its Management Among Adolescent Girls. *International Journal Of Community Medicine And Public Health*, 8(9), 4325. <https://doi.org/10.18203/2394-6040.ijcmph20213532>

Samraj, K., Thillaivanan, S., & Kanagavalli, K. (2014). An Update On Siddha Herb Korai (Cyperus Rotundus, L.): A Review. *International Journal Of Pharmacognosy*, 1(4), 233–275. [https://doi.org/10.13040/ijpsr.0975-8232.ijp.1\(4\).233-42](https://doi.org/10.13040/ijpsr.0975-8232.ijp.1(4).233-42)

Sharma, U., & Gurprasad, P. (2019). Immediate Effects Of Physiotherapy V/S Yoga Therapy On Symptoms Of Dysmenorrhea. *International Journal Of Scientific Research In Science And Technology*, 298–308. <https://doi.org/10.32628/ijrst196440>

Smith, C. A., Crowther, C. A., Petrucco, O., Beilby, J., & Dent, H. (2011). Acupuncture To Treat Primary Dysmenorrhea In Women: A Randomized Controlled Trial. *Evidence-Based Complementary And Alternative Medicine*, 2011. <https://doi.org/10.1093/ecam/nep239>

Steenkamp, V. (2003). Traditional Herbal Remedies Used By South African Women For Gynaecological Complaints. *Journal Of Ethnopharmacology*, 86(1), 97–108. [https://doi.org/10.1016/s0378-8741\(03\)00053-9](https://doi.org/10.1016/s0378-8741(03)00053-9)

Sultana, K., Fatma, S., Zaidi, S. S., Khan, S., & Scholar, P. G. (N.D.). *European Journal Of Pharmaceutical And Medical Research Wwww.Ejpmr.Com 243 Primary Dysmenorrhoea And Its Management In Unani System Of Medicine*. [www.ejpmr.com](http://www.ejpmr.com)

Utami, A. P., Silviana R, E., & Sari, N. (2024). The Effect Of Vinyasa Yoga On Reducing The Intensity Of Primary Dysmenorrhoea In Adolescents Girl At Ma Manbail Futuh (In Krajan Hamlet, Beji Village, Jenu District, Tuban District). In *Int. J. Midwifery Res Utami Et Al* (Vol. 4, Issue 1).

Varhadi, S., Wagh, S., &Walunj, A. (N.D.). Exploring The Efficacy Of Herbal Medicine In Managing Menstrual Disorders: A Comprehensive Review. In *International Journal Of Pharmacy And Herbal Technology* (Vol. 2, Issue 2).

Wal, P., Gupta, D., Wal, A., Pandey, S. S., & Krishnan, K. (2023). A Wholistic Approach To Non-Pharmacological Intervention For Primary Dysmenorrhea. *Current Women S Health Reviews*, 20(1). <https://doi.org/10.2174/1573404819666230109105829>

Wang, Y., Xu, J., Zhang, Q., Zhang, Q., Yang, Y., Wei, W., Guo, X., Liang, F., Yu, S., & Yang, J. (2021). Immediate Analgesic Effect Of Acupuncture In Patients With Primary Dysmenorrhea: A Fmri Study. *Frontiers In Neuroscience*, 15. <https://doi.org/10.3389/fnins.2021.647667>

Witt, C. M., Reinhold, T., Brinkhaus, B., Roll, S., Jena, S., & Willich, S. N. (2008). Acupuncture In Patients With Dysmenorrhea: A Randomized Study On Clinical Effectiveness And Cost-Effectiveness In Usual Care. *American Journal Of Obstetrics And Gynecology*, 198(2), 166.E1-166.E8. <https://doi.org/10.1016/j.ajog.2007.07.041>

Woo, H. L., Ji, H. R., Pak, Y. K., Lee, H., Heo, S. J., Lee, J. M., & Park, K. S. (2018a). The Efficacy And Safety Of Acupuncture In Women With Primary Dysmenorrhea: A Systematic Review And Meta-Analysis. In *Medicine (United States)* (Vol. 97, Issue 23). Lippincott Williams And Wilkins. <https://doi.org/10.1097/md.0000000000011007>

Woo, H. L., Ji, H. R., Pak, Y. K., Lee, H., Heo, S. J., Lee, J. M., & Park, K. S. (2018b). The Efficacy And Safety Of Acupuncture In Women With Primary Dysmenorrhea: A Systematic Review And Meta-Analysis. In *Medicine (United States)* (Vol. 97, Issue 23). Lippincott Williams And Wilkins. <https://doi.org/10.1097/md.0000000000011007>

Xu, Y., Yang, Q., & Wang, X. (2020). Efficacy Of Herbal Medicine (Cinnamon/Fennel/Ginger) For Primary Dysmenorrhea: A Systematic Review And Meta-Analysis Of Randomized Controlled Trials. *Journal Of International Medical Research*, 48(6). <https://doi.org/10.1177/0300060520936179>

Xu, Y., Zhao, W., Li, T., Bu, H., Zhao, Z., Zhao, Y., & Song, S. (2017). Effects Of Acupoint-Stimulation For The Treatment Of Primary Dysmenorrhoea Compared With Nsaids: A Systematic Review And Meta-Analysis Of 19 Rcts. *BMC Complementary And Alternative Medicine*, 17(1). <https://doi.org/10.1186/s12906-017-1924-8>

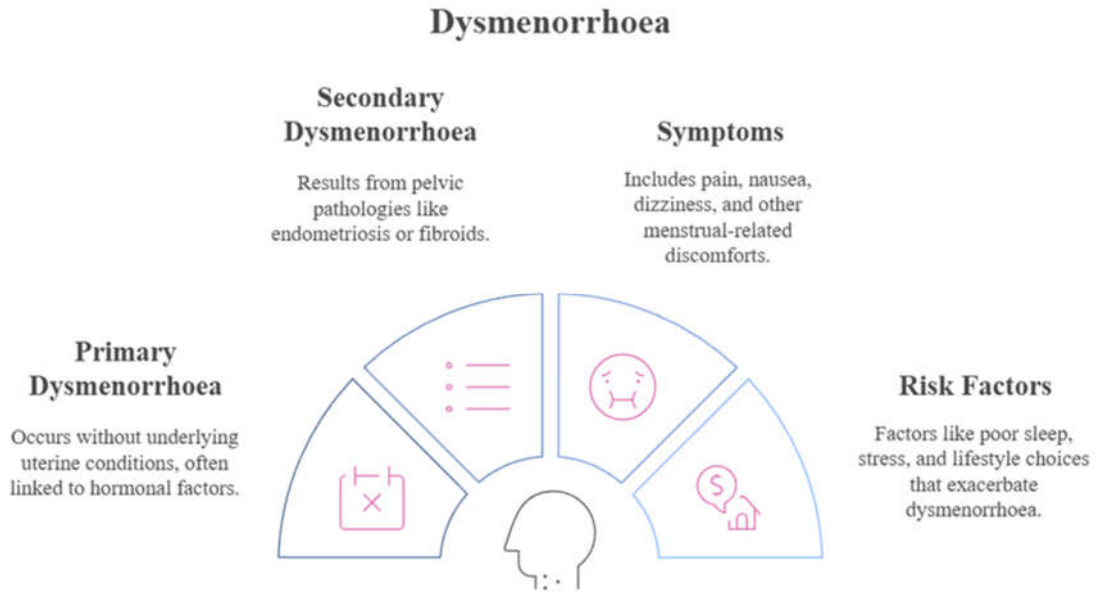
Zaman, A. Y., Alameen, A. M., Alreefi, M. M., Kashkari, S. T., Alnajdi, S. A., Shararah, A. A., Alzolaibani, S. M., & Mahrous, F. A. (2023). Comparison Of Herbal Medicines And Pain Relief Medications In The Treatment Of Primary

Dysmenorrhoea Among Female Medical Students At Taibah University. *Journal Of Taibah University Medical Sciences*, 18(3), 455–460. <https://doi.org/10.1016/j.jtumed.2022.10.015>

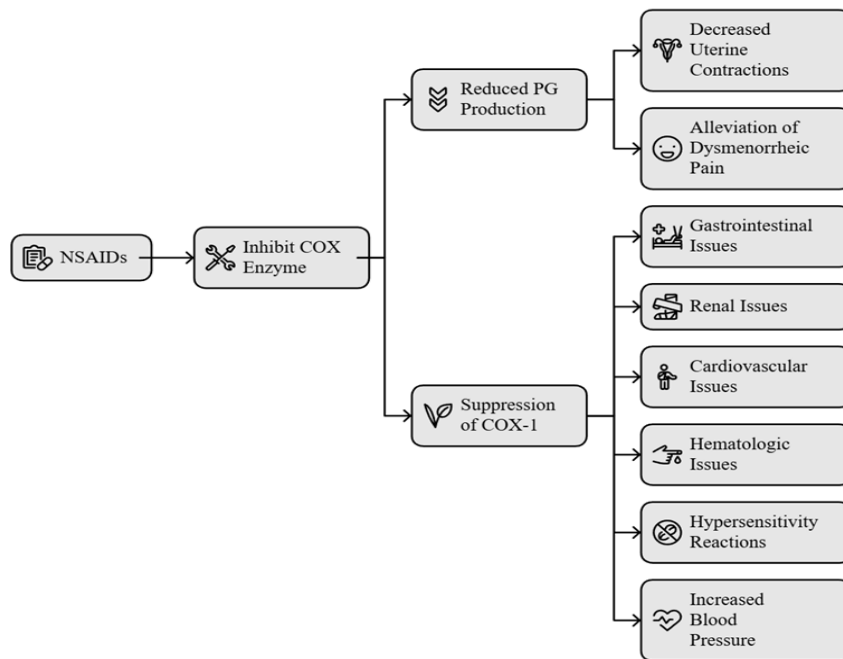
Zeraati, F., Shobeiri, F., Nazari, M., Araghchian, M., Araghchian, M., & Bekhradi, R. (2014). Comparative Evaluation Of The Efficacy Of Herbal Drugs (Fennelin And Vitagnus) And Mefenamic Acid In The Treatment Of Primary Dysmenorrhea. In *Article In Iranian Journal Of Nursing And Midwifery Research* (Vol. 19). <https://www.researchgate.net/publication/270715270>

Zhai, S., Wang, C., Ruan, Y., Liu, Y., Ma, R., Fang, F., & Zhou, Q. (2024). Wrist-Ankle Acupuncture For Primary Dysmenorrhea: A Randomized Controlled Trial Evaluating The Efficacy Of An Analgesic Strap. *Frontiers In Neurology* , 15. <https://doi.org/10.3389/fneur.2024.1362586>

Zhang, F., Sun, M., Han, S., Shen, X., Luo, Y., Zhong, D., Zhou, X., Liang, F., & Jin, R. (2018). Acupuncture For Primary Dysmenorrhea: An Overview Of Systematic Reviews. In *Evidence-Based Complementary And Alternative Medicine* (Vol. 2018). Hindawi Limited. <https://doi.org/10.1155/2018/8791538>



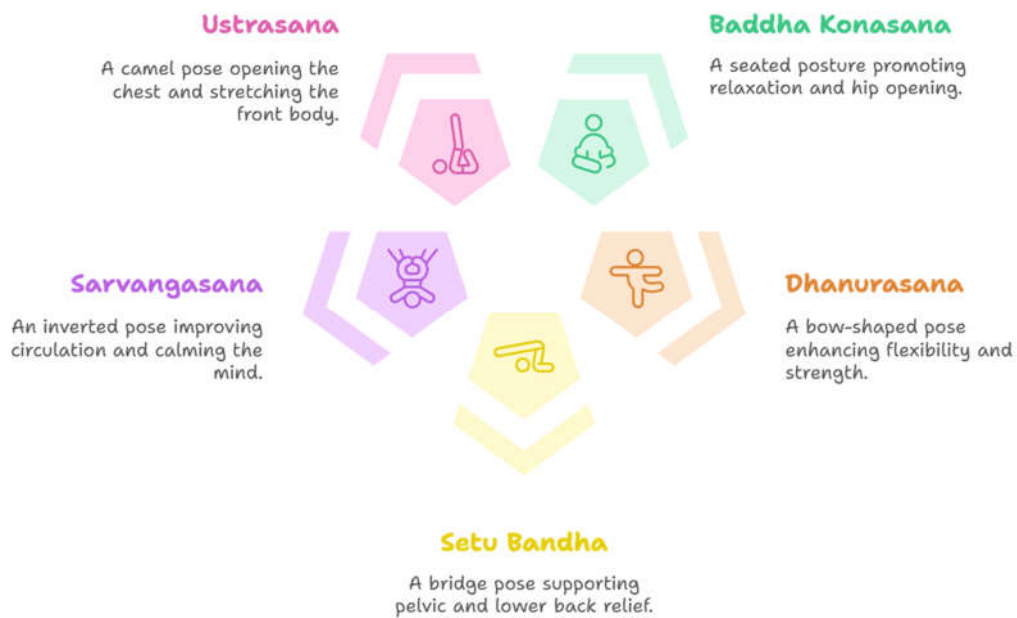
**Fig 1** Introduction



**Fig 2** Pharmacological mechanism of NSAIDs



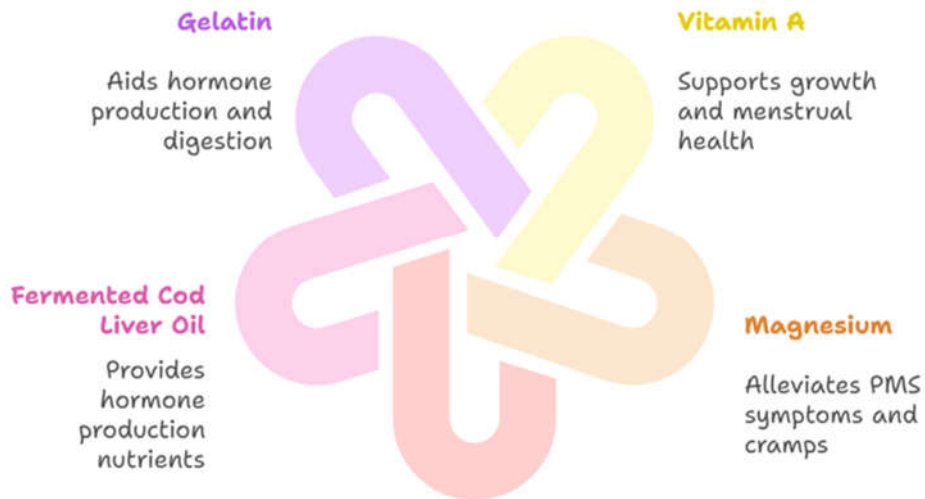
**Fig 3**Herbs used in the treatment



**Fig 4** Yoga asana'sfor pain relief



**Fig 5** Acupuncture pain relief sequence



**Fig 6** Nutrition management in dysmenorrhea

**Table 1.** Indian Plants Used For Dysmenorrhea

Sr.no.	Botanical name local name and family	Part of plant used	Marketed formulations
1.	<i>Foeniculum vulgare Mill</i> Fennel, Variyali, Sweet Fennel, Florence Fennel, Saunf Apiaceae (Umbelliferae)	Fruits and roots	Fennel seeds
2.	<i>Zingiber officinale</i> Roscoe Ginger, Aadu, Adrak Zingiberaceae	root	Ginger capsules 550mg, Ginger tablets,
3.	<i>Mentha piperita L.</i> Mint, Pudina Lamiaceae (Mint family)	leaves	Mentha powder 50gm, Mentha essential oil, Mentha cream
4.	<i>Curcuma longa L.</i> Turmeric Zingiberaceae	rhizome	Organic turmeric capsules 1420mg, Curcumin tablets 1500mg
5.	<i>Matricaria</i> chamomilla L. chamomile Asteraceae	Leaves, flowers	Chamomile flower herbal tea, Chamomile herbal infusion, Chamomile capsules 11000mg

6.	<i>Thea sinensis L.</i> green tea Theaceae	leaves	Green tea extract tablets, Green tea powder
7.	Fenugreek methi Leguminaceae	leaves	Fenugreek extract capsules, Fenugreek powder 100gm, Fenugreek tablets
8.	Withania somnifera Ashwagandha Solanaceae	Roots and berry	Organic ashwagandha 670 mg tablets, Ashwagandha capsules, Organic ashwagandha powder, Ashwagandha tincture
9.	Ocimum tenuiflorum Tulsi Lamiaceae	leaves	Tulsi extract, Vasa tulsi syrup 100ml, Tulsi powder, Tulsi tablets
10.	<i>Atropa belladonna L.</i> (belladonna) Solanaceae	roots	Donnatal tablets, Delladonna liquid dilution
11.	<i>Cinnamomum zeylanicum</i> Dalchini Lauraceae	Bark	Cinnamon extract 100ml, Cinnamon powder, Cinnamon tablets
12.	<i>Coriandrum sativum</i> Coriander	Leaves and fruits	Coriander extract 120 ml, Coriander powder,



	Apiaceae		
<b>13.</b>	<i>Ananas comosus L.</i> Pineapple Bromeliaceae	Fruits	Pineapple herbal extract capsules, Pineapple syrup,
<b>14</b>	<i>Cannabis Sativa</i> Ganja cannabinaceae	leaves	Vijayadi vati tablets 250mg, Vijaya ghrita powder.

**Table 2.** Medicinal plants used in South Africa for Dysmenorrhoea

Sr.no	Botanical family and species	Local name	Plant part
1	<i>L. edulis</i> (Sond.) Engl.	Wild grape (E)	Root
2	<i>Xylopiya parviflora</i> (A. Rich.) Benth.	Muvhulavhusiku (V)	Root
3	<i>Hyphaene coriacea</i> Gaertn.	Mulala (V)	Pith of trunk
4	<i>Xysmalobium undulatum</i> (L.) Aiton F.Asparagaceae	Ishongwe (Z; X) Milkwort (E)	Root
5	<i>A. rupestris</i> Bak	Uphondonde (V) Rock aloe (E)	root
6	<i>Kniphofia uvaria</i> (L.) Asteraceae	Oken Icacane (Z) Red-hot poker (E)	Rhizome/root
7	<i>V. glabrerrima</i> (Steetz) vatke	Not recorded	Root
8	<i>Elaeodendron transvaalense</i> (Burttt Davy) R.H. Archer (previously known as <i>Cassine transvaalensis</i> ) Clusiaceae	Umgugudo (Z)	Bark
9	<i>Commelina africana</i> L	Ucolane (Z) Lekzotswana (X) Yellow Commelina (E)	Root