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Review on Diagnosis, Treatment and Medication for Dysmenorrhea for Young to Old Age Women

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ABSTRACT

Dysmenorrhea, commonly known as menstrual pain, is a prevalent condition affecting a significant portion of women during their reproductive years. It is typically categorized into two types: primary and secondary. Primary dysmenorrhea is characterized by menstrual pain in the absence of underlying gynecological disorders, while secondary dysmenorrhea is caused by identifiable conditions such as endometriosis or fibroids. The pathophysiology of dysmenorrhea involves complex interactions between hormonal, inflammatory, and neurological factors, with prostaglandin production being a key contributor to uterine contractions and pain. The severity of symptoms can range from mild discomfort to debilitating pain, significantly impacting daily activities, quality of life, and mental health. Treatment options include pharmacological interventions such as NSAIDs, hormonal therapies, and non-pharmacological approaches like physical therapy, acupuncture, and lifestyle modifications. However, management strategies often depend on the underlying cause, particularly in secondary dysmenorrhea. Despite the high prevalence, many women do not seek medical help, which highlights the need for increased awareness and better access to care. This review explores the current understanding of dysmenorrhea's etiology, diagnostic approach, and various treatment modalities, aiming to provide an overview of the condition and suggest areas for future research and improvement in patient care.

Keywords- Dysmenorrhea, Diagnosis, treatment, pain-management.

I. INTRODUCTION

Dysmenorrhea is a Greek term for "painful monthly bleeding." [1] Dysmenorrhea can be classified as primary or secondary. Primary dysmenorrhea is recurrent lower abdominal pain that happens during the menstrual cycle and is not associated with other diseases or underlying pathology.[2] It is a diagnosis of exclusion. In contrast, secondary dysmenorrhea is associated with suspected or clinically identifiable pathology.[3] Dysmenorrhea is a common complaint among menstruating patients during their reproductive years. Dysmenorrhea may be associated with significant negative emotional, psychological, and functional health impacts.[4]

Primary dysmenorrhea classically begins within about 2 years of menarche or once ovulatory cycles have been established. It is more often a diagnosis made in adolescents and young adults. The cyclic pain starts within a few hours of the onset of menses and usually resolves within 72 hours. The pain is located midline in the pelvis and may radiate to the lumbar area of the back or upper legs.[5] It may be crampy and episodic and is usually similar in each menstrual cycle. Concomitant symptoms may include nausea, vomiting, headaches, dizziness, fatigue, and sleep difficulties.[6] Primary

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dysmenorrhea (PD)—defined as spasmodic and painful cramps in the lower abdomen that begin shortly before or at the onset of menses in the absence of any pelvic pathology—is one of the most common complaints in both young and adult females [7]. Its onset occurs mainly during adolescence, within 6 to 24 months after menarche. Dysmenorrheic pain has a clear and cyclic pattern, which is typically severe during the first day of menses and lasts up to 72 hours [8]. Despite its high prevalence and impact on daily activities, it is often inadequately treated and even disregarded, given that, many young females prefer to suffer silently, without seeking medical advice. Females consider PD an embarrassment and a taboo, and also perceive the pain as an inevitable response to menstruation, that should be tolerated [9]. Primary healthcare providers commonly encounter females with dysmenorrheic complaints [10] and thus play a substantial role in diagnosing, educating, reassuring, and providing them with the therapy required for optimizing the overall treatment outcomes of PD [11].

The onset of menstruation is the hallmark of female reproductive maturity[12]. It marks the interface between girlhood and womanhood; hence, it is an important aspect of female reproductive health[13]. Unfortunately, the onset of menstruation is usually coupled with challenges that affect between 50% and 95% of women[14]. These challenges include delayed menses, irregular menstrual periods, painful menstrual periods, and heavy menstrual bleeding, among others[15]. Of these, painful menstrual periods, clinically referred to as dysmenorrhea, are the most prominent[16]. Dysmenorrhea is characterized by mild to severe lower abdominal pain just before and/or during the menstrual period. [6] It is usually associated with headache, dizziness, bloated feeling, nausea, vomiting, backache, and leg pain[17].

Dysmenorrhea is classified into either primary or secondary types. Primary dysmenorrhea is when the condition occurs without an identifiable organic pathology[18]. In contrast, secondary dysmenorrhea results from anatomic and/or evident pelvic pathology such as endometriosis, chronic pelvic inflammatory disease, and adenomyosis[19]. The latter condition is less common compared to the former[20]. Dysmenorrhea is one of the most leading reasons for gynecological consultations[21], with a global prevalence of up to 90%[20]. Unfortunately, there is paucity of reports on the prevalence of dysmenorrhea in Zimbabwe. This may be due to ethno-societal beliefs, which perceive menstrual pain as a natural phenomenon that must be endured leading to underdiagnosis[22]. It may be because of various other factors that are yet to be explored.

Dysmenorrhea negatively affects the relationships, professional, recreational activities, and emotional well-being of sufferers[23]. Among college students and school-going girls, dysmenorrhea can be incapacitating leading to absenteeism from school or work and, in some severe cases, hospitalization, thus affecting productivity and quality of life[24]. Also, sociodemographic, lifestyle, and dietary factors such as ethnicity, place of residence, marital status, smoking cigarettes, alcohol, and coffee consumption, respectively, have all been linked to the prevalence and/or severity of dysmenorrhea[25]. Therefore, an increased understanding of the status of dysmenorrhea among women in Zimbabwe is required. This will inspire strategies to prevent or alleviate the social and financial burden dysmenorrhea place on students, families, and communities.

II. EPIDEMIOLOGY

Dysmenorrhea is the most common gynecological disorder among adolescent and young women and is a leading cause of recurrent short-term missing from school or work. Interestingly, it was not considered a medical problem until the 1970s [26]. Thus, primary dysmenorrhea is not only a gynecological problem, but also a significant problem with regard to public health, work/school performance, and family concerns, as it negatively impacts quality of life and economy [27]. Dysmenorrhea can have negative effects on social relationships, academic and work performance, psychological well-being: it is responsible for limitations in daily activities, sleep disturbances, difficulty in concentration, loss of self-confidence, and social withdrawal; however, most adolescent and young women do not seek medical attention, resorting to self-medication with suboptimal management of this disease [28]. In student academic life, pain related with dysmenorrhea has been shown to reduce concentration, and the amount of information learned [29]. In particular, one study conducted on 1720 Romanian medical students from five university centres throughout the country, reported that 63.4% believed that intensity and duration of dysmenorrhea affected their quality of life, family relationships, and friendships. In academic activities, the intensity of pain was affecting individual study, ability to concentrate on courses, and volume of information accumulated [30] confirming the data of a previous study [31].

According to the different definitions used, the rates and impact of dysmenorrhea can vary significantly. In some studies, even mild and intermediate menstrual pain has been considered sufficient to define dysmenorrhea. Others have considered dysmenorrhea as a menstrual pain associated with “the need for medication and the inability to function normally”. Furthermore, adolescent girls and young women aged 14 to 20 years have been reported to miss school and working days monthly, due to symptoms associated with dysmenorrhea, and 1 in 4 of interviewed women has reported self-administered pain medications without consulting a doctor [32]. A more recent survey based on

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a population of women with primary dysmenorrhea over the age of 18 years reported that more than half of the young women described symptoms as limiting daily activities, and subsequently 17% (1 in 8 girls), missed hours of school and work [33]. In another survey-based study, the overall prevalence of experiencing menstrual pain was found to be very high, since 84.1% of participants reported experiencing pain at some time. About 43.1% of the participants reported having painful menstruation in every menstrual period, and 41% reported having pain at some time. These two definitions are very different, and the same study found that the intensity of menstrual pain did not coincide with the need for medication or the inability to function normally. About 55% of the women in this study reported having menstrual pain and needing medication, while poor social functioning or absenteeism because of menstrual pain ranged from 32% to 40%. Considering the more complete picture of dysmenorrhea, characterized by menstrual pain, absenteeism, and need for medication, the prevalence was reported to be about 25% [34]. A systematic review conducted in 1996 on the prevalence of chronic pelvic pain, which summarized community and hospital surveys conducted in developed countries, estimated a prevalence ranging from 45 to 95 percent. A further systematic review of studies also conducted in developing countries reported that 25%–50% of adult women and about 75% of adolescent girls experienced pain during menstruation, with 5%–20% reporting severe dysmenorrhea or pain that prevented them from participating in activities of daily living. A third systematic review and meta-analysis on prevalence rates concluded that the prevalence of dysmenorrhea was 59% [35]. The World Health Organization assessed the worldwide prevalence of dysmenorrhea in 124,259 nonpregnant women with or without endometriosis reporting a prevalence ranging from 8.8% in hospitalized women (aged 19–41 years) to 94% in girls aged 10–20 years [36]. In the United States, 15% of adolescent girls have report severe dysmenorrhea with prevalence rate estimates for absenteeism ranging from 20% to 30% [37]. If we focus on Europe the prevalence of dysmenorrhea reported in the literature varies from an estimated 56% in Italy to 86.6% in Switzerland. Thus, the prevalence of dysmenorrhea reported ranges from 16% to 91% in women of reproductive age, with severe pain being reported in 2% to 29% of women [38]. An additional longitudinal study on a cohort of Swedish women reported a prevalence of dysmenorrhea of 90% at age 19 and 67% at age 24, with 10% of 24-year-olds reporting pain that interfered with daily functions [39].

One cross-sectional study gave for dysmenorrhea a clear definition of a painful menstruation with cramping sensation in the lower abdomen or lower back, occurring with menstrual flow or the day before, and assessed severity based on pain intensity, as measured by a numerical rating scale, possibly associated with systemic symptoms, impact on daily activities, and need for analgesic treatment using the Verbal Multidimensional Scoring System (VMSS), and concluded that dysmenorrhea was moderate in 65.2% and severe for 8.9% of women. In addition, a strong impact on daily life was clearly shown, as 43.3% of the girls reported missing from school, 74.9% had difficulties in attending classes, and 77.2% had difficulties in practicing sport activities [40]. Variables contributing to differences in prevalence rates include demographics, symptom severity, ethnic, sociocultural, or biological factors in the populations studied [41].

As to treatment, the majority (98%) of adolescent girls relies on non-pharmacological methods such as heat, rest, or distraction with a perceived efficacy of 40% or less [42,43]. From 30% to 70% of girls refer self-medication at least occasionally with over-the-counter pain medications, and 57% of these reported to have used subtherapeutic doses. Up to 54% of adolescent girls are reported to know that some medications can relieve menstrual cramps, but 27% of these are unable to recognize the main nonsteroidal anti-inflammatory drugs (NSAIDs) listed as possible treatments for dysmenorrhea [44].

Underestimation of dysmenorrhea results in diagnostic delay. Theological and traditional attitudes regarding menstruation, as well as the common belief in some patients that pain is an expected and unavoidable part of menstruation, could underlie the dual failures of omission or lack of communication [45,46]. Dysmenorrhea affects up to 80% of reproductive-age women, often causing significant pain that can deeply impact social and occupational roles. Prevalence varies among ethnic groups, partly reflecting different cultural attitudes of women with respect to menstruation. Clearly, there is variation across cultures, as for example whereas most women in Western cultures report some degree of dysmenorrhea, only a quarter of rural Maya women do so [47]. The Islamic law may forbid menstruating women from praying, fasting during Ramadan, or engaging in sexual intercourse. Similarly, some Hindu followers may consider the touch of a menstruating woman as impure. This stands true also for Israeli Arab minorities [48]. Socio-cultural factors can not only influence the perception of clinical symptoms but may also themselves be the cause of dysmenorrhea. In fact, while menstruation can bring about positive changes in the social role of Israeli Arab girls, it can also lead to conflicting attitudes towards menstruation, which may present as a negativity because of dysmenorrhea. The interface between cultural and ethnic influences on the symptoms is not well-defined. In a patriarchal society, menstruation, pregnancy, and childbirth are considered significant events in the female developmental process. From the perspective of this cultural outlook, menstruation means a girl's entry into her expected social role as a mature woman. From the onset of menarche, the family may impose stricter rules regarding social behavior upon her [49,50]. In some

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countries like Palestine, there is a lack of published studies on women's health in general and on gynecological problems in particular [51]. Taboos in general, can lead to underestimation of pain, under-reporting of dysmenorrhea prevalence, and ultimately, inadequate treatment. This aspect has been observed not only in Arab cultures but also in Pakistani, Malaysian, and Hindu cultures. As an example, some Hindu followers may consider the touch of a menstruating woman impure [52]. In conclusion, many girls accept dysmenorrhea as a normal part of menstruation and believe it cannot be alleviated. These misconceptions have been reported to be a result of the lack of information on the causes of dysmenorrhea, absence of medical guidance, and cultural background. Enhancing girls' knowledge could therefore potentially influence their healthcare-seeking behavior, even in countries where female health information is currently limited [53].

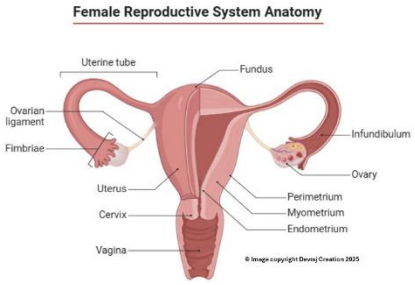

Fig: 1 Female reproductive system

III. PHASE OF MENSTRUAL CYCLE

When discussing timing within the menstrual cycle, the first day of heavy menstrual flow is considered day 1. According to the International Federation of Gynecology and Obstetrics (FIGO), normal menstrual cycles should have consistent frequency, regularity, duration, and volume of flow. Normal menstrual frequency is defined as cycles occurring every 24 to 38 days. Infrequent menstruation is defined as cycle lengths longer than 38 days, while frequent menstruation refers to cycle lengths shorter than 24 days. Amenorrhea describes the complete absence of menstrual bleeding. Normal menstrual duration is defined as bleeding lasting 8 days or less, while bleeding beyond 8 days is considered prolonged menses.

The volume of menstrual flow is classified as light, normal, or heavy. No defined objective thresholds separate these classifications, as they are often impractical in clinical settings. For research purposes, heavy menstrual bleeding is defined as blood loss exceeding 80 mL per cycle, based on weighed menstrual products. Heavy menstrual bleeding is a subjective symptom rather than a formal diagnosis. The National Institute for Health and Care Excellence (NICE) defines it as excessive menstrual bleeding that interferes with a person's physical, social, emotional, and/or material quality of life. Notably, 2 patients with the same objective volume of blood loss may have significantly different perceptions of their flow volume.

Light menstrual bleeding is rarely associated with underlying pathology, although it can occur in patients with intrauterine adhesions or cervical stenosis. For research purposes, light menstrual bleeding is typically defined as less than 5 mL of blood loss per cycle. Several factors can influence the volume of blood loss during menstruation, including medications, endometrial thickness, and bleeding or clotting disorders.

Menstrual regularity is defined by the variation in cycle lengths from one cycle to the next. Although slight variations in cycle lengths are normal, cycles are considered regular if the difference between the shortest and longest cycle lengths is 7 days or less for individuals aged 26 to 41 and 9 days or less for those aged 18 to 25 or 42 to 45. FIGO notes that for practical purposes, normal variation in cycle length can also be expressed as an average cycle length of ±4 days.

The menstrual cycle is considered irregular when cycle lengths vary by 8 days or more for individuals aged between 26 and 41 or by 10 days or more for those aged between 18 and 25 or between 42 and 45. For example, a patient aged 43 with cycle lengths of 25, 28, and 34 days has a 9-day difference between her shortest and longest cycles, indicating regular cycles for her age. In contrast, the same cycle history in a patient aged 26 would suggest an irregular cycle. Intermenstrual bleeding is defined as bleeding that occurs between cyclically regular menstrual periods. This type of bleeding can be random, meaning it is unpredictable or cyclic, indicating that it occurs consistently at the same point in each cycle.

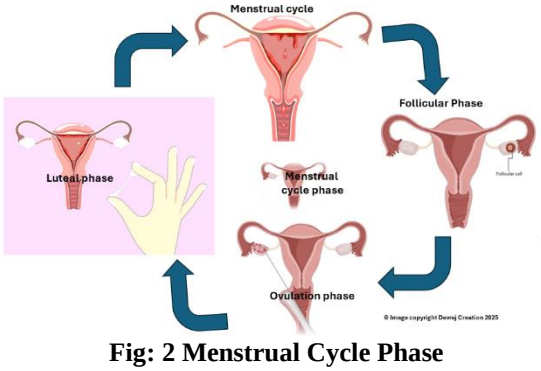

Fig: 2 Menstrual Cycle Phase

IV. MENSTRUAL CYCLE PHASE

The menstrual cycle typically consists of four main phases:

1. Menstrual Phase (Days 1–5):

This is the phase when menstruation occurs. The lining of the uterus (endometrium) sheds if there is

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no pregnancy, leading to menstrual bleeding Hormone levels (estrogen and progesterone) are low, triggering the shedding of the uterine lining.

2. Follicular Phase (Days 1–13):

This phase overlaps with the menstrual phase, starting from the first day of menstruation. The pituitary gland releases follicle-stimulating hormone (FSH), which stimulates the ovaries to produce follicles, each containing an egg. The follicles produce estrogen, which helps rebuild the uterine lining (endometrium) in preparation for a potential pregnancy.

3. Ovulation Phase (Around Day 14):

Ovulation is the release of a mature egg from the ovary. This occurs due to a peak in luteinizing hormone (LH) and a rise in estrogen. The egg travels down the fallopian tube, where it may be fertilized by sperm. The time of ovulation is when a woman is most fertile.

4. Luteal Phase (Days 15–28):

After ovulation, the ruptured follicle forms a structure called the corpus luteum, which secretes progesterone. Progesterone helps maintain the uterine lining for a potential pregnancy. If the egg is not fertilized, the corpus luteum disintegrates, leading to a drop in progesterone and estrogen levels. This triggers the start of menstruation and the beginning of the next cycle.

Table: 1 Dysmenorrhea refers to the pain associated with menstruation. It is classified into two main types

PRIMARY DYSMENORRHEA	SECONDARY DYSMENORRHEA
Pain which comes from having a period, due to natural chemicals called *Prostaglandins* which are produced in the lining of the uterus. There is no underlying disorder.	The pain occurs as a consequence of an underlying disorder like *Endometriosis, Adenomyosis, Fibroids, or Pelvic Inflammatory Disease* (PID).
Often happens when a girl starts getting her periods, and may improves later in life.	Occurs or starts later in life, than primary dysmenorrhea.
Pain occurs right before menstruation starts, as the *Prostaglandin* level rises and eases out as the period progresses.	Pain often starts earlier in the cycle, than in primary dysmenorrhea, continues through the period and may last even beyond the period.
Can be treated with medicines for pain and other remedies .	Underlying condition needs to be diagnosed and treated.

V. PRIMARY DYSMENORRHEA

Primary dysmenorrhea (PD)—defined as spasmodic and painful cramps in the lower abdomen that begin shortly before or at the onset of menses in the absence of any pelvic pathology—is one of the most common complaints in both young and adult females [54]. Its onset occurs mainly during adolescence, within 6 to 24 months after menarche. Dysmenorrheic pain has a clear and cyclic pattern, which is typically severe during the first day of menses and lasts up to 72 hours [55]. Despite its high prevalence and impact on daily activities, it is often inadequately treated and even disregarded, given that, many young females prefer to suffer silently, without seeking medical advice. Females consider PD an embarrassment and a taboo, and also perceive the pain as an inevitable response to menstruation, that should be tolerated [56]. Primary healthcare providers commonly encounter females with dysmenorrheic complaints [57] and thus play a substantial role in diagnosing, educating, reassuring, and providing them with the therapy required for optimizing the overall treatment outcomes of PD [58,59]. This review focuses on the high prevalence and negative influence of PD on young females' quality of life (QOL), and aims to provide primary health care providers, with an updated evidence-based perspective on the diagnosis and recommended treatment modalities for managing PD.

1. Treatments

For females with a typical medical history and presentation of PD, it is preferred to initiate empiric therapy with either NSAIDs or hormonal contraceptives, as recommended by the American Academy of Family Physicians [60]. This is also supported by the American College of Obstetricians and Gynecologists [61] and the Society of Obstetricians and Gynecologists of Canada [62,63]. However, there is no evidence favoring the efficacy of either NSAIDs or hormonal contraceptives over the other. If treatment with one modality fails or proves to be inadequate after a period of 3 to 6 months, the patient's adherence to the therapy must be assessed before switching to the other modality [64,65]. A combination of NSAIDs and hormonal contraceptives is reasonable, only if the patient remains symptomatic on either drug class alone [66,67,68].

Furthermore, to optimize treatment efficacy and ensure patient satisfaction and adherence, clinician-patient shared decision-making is key to the optimal management of PD. Therefore, to provide patient-centered care, dysmenorrheic females should be educated about dysmenorrhea, its treatment options, and potential adverse effects, for enabling them to decide. Clinicians should consider the patient's choice, preferences, desire for contraception, potential adverse effects, and contraindications to hormonal therapy

2. Secondary Dysmenorrhea

Secondary dysmenorrhea (SD) is menstrual pain associated with an underlying pelvic pathology such as endometriosis, pelvic inflammatory disease, congenital müllerian anomalies and ovarian cysts. Its onset may be many years after the onset of menarche [69]. A variety of physiological, environmental and behavioural factors might influence SD. Early onset of menarche [70], smoking[71], higher body mass index (BMI) [72]null parity [73]longer and heavier menstrual flow [74]and family history of dysmenorrhea [75]are among these factors. Depression and stress increase the risk of dysmenorrhea [76]. Physical exercise, fish intake and use of oral contraceptives are protecting.[77]. Other common factors, such as education and alcohol consumption show largely negative or inconclusive results [78] The association between dysmenorrhea and economic factors still need further research.

The exact cause of the disorder is not completely understood. However, there are many known

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factors that play significant roles in the pathogenesis of dysmenorrhea. The most important are: excessive uterine contractility, disturbances in uterine blood supply, increased synthesis of prostaglandins (PG) and anatomical abnormalities of the female reproductive tract [79].It was shown that women with dysmenorrhea have higher levels of PG in their plasma and menstrual effluent than women without dysmenorrhea [80,81,82].Most of the release of prostaglandins during menstruation occurs within the first 48 hrs, which coincides with the greatest intensity of the symptoms [83] PG stimulates myometrium contractility and local vasoconstriction that cause the menstrual effluent to be expelled from the uterine cavity[84]. Additionally, elevated serum vasopressin, nitric oxide and interleukin-6 levels have been reported in women with PD [85,86]. Moreover, increased lipid peroxidation and elevated concentrations of free radicals occur during dysmenorrhea [87,88,89,90].

VI. DIAGNOSIS OF DYSMENORRHEA

Diagnosing dysmenorrhea involves a combination of clinical history, physical examination, and sometimes, additional tests to rule out secondary causes.[91,92,93]

1. **Medical History**: The healthcare provider will ask about the nature, duration, and severity of menstrual pain, the patient's menstrual history, family history, and any associated symptoms (e.g., heavy bleeding, irregular periods, or symptoms like nausea, vomiting).[94,95,96]
2. **Physical Examination**: A pelvic examination may be done to check for any abnormalities such as pelvic masses or signs of infection[97,98,99].
3. **Ultrasound**: To rule out conditions like ovarian cysts, fibroids, or other structural abnormalities.[100]
4. **Laparoscopy**: In some cases, a procedure like laparoscopy (a minimally invasive surgery) may be performed to identify conditions such as endometriosis or adhesions[101].
5. **Blood Tests**: These may be done to check for signs of infection or hormonal imbalances[102].

VII. TREATMENT OF DYSMENORRHEA

Treatment can vary based on the type of dysmenorrhea and the severity of symptoms[103]. Here are common options:

1. For Primary Dysmenorrhea (no underlying conditions):

- **Nonsteroidal Anti-Inflammatory Drugs (NSAIDs)**: These are the first-line treatment for menstrual cramps as they help reduce inflammation and pain.[104,105] Common options include:
  - Ibuprofen
  - Naproxen
  - Diclofenac
- **Oral Contraceptives**: Birth control pills or other hormonal contraceptives can help regulate periods, reduce menstrual flow, and alleviate pain by suppressing ovulation and decreasing endometrial growth.[106,107,108]
- **Prostaglandin Inhibitors**: These help reduce the production of prostaglandins, chemicals that are involved in causing pain and inflammation.[109]
- **Topical Heat**: A heating pad or warm bath can help relax the pelvic muscles and ease pain.[110]
- **Exercise**: Regular physical activity, such as walking or yoga, can improve blood flow and reduce menstrual pain.[111]
- **Dietary changes**: Reducing caffeine, sugar, and fat may help reduce discomfort. Magnesium supplements can also be beneficial for some women.[112]

2. For Secondary Dysmenorrhea (caused by underlying conditions):

Treatment depends on the specific condition causing the pain:

- **Endometriosis**:
  - Hormonal therapies (oral contraceptives, progestins, GnRH analogs)
  - Surgery (laparoscopy) may be required in severe cases.[113,114]
- **Uterine Fibroids**:
  - Hormonal treatments (e.g., GnRH agonists, progestins)[115].
  - Uterine artery embolization or surgery (myomectomy, hysterectomy) may be considered if fibroids are large or causing severe symptoms[116].
- **Pelvic Inflammatory Disease (PID)**:
  - Antibiotic therapy to treat the infection[117].
- **Adenomyosis**:
  - Hormonal treatments or in severe cases, hysterectomy[118].

3. Alternative and Complementary Therapies:

- **Acupuncture**: May help reduce pain by stimulating certain points on the body[119].
- **Herbal Remedies**: Certain herbs like ginger, cinnamon, and fennel may provide relief. However, evidence on their effectiveness is mixed[120].
- **Vitamin Supplements**: Some studies suggest that vitamin E, B1 (thiamine), and omega-3 fatty acids may help reduce pain.[121]

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4. ***Lifestyle Modifications:***
   - **Stress management**: Techniques like meditation, relaxation exercises, and deep breathing can help manage pain.[122]
   - **Adequate rest**: Sleep and rest are crucial for alleviating menstrual discomfort.[123,124]
   - **Avoidance of caffeine**: Some studies suggest that caffeine can increase the severity of dysmenorrhea.[125,126]

VIII. CONCLUSION

Dysmenorrhea, characterized by painful menstruation, remains one of the most common gynecological complaints among women. It can be classified into primary and secondary types, with primary dysmenorrhea being more prevalent in adolescents and young women, while secondary dysmenorrhea typically develops in older women due to underlying conditions such as endometriosis or fibroids. The condition significantly affects women's quality of life, leading to missed work, school, and social activities. Various treatments, including pharmacological options (NSAIDs, hormonal therapies), and non-pharmacological approaches (heat therapy, acupuncture), are used to manage symptoms, with varying degrees of effectiveness. Despite the availability of treatment options, many women still experience inadequate relief, underscoring the need for more personalized and effective management strategies.

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