



An Overview on Pain Management for Primary Dysmenorrhea among Female Adolescent

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ABSTRACT

Aims: Dysmenorrhea is a common menstrual disorder characterized by painful uterine contractions, which often leads to absenteeism from school and decreased productivity.

Method and Materials: This article provides an overview of primary dysmenorrhea and its impact on female adolescents, emphasizing the significance of pain management strategies. The prevalence of primary dysmenorrhea affects approximately 70% of young women globally, underlining its public health implications. The article explores various risk factors, including biological, psychological, social, and lifestyle influences that contribute to dysmenorrhea. Additionally, it discusses the common practice of self-medication among adolescents, primarily through the use of over-the-counter nonsteroidal anti-inflammatory drugs (NSAIDs), and the potential risks associated with improper use. Effective management strategies, such as physical exercise, dietary modifications, and psychological interventions, are highlighted as essential components in alleviating menstrual pain. The importance of health education, particularly in school settings, is emphasized to improve awareness, promote healthy lifestyle practices, and foster a supportive environment for adolescent girls.

Conclusion: This comprehensive approach aims to enhance overall quality of life while addressing the specific health challenges faced by females during their critical developmental years. Ultimately, investing in the health and well-being of adolescent girls is vital for fostering future generations and advancing national progress.

Keywords: Pain Management, Adolescent, Dysmenorrhea, Menstruation

Introduction

Menstruation is a natural and essential part of a woman's reproductive cycle, preparing the uterus for pregnancy. Maintaining menstrual health is an integral aspect of overall health, as women experience significant physical, emotional, and social impacts from their menarche until menopause^[1]. Dysmenorrhea, the medical term for painful menstrual periods, is the most prevalent menstruation-related issue among adolescents. It can be classified as either primary or secondary^[2]. Primary dysmenorrhea (functional dysmenorrhea) refers to painful menstrual periods that occur without any underlying pelvic pathology, typically presenting either before or during menstruation. In contrast, secondary dysmenorrhea is classified as pain resulting from a pelvic condition such as endometriosis, adenomyosis, leiomyomas, or pelvic

inflammatory disease^[3, 4]. Primary dysmenorrhea is characterized by painful contractions of the uterus resulting from the shedding of the endometrium. Pain associated with menstruation in adolescents typically begins a few days before the onset of menstruation and lasts for approximately 48 to 72 hours^[5]. Symptoms associated with primary dysmenorrhea include abdominal pain, pelvic pain (which may radiate to the legs), back pain, headache, nausea, vomiting, or fatigue. These symptoms may first appear in adolescents 6 to 12 months after menarche^[6]. Although the exact cause of dysmenorrhea is not fully understood, current evidence suggests that the underlying mechanism involves an increase in the release of Prostaglandin F_{2α} (PGF_{2α}) and Prostaglandin E₂ (PGE₂) within the uterus during endometrial shedding. These prostaglandins

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play a role in augmenting myometrial contractions and vasoconstriction, leading to reduced uterine blood flow and the production of anaerobic metabolites. This, in turn, results in increased sensitivity of pain fibers and ultimately pelvic pain [7, 8].

Main text

Menstruation is a natural and essential part of a female adolescent reproductive cycle. During this period, a significant proportion of adolescents experiencing painful menstruation which are forced to missed school and other activities. Even those adolescents who are able to manage their academic work from home during this time face challenges with decreased concentration and reduced productivity due to menstrual pain. Research has shown that approximately 600 million hours, or 2 billion dollars, are lost annually in the United States due to absenteeism from work or reduced productivity resulting from menstrual pain and related symptoms [9]. Regardless of a country's economic status, dysmenorrhea is highly prevalent. Approximately 70% of young women, irrespective of their geographic location, suffer from dysmenorrhea [10]. Studies on women during menstruation have shown that the prevalence of primary dysmenorrhea ranges from 45% to 95% [7]. The overall prevalence of primary dysmenorrhea in Iran has been estimated at 71% [11].

Various studies have shown that painful menstruation leads to a decrease in quality of life [12, 13]. The World Health Organization defines quality of life as "an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards, and concerns" [14]. The term "health-related quality of life" refers to the health aspect of quality of life, which is generally thought to reflect the impact of illness and treatment on daily functioning and physical, mental, and social well-being [15]. Given the definitions provided, painful menstruation may not only impair health-related quality of life due to the physical symptoms of menstrual pain but may also

negatively impact overall quality of life [12]. Today, identifying factors that can improve health-related quality of life should be a top priority for healthcare systems. As previous research has demonstrated, there is a strong correlation between health-related behaviors and quality of life in adolescents [16]. Adolescents with dysmenorrhea experience higher levels of anxiety and depression compared to healthy individuals. Additionally, an increase in dysmenorrhea severity leads to a further escalation of these issues and a subsequent decrease in quality of life [17]. Primary dysmenorrhea is a significant public health issue that significantly impacts quality of life. The World Health Organization has identified it as a primary cause of chronic pelvic pain, which adversely affects individuals' quality of life [18]. There is a positive correlation between the presence of dysmenorrhea and both chronic pelvic pain and non-pelvic chronic pain, as well as between the severity of dysmenorrhea and the severity of chronic pelvic pain and non-pelvic chronic pain, such as fibromyalgia and migraine [19].

Numerous studies have demonstrated that a wide range of risk factors, including biological, psychological, social, and lifestyle factors, may be associated with primary dysmenorrhea. Factors such as early menarche, a family history of dysmenorrhea and heavy menstrual bleeding are considered biological risk factors [20, 21]. Psychological risk factors such as stress, anxiety, and depression [22], Social factors such as reduced social support [23] and lifestyle-related factors such as physical inactivity, poor diet, and smoking and alcohol consumption [21, 24]. They have been reported as significant causes of premenstrual pain. A wide range of research indicates that cultural, social, and economic factors have a substantial impact on the management of primary dysmenorrhea [25].

Most research indicates that many adolescents self-medicate for menstrual pain rather than seeking health care professionals advice. Self-medication with NonSteroidal Anti-Inflammatory Drugs (NSAIDs) is common due to their Over-The-Counter (OTC) availability. Although most adolescents tend

to choose the correct medication for self-treating menstrual pain, they often do not adhere to the appropriate dosage. Unmanaged use of NSAIDs can lead to gastrointestinal problems and drug interactions. Therefore, self-medication with NSAIDs is a public health concern. Additionally, menstrual pain should not be assumed to be primary dysmenorrhea until secondary dysmenorrhea has been ruled out by a medical professional. In secondary dysmenorrhea, menstrual pain may be a symptom of other underlying female health issues, and delayed medical consultation can hinder the diagnosis of these conditions [25, 26]. Non-pharmacological and combined methods may be used as adjuncts to pharmacological treatment or as alternatives when pharmacological interventions are contraindicated or rejected.

Physical activity is one such method that can help reduce the intensity and duration of pain in primary dysmenorrhea. Engaging in exercise, regardless of its intensity, but with the aim of achieving 45 to 60-minute sessions at least three times a week, may significantly alleviate menstrual pain associated with moderate to severe dysmenorrhea [27]. Exercise and localized heat application have been recognized as effective alternatives to analgesic medications for managing pain in primary dysmenorrhea [28]. Increasing the consumption of foods such as fruits, vegetables, fish, and dairy products, which are rich sources of vitamins and minerals, may help reduce menstrual pain. Therefore, it is essential to focus on improving adolescent nutrition and establishing an appropriate diet. Given the negative impact of dysmenorrhea on quality of life, raising awareness among women and implementing suitable lifestyle changes to manage it are crucial [29]. Furthermore, Self-esteem, stress, depression, and anxiety are associated with dysmenorrhea in adolescents. Stress can independently exacerbate menstrual symptoms and also affect menstrual pain and symptoms indirectly through depression and anxiety. The indirect effect of self-esteem on stress, depression, and anxiety helps to reduce menstrual pain. Therefore, when managing menstrual pain and symptoms in adolescents,

mental health issues should also be considered [30]. It is important to educate students, health professionals, and physicians about the psychological aspects of menstruation. For the treatment of primary dysmenorrhea, rather than relying solely on medication, psychological interventions and counseling are recommended. Therefore, it is essential to employ health strategies and policies aimed at reducing the psychological concerns of girls suffering from primary dysmenorrhea [31]. Stress, as one of the most significant factors affecting mental health, increases the severity of primary dysmenorrhea [32]. Managing psychological stress during menstruation should be a central focus of health education programs for adolescent girls. While it is essential to address the physical changes that adolescent girls experience, healthcare providers should go beyond this and teach stress management skills to help them cope with menstrual-related concerns [33].

Adolescents should be educated to develop healthy lifestyle habits to prevent and alleviate the symptoms of dysmenorrhea and further improve their quality of life [34]. The onset of puberty is a fundamental and critical stage in the lives of adolescents. These young individuals are regarded as the future leaders and assets of any country, and undeniably, planning for their health is considered a form of investment in national progress. Strategies aimed at achieving acceptable health standards and preventing the depletion of this valuable resource must be based on a comprehensive understanding of all aspects of health and their needs. Taking into account the characteristics of puberty in girls, the physical and psychological conditions of this period, as well as their essential role in reproduction, it can be asserted that the health of adolescent girls holds a unique significance. The adolescent years in girls serve as an important foundation and a starting point for critical future life stages, directly impacting their families and future offspring [35]. Given that adolescents spend a significant portion of their time in schools, these institutions should be considered primary settings for promoting their health

and development.

Schools have the capacity to reach the vast majority of adolescents, and health education in schools has the unique ability to positively impact a large segment of adolescents who rarely visit healthcare facilities. For this reason, school-based health interventions have become a major focus for the World Health Organization. Adolescents face unique health challenges. School health programs must align with their specific health priorities. Therefore, school health programs need to extend beyond traditional health education to comprehensively support adolescent health [36]. Schools can provide education about menstruation in targeted, efficient, and cost-effective ways. A reassessment of schools' restrictive approaches, policies, and frameworks can help reduce absenteeism from school and class. It is essential to conduct research and early interventions to improve the health and well-being of girls during this critical period of their development. Menstrual-related issues can have a profound impact on the physical and mental health of adolescents. Effective educational programs about menstruation in schools can be key to reducing anxiety, fear, and feelings of shame related to menstruation, teaching positive management strategies, and encouraging adolescents to seek help for their menstrual-related issues [37]. Education is a crucial tool for modifying harmful behaviors and improving individual health by altering attitudes, raising awareness, and enhancing understanding of health issues[38].

Conclusion: The onset of puberty is a fundamental and critical stage in the lives of adolescents. These young individuals are regarded as the future leaders and assets of any country, and undeniably, planning for their health is considered a form of investment in national progress. Strategies aimed at achieving acceptable health standards and preventing the depletion of this valuable resource must be based on a comprehensive understanding of all aspects of health and their needs.

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