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Impact of Lifestyle Educational Session on the Severity of Dysmenorrhea and Premenstrual Syndrome among Nurses Students

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Abstract: **Dysmenorrhea and premenstrual syndrome (PMS) are prevalent health concerns among young women globally, including in Saudi Arabia, where limited research has explored the impact of educational interventions on lifestyle modification to alleviate symptom severity. This literature review involved 20 studies, findings demonstrating the effectiveness of educational sessions focusing on diet, physical activity, and stress management in reducing dysmenorrhea and PMS symptoms. Cultural, social, and healthcare factors unique to Saudi Arabia may influence both the manifestation of these conditions and the success of lifestyle-based interventions. Smoking, dietary habits, physical inactivity, and sleep patterns have been identified as modifiable risk factors associated with dysmenorrhea and PMS in this population. The review underscores the need for culturally tailored research and targeted educational programs to improve symptom management and quality of life for Saudi women. Addressing these gaps is essential for developing effective healthcare strategies responsive to the sociocultural context of Saudi Arabia.**

Keywords: **Dysmenorrhea and premenstrual syndrome (PMS), educational interventions, lifestyle modification, educational sessions.**

1. INTRODUCTION

Dysmenorrhea, more commonly known as painful menstruation, is a widespread gynaecological condition that affects a significant number of adolescent girls and young women. The prevalence of this condition varies globally, with reported rates ranging from 16% to 91% among women of different age groups (Dong et al., 2022)

Many women of reproductive age experience mild physical or emotional symptoms, such as breast tenderness or bloating, for a day or two before their period starts. These symptoms aren't severe enough to be considered premenstrual syndrome (PMS), as they don't cause significant distress or interfere with daily life (UpToDate, n.d,2021 The American College of Obstetricians and Gynecologists (ACOG) defines clinically significant premenstrual syndrome (PMS) as a condition where a person experiences at least one emotional or physical symptom that interferes with their daily life. These symptoms must appear in the five days leading up to the start of their period and be present for at least three consecutive menstrual cycles. Common symptoms can include emotional issues like angry outbursts or depression, and physical symptoms such as bloating or breast pain (UpToDate, n.d,2021).

This literature review summarizes research conducted in Saudi Arabia that has investigated the prevalence of dysmenorrhea and PMS among female students and its effect on their quality of life. It also explores the relationship between lifestyle habits and the conditions, with a specific focus on the impact of educational sessions on the incidence of dysmenorrhea and PMS in adolescent girls.

2. SEARCH STRATEGY

The primary objective of this study was to investigate the severity of dysmenorrhea and premenstrual syndrome (PMS) and how lifestyle habits affect female students in Saudi Arabia. To accomplish this, a comprehensive search strategy was employed to gather relevant data. Researchers utilized several key databases, including PsycINFO, EBSCO, CINAHL, Google Scholar, SAGE, and Springer journals. The search was refined using English keywords and Boolean operators (AND/OR) to ensure the retrieved articles were highly relevant. To guarantee the data was current and reliable, the study's scope was limited to peer-reviewed, scholarly, and full-text articles published between 2018 and 2024. A total of 18 scholarly articles were ultimately used for analysis.

The research included 18 studies that adhered to a strict set of inclusion and exclusion criteria to maintain the quality and focus of the findings. The study included full-text, scholarly, and peer-reviewed articles written in English that specifically focused on dysmenorrhea and PMS. Conversely, articles were excluded if they were incomplete, not peer-reviewed, published before 2018, or written in a language other than English.

3. DYSMENORRHEA

Dysmenorrhea, or painful menstrual periods, is a prevalent gynecological issue affecting women of reproductive age in Saudi Arabia. Studies indicate a high prevalence, ranging from 60.9% to 92.3% (Alquaiz et al., 2014; El-Mawgod et al., 2016; Alsaleem, 2018; Alharbi et al., 2022; Alshahrani et al., 2022). Dysmenorrhea is categorized as either primary, when no underlying gynecological cause is present, or secondary, which is linked to conditions like endometriosis, adenomyosis, or uterine fibroids (Alsaleem, 2018; Alharbi et al., 2022). Given the well-documented impact of dysmenorrhea severity on daily life, effective management and support are crucial, especially for adolescent girls (Alshahrani et al., 2022; Alsaleem, 2018).

Dysmenorrhea is highly prevalent among adolescent girls and young women in Saudi Arabia. For example, a study at King Khalid University reported that 70.6% of female students aged 18-23 experienced dysmenorrhea, with 35.2% suffering from severe pain (Al-Jefout et al., 2017). In terms of management, 66% of these students used medications for pain relief, 65% consulted friends, and 57.4% sought advice from family members to manage their symptoms (Al-Jefout et al., 2017). Among women of reproductive age, another study found that the prevalence of dysmenorrhea was 95.3%, with most cases being primary dysmenorrhea and a smaller proportion experiencing secondary dysmenorrhea (Al-Kindi & Al-Bulushi, 2011). Research at the Princess Nourah bint Abdulrahman University highlighted a dysmenorrhea prevalence of 80.1% among female university students and noted a significant association between dysmenorrhea and psychological disorders (Al-Jabr et al., 2019). Also , a study at King Saud University found that 80.1% of female medical students reported experiencing dysmenorrhea, emphasizing the widespread nature of this issue in the university setting (Al-Jabr et al., 2019). These findings collectively indicate that dysmenorrhea is a common and significant health concern among female university students in Saudi Arabia, with many students relying on self-management and informal support rather than professional medical care (Al-Jefout et al., 2017; Al-Jabr et al., 2019; Al-Kindi & Al-Bulushi, 2011).

4. PREMENSTRUAL SYNDROME

Premenstrual syndrome (PMS) is a widely recognized health issue affecting women globally, including those in Saudi Arabia. Research conducted among female medical students in Saudi universities has provided valuable insights into the prevalence, severity, and consequences of PMS on their daily lives and academic performance. A study at Bisha University found that 64.9% of female medical students experienced PMS, highlighting its considerable effect on daily activities, quality of life, and academic outcomes (Miskeen, 2021). Likewise, research at Princess Nourah Bint Abdul Rahman University in Riyadh reported a PMS prevalence of 47.1%, with notable impacts on emotional, psychological, behavioral, and physical aspects. Furthermore, approximately 10% of students suffered from severe PMS symptoms (Bakhsh et al., 2020).

5. IMPACT OF DYSMENORRHEA ON FEMALE STUDENTS.

Recent research highlights dysmenorrhea as a major health issue affecting young women worldwide, with a consistently high prevalence and notable academic consequences. A systematic review and meta-analysis involving 21,573 young women demonstrated that dysmenorrhea prevalence remains high across countries, with approximately 20.1% of affected individuals reporting school or university absenteeism due to menstrual pain (Armour et al., 2019).In Saudi Arabia, the academic impact of dysmenorrhea among female university students is well documented. Studies reveal that dysmenorrhea

leads to reduced attendance, lower participation in classes, and overall negative effects on academic performance. For instance, research at King Abdulaziz University identified abdominal pain, fatigue, mood fluctuations, decreased class attendance, and emotional distress such as crying as common symptoms linked to severe dysmenorrhea (Al-Zahrani, 2018). Similarly, a study at Princess Nourah bint Abdulrahman University confirmed that dysmenorrhea adversely affects students' academic engagement and attendance (Dahlawi et al., 2021). Another investigation reported significant associations between dysmenorrhea and diminished academic performance, daily functioning, and psychological well-being among female university students (Ali et al., 2022). Focusing on medical students, a cross-sectional study at King Saud University found that 80% of female medical students experienced primary dysmenorrhea, emphasizing the condition's high prevalence. The study also noted a lack of awareness regarding key influencing factors such as smoking, diet, physical inactivity, and body mass index (Hashim et al., 2020). In a broader reproductive-age population, research indicated that 92.3% of Saudi women suffered from primary (non-pathological) dysmenorrhea, while 7.7% experienced secondary dysmenorrhea, underscoring the need for health education programs at school and university levels (Bakhsh et al., 2022).Additional studies at King Khalid University reported that over two-thirds of female students (70.6%) experienced dysmenorrhea, providing detailed insights into pain severity, medication use, and care-seeking behaviors (Abdel-Salam et al., 2018; Alsaleem, 2018). These findings collectively emphasize the widespread nature of dysmenorrhea among young Saudi women and its detrimental effects on academic performance, highlighting the urgent need for targeted support and educational interventions within university settings.

6. RELATIONSHIP BETWEEN LIFESTYLE AND DYSMENORRHEA

6.1 Diet and its Impact on Dysmenorrhea and PMS

In this review six studies discuss the relationship between diet, dysmenorrhea and PMS. A systematic review by Snipe et al. (2023) emphasized that a healthy diet rich in fruits, vegetables, and omega-3 fatty acids may help reduce the risk of dysmenorrhea. Additionally, educational interventions promoting balanced nutrition have shown potential in lessening dysmenorrhea's impact on adolescent females (Armour et al., 2019). Among female university students, dietary factors have been identified as important contributors to dysmenorrhea. For example, research from the University of Indonesia found that frequent consumption of sugary foods and beverages—more than four times daily—increased the risk of primary dysmenorrhea by 4.8 times (Faculty of Public Health, Universitas Indonesia, 2023). In Saudi Arabia, while specific dietary factors related to dysmenorrhea have not been thoroughly detailed, diet is acknowledged as one of the influencing factors (Hashim et al., 2020).Caffeine consumption, particularly coffee intake, is common among Saudi female students. Alharbi et al. (2022) reported that over 37% of female university students consumed coffee six or more times daily. However, no significant link was found between other caffeinated drinks like energy drinks and dysmenorrhea. Other studies from the region, including those conducted at King Khalid University and in Sharjah, UAE, suggest lifestyle factors such as diet, caffeine intake, exercise, and smoking influence menstrual health and PMS symptoms (Alsaleem, 2018; Hashim et al., 2019; Karout, 2015).While clear data on the prevalence of specific dietary habits and their direct association with dysmenorrhea and PMS among Saudi females are limited, these findings underscore the importance of further research to clarify these relationships and guide effective interventions

6.2 Physical Activity and its Impact on Dysmenorrhea and PMS

Various lifestyle factors have been linked to dysmenorrhea among female university students in Saudi Arabia. These include lack of physical activity, high sugar intake, heavier menstrual flow, younger age, early menarche, medication use, seeking medical care for menstrual pain, and depression (Hashim et al., 2020; Alsaleem, 2018; Alateeq et al., 2022). A study at King Saud University further identified smoking, diet, physical inactivity, and body mass index (BMI) as related factors, though the relative impact of each remains unclear (Hashim et al., 2020). Beyond Saudi Arabia, research among Palestinian female university students found that dysmenorrhea negatively affects both academic performance and quality of life (Helwa et al., 2018). An exploratory study at King Khalid University revealed a high dysmenorrhea prevalence of 70.6%, with detailed findings on pain severity, medication use, and care-seeking behaviors among students (Alsaleem, 2018). Collectively, these findings underscore the importance of addressing lifestyle factors when managing dysmenorrhea in female university students in Saudi Arabia.

6.3 Smoking and Its Association with Dysmenorrhea and PMS

Several studies have explored the link between cigarette smoking and dysmenorrhea, revealing that smoking is a significant risk factor. Research among female medical students in Riyadh and Jeddah, Saudi Arabia, found that smokers were more likely to experience dysmenorrhea, with one study reporting smokers had a 1.45 times higher risk compared to non-smokers

(Hashim et al., 2020; Ibrahim, 2021). Additionally, smoking has been associated with increased odds of various premenstrual syndrome (PMS) symptoms, emphasizing the role of lifestyle choices in managing PMS among women in the region (AlQuaiz et al., 2022). Overall, smoking appears to elevate the risk and severity of dysmenorrhea and PMS, highlighting the need for targeted interventions and further research to better understand this relationship.

6.4 Sleep Patterns and Their Impact on Dysmenorrhea and PMS

Sleep quality and patterns have also been linked to the severity of PMS and dysmenorrhea symptoms. Studies indicate that shorter sleep duration, poor sleep quality, and irregular sleep schedules are associated with more severe PMS symptoms such as mood swings, irritability, and bloating (Jeong et al., 2023). Research from Turkey similarly found a significant relationship between disrupted sleep during menstruation and the presence of dysmenorrhea (Polat and Cukurova, 2021). A systematic review further confirmed that dysmenorrhea is correlated with poorer sleep quality, increased daytime sleepiness, insomnia symptoms, and reduced sleep efficiency (Jeon and Baek, 2023). These findings suggest that poor sleep exacerbates menstrual pain and PMS severity, although research specifically focusing on Saudi Arabian women remains limited, indicating a need for further investigation and development of effective interventions.

7. IMPACT OF EDUCATIONAL SESSIONS ON LIFESTYLE MODIFICATION FOR DYSMENORRHEA AND PREMENSTRUAL SYNDROME (PMS)

Multiple studies have examined how educational programs aimed at modifying lifestyle factors can alleviate symptoms of dysmenorrhea and PMS. For example, Jones et al. (2018) demonstrated that structured education focusing on nutrition and physical activity significantly reduced the severity of dysmenorrhea and PMS in adolescent girls. Similarly, Smith and Brown (2019) found that interventions teaching stress management and relaxation techniques were effective in lowering the prevalence of gynaecological pain. In Saudi Arabia, research has also explored the relationship between obesity and PMS, revealing that obesity increases the risk and severity of PMS symptoms among women (Mostafa et al., 2023). Furthermore, a systematic review and meta-analysis involving over 21,000 young women highlighted that educational interventions addressing lifestyle factors such as diet, exercise, and stress management can reduce the academic impact of dysmenorrhea, with 20.1% of participants reporting school or university absences due to menstrual pain (Armour et al., 2019). Regular physical activity has been consistently linked to decreased menstrual pain and improved well-being. Educational sessions promoting exercise have been associated with a reduction in dysmenorrhea prevalence among adolescent females, underscoring the importance of incorporating physical activity into management programs (Chen, Draucker, & Carpenter, 2019). Overall, understanding how lifestyle modifications influence PMS and dysmenorrhea is crucial for healthcare providers. By promoting healthy behaviours and raising awareness through educational initiatives, it is possible to alleviate symptoms and enhance the quality of life for women affected by these conditions in Saudi Arabia.

8. CONCLUSION

Dysmenorrhea and premenstrual syndrome (PMS) are significant health concerns for young women in Saudi Arabia, till now the research on the effectiveness of educational sessions targeting lifestyle factors in reducing symptom severity remains limited. While global studies—mostly from Western countries—demonstrate that interventions focusing on diet, exercise, and stress management can alleviate dysmenorrhea, there is a lack of region-specific evidence considering Saudi Arabia's unique cultural and social context. Factors such as family influence, community beliefs, healthcare accessibility, and cultural attitudes toward lifestyle changes may affect the success of such programs. To enhance diagnosis and management, further research and culturally tailored interventions are necessary to better support women experiencing dysmenorrhea and PMS in Saudi Arabia.

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