Original Article :

Prevalence of Dysmenorrhea and Self-Management Approaches among Female Students at Alghad College, Jeddah.

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Abstract

Background and Aims:
Dysmenorrhea poses a significant health challenge, affecting not only the daily lives and quality of life of female students but also presenting implications for healthcare providers. This research aimed to assess the prevalence of dysmenorrhea and explore how female students manage its symptoms, focusing particularly on their self-initiated strategies to alleviate discomfort.

Methods:
Employing a descriptive cross-sectional methodology, this investigation was carried out at Alghad International College for females. A sample of 107 students was selected through convenience sampling. Data collection methods included structured interviews and open-ended questionnaires for every student, with the first part gathering baseline characteristics of the participants. The subsequent parts evaluated the menstrual cycle, dysmenorrhea history and experiences, its impact on physical and psychological well-being, and the self-management techniques employed.

Results:
Findings indicated that a significant portion of the participants, 59.8%, experienced moderate pain due to dysmenorrhea, with many reporting that heat did not alleviate their symptoms. Moreover, a large majority of respondents—74.8%, 76.6%, and 72% of school custodians—concurred on the lack of exercise as a method for managing dysmenorrhea.

Conclusions:
The study concluded that extended menstrual periods and the presence of blood clots are potent predictors of dysmenorrhea among female students, who generally demonstrated inadequate self-management skills for dealing with dysmenorrhea. Recommendations: The study advocates for enhanced educational and awareness efforts regarding dysmenorrhea. It emphasizes the importance of encouraging students suffering from dysmenorrhea to seek further consultation and assistance from healthcare professionals.

Keywords:
Dysmenorrhea, Self-Management, Female Students.

Introduction

Menstrual disorders represent a significant health challenge for women of childbearing age, with dysmenorrhea, or painful menstruation, being a primary concern[1]. This condition frequently presents with symptoms such as nausea, vomiting, and, in some cases, diarrhea, and is classified into primary and secondary categories[2]. Primary dysmenorrhea typically appears 6 to 12 months after menarche and can persist until menopause, highlighting a crucial aspect of women's health. Conversely, secondary dysmenorrhea can occur at any time between menarche and menopause, often after 25 years of age, and is usually linked to gynecological issues like endometriosis or ovarian cysts[3]. The etiology of primary dysmenorrhea is not completely understood; however, it is believed to involve several factors, including increased prostaglandin synthesis and secretion[4,5].

Dysmenorrhea significantly impacts the quality of life and personal health, with prevalence rates varying widely across different studies, indicating a global disparity[6, 7]. It has been recognized as a substantial public health issue across various ethnic groups, leading to significant school absenteeism and negatively affecting life quality. Despite its prevalence and the considerable burden, it imposes, many women do not seek medical advice for this condition. Research has highlighted various factors influencing the prevalence and severity of dysmenorrhea, including age, body mass index, smoking habits, early menarche, and dietary patterns, with pharmacotherapy remaining the most reliable treatment for the associated abdominal pain.

The importance of understanding self-management techniques utilized by female students for dysmenorrhea symptom relief cannot be overstated. Investigating the prevalent self-management strategies among students can offer insights to healthcare professionals and educators, fostering effective interventions and empowering women to manage their symptoms more effectively. This is particularly pertinent as dysmenorrhea can adversely affect academic performance and attendance.

Aim of the Study

This research aims to meticulously scrutinize the prevalence of dysmenorrhea and to systematically explore the self-management practices among female students. It focuses on investigating the impact of dysmenorrhea on their academic and personal lives, aiming to uncover patterns and strategies that could inform better support and treatment approaches.

Research Questions

1. What are the ramifications of dysmenorrhea on female students?
2. Which self-management strategies do female students employ to mitigate the symptoms of dysmenorrhea?
3. Is there a correlation between the severity of dysmenorrhea and menstrual cycle characteristics?

Subject and Methods

Research Design

The research employed a descriptive approach, specifically utilizing a cross-sectional design, to facilitate the investigation. This methodology was instrumental in providing a snapshot of the variables in question, allowing for in-depth exploration, and understanding of the current state of affairs within the study's scope.

Settings

The study was meticulously conducted at Alghad International College, specifically within the female department located in Jeddah. This setting was chosen due to its relevance and potential to offer pertinent insights pertinent to the research objectives.

Sample Type

For this study, a convenience sampling strategy was employed. This approach was instrumental in facilitating the swift and efficient collection of data. The sample was comprehensive, encompassing students from a diverse range of departments and academic levels. This diversity in the sample was integral to ensuring the robustness and representativeness of the study's findings, thereby enhancing the generalizability of the results within the context of the college.

Data Collection Tools and Methodology

I. Questionnaire Design

A comprehensive questionnaire, devised by the research team, served as the primary data collection tool. Written in English, it comprised five distinct sections, all featuring closed-ended questions:

1. Demographic and Academic Profile: This section collected basic student information, including age, educational level, department, and marital status.
2. Menstrual Cycle Details: Questions pertained to the age of menarche, blood flow characteristics, cycle regularity and frequency, menstrual duration, and the presence of blood clots.
3. Dysmenorrhea History and Experiences: This part focused on assessing the history and personal experiences related to dysmenorrhea.
4. Impact Assessment: Explored the influence of dysmenorrhea on the student's physical and psychological well-being.
5. Self-Management Practices: Investi-

gated various self-management strategies such as the use of heating pads, exercise, sleep patterns, medication, and herbal remedies.

II. Operational Procedure

- Official Permissions: An official letter from the Vice-dean of Alghad College authorized the study, outlining its objectives for approval.
- Pilot Study: A preliminary pilot study involving 10% of the student population was conducted to evaluate the feasibility of the research tools and the chosen setting. Necessary modifications were implemented based on this pilot.
- Fieldwork Execution: Data collection spanned from the end of February 2019 to the end of March 2019. Each questionnaire took approximately 45-60 minutes to complete. The researchers conducted morning sessions, interviewing each student individually. The data collection process was executed in three phases:

1. Initial Assessment: Focused on menstrual cycle characteristics and manifestations of dysmenorrhea.

2. Impact and Management Assessment: Evaluated the impact of dysmenorrhea and explored self-management approaches.

3.Data Analysis: Analyzing the gathered information to identify prevalent self-management strategies.

Ethical and Legal Considerations

- Ethical Approval: The study received clearance from the ethical committee of Alghad College.
- Informed Consent: Before participation, each subject was thoroughly briefed about the study's objectives, ensuring informed consent. Participants were informed of their right to withdraw at any time without any obligation to provide a reason.
- Confidentiality and Safety: The study prioritized the safety and privacy of the students, with all data handled in a strictly confidential manner.

Statistical Analysis

The collated data underwent meticulous organization, categorization, and tabulation. The analysis utilized descriptive statistical methods, presenting findings in tables with frequencies, and percentages to elucidate the study's findings and conclusions. In the assessment of the correlation between the severity of pain and various dimensions of psychological well-being, statistical significance was established using p-values. The p-value threshold for significance was predetermined at $p < 0.05$. This threshold was chosen because it represents a conventional benchmark for rejecting the null

hypothesis, thus indicating a statistically significant association between variables.

Results:

Table 1 delineates the demographic distribution of the female participants involved in the study, broken down by age, department, and marital status.

Table 1: Demographic Characteristics of Study Participants (n=107)

Items	n	%
Age:		
15- <20 years	16	15.0
20-<25 years	20	18.7
25- <30	71	66.3
Department:		
Nursing	38	35.5
X-ray	26	24.3
Laboratory	11	29.9
Preparatory	32	10.3
Marital status		
Single	97	90.7
Married	10	9.3

Table 2 summarizes the menstrual cycle characteristics of the 107 female participants, presenting key aspects as frequency counts (N) and percentages (%).

Table 2: Menstrual Cycle Characteristics of Female Participants (N=107)

Items	N	%
Age of menarche		
9- 11 years	19	17.8
12- 14 years	59	55.1
≥ 15 years	29	27.1
Regularity of blood flow:		
Regular	74	69.2
Irregular	33	30.8
Frequency of cycle (days):		
< 26	19	17.8
26- 28	58	54.2
29- 31	17	15.9
≥ 32	13	12.1
Menstrual cycle duration:		
<3 day	7	6.5
3-5 days	41	38.3
6-8 days	50	46.7
> 8 days	9	8.4
Contain clots:		
No	54	50.5
Yes	53	49.5

Age of Menarche: The participants' age at menarche is divided into three groups. Nineteen participants (17.8%) experienced menarche between the ages of 9 and 11 years, 59 participants (55.1%) between 12 and 14 years, and 29 participants (27.1%) at 15 years or older.

- Regularity of Blood Flow: Regarding menstrual flow regularity, 74 participants (69.2%) reported regular cycles, while 33 participants (30.8%) experienced irregular cycles.
- Frequency of Cycle (Days): The cycle frequency is categorized into four ranges. Nineteen participants (17.8%) reported a cycle frequency of less than 26 days, 58 participants (54.2%) had a cycle frequency between 26 and 28 days, 17 participants (15.9%) between 29 and 31 days, and 13 participants (12.1%) reported a cycle frequency of 32 days or more.
- Menstrual Cycle Duration: The dura-

tion of the menstrual cycle is also divided into four categories. Seven participants (6.5%) had a cycle duration of less than 3 days, 41 participants (38.3%) between 3 and 5 days, 50 participants (46.7%) between 6 and 8 days, and 9 participants (8.4%) experienced a cycle duration of more than 8 days.

- Presence of Clots: Lastly, the occurrence of blood clots during menstruation was nearly evenly split among the participants, with 54 (50.5%) reporting no clots and 53 (49.5%) indicating the presence of clots during their menstrual cycle.

Table 3 shows the assessment of dysmenorrhea pain experience among the study participants.

Table 3: Distribution of Female Participants Based on History of Dysmenorrhea and Assessment of Dysmenorrheal Pain Experience

Items	N	%
First occurrence of dysmenorrhea:		
- With the onset of Menarche	36	33.6
- 1-2 years after onset of menarche	29	27.1
- More than 2 years from the onset of menarche	42	39.3
Diagnosed of dysmenorrhea:		
- Never been diagnosed	67	62.6
- Primary diagnosed.	31	29.0
- Secondary diagnosed.	7	6.5
- diagnosed but not informed with type.	2	1.9
The onset of pain during your menstruation:		
- Day before the menstrual cycle.	63	58.9
- First day of menstrual cycle.	40	37.4
- Second day of menstrual day.	4	3.7
Duration of dysmenorrhea:		
- Less than one day.	29	27.1
- one day to two days.	51	47.7
- three days and more.	27	25.2
Site of menstrual pain:		
- Lower abdomen.	25	23.4
- Lower back.	23	21.5
- Pelvic pain	8	7.5
- all of the site	51	47.6
Type of menstrual pain:		
- Cramping.	77	72.0
- Sharp.	22	20.5
- Dull.	8	7.5
Menstrual pain symptoms:		
- Nausea	13	12.1
- Diarrhea.	4	3.8
- Vomiting.	8	7.5
- Headache.	29	27.1
- Dizziness.	6	5.6
- All above symptoms.	47	43.9

Items	N	%
Impact of menstrual pain on physical activity. - Never interferes with daily activity. - Sometimes interfere with daily activity. - Always interferes with daily activity.	 36 44 27	 33.6 41.1 25.2
Pain Killer used during 24 menstrual pains: - Never. - Sometimes. - Always.	 32 49 26	 29.9 45.8 24.3

Figure 1 & 2 shows the participants' distribution according to the impact of dysmenorrhea on psychological well-being and physical activity.

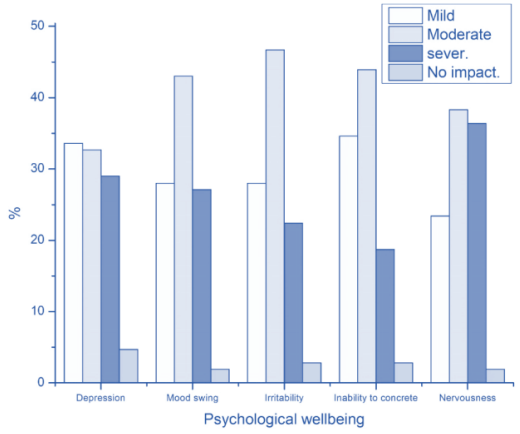


Figure 1: Distribution of Female Participants by the Impact of Dysmenorrhea on psychological well-being

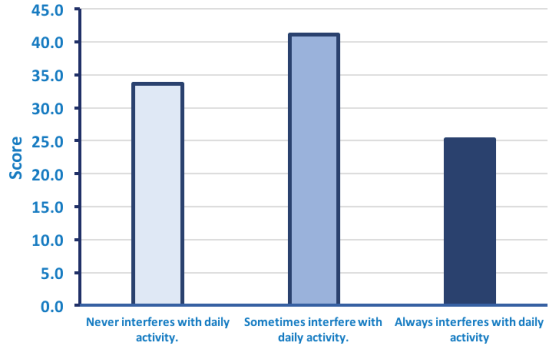


Figure 2: Impact of menstrual pain on physical activity.

Regarding self-management strategies for dysmenorrhea, the study observed diverse practices among women to alleviate pain. About 34.9% applied heat to the lower abdomen, while 43.0% turned to herbal remedies. Table 4 depicts self-management approaches for dysmenorrhea.

Table 4: Distribution of Female Participants by Self-Management Approaches for Dysmenorrhea: Counts and Percentages (n=107)

Self-Management Approach	n	%
Heating bad to the lower abdomen - Never - Sometimes - Always	 26 47 34	 24.3 43.9 31.8
Exercise: - Never - Sometimes - Always	 80 25 2	 74.8 23.4 1.9
Massage: - Never - Sometimes - Always	 82 14 11	 76.6 13.1 10.3
Sleeping: - Never - Sometimes - Always	 12 24 71	 11.2 22.4 66.4
Avoid drinking caffeine: - Never - Sometimes - Always	 44 25 38	 41.1 23.4 35.5
Herbal treatment: - Never - Sometimes - Always	 49 46 12	 45.8 43.0 11.2
Dieting nutrition supplements: - Never - Sometimes - Always	 78 21 8	 72.9 19.6 7.5

Self-Management Approach	n	%
Medication:		
- Never	42	39.3
- Sometimes	28	26.2
- Always	37	34.6

Data presented in Figure 3 displayed the relationship between the severity of dysmenorrhea pain and various aspects of psychological well-being. The correlation coefficients (r-values) and their corresponding p-values provide insight into the strength and significance of these relationships.

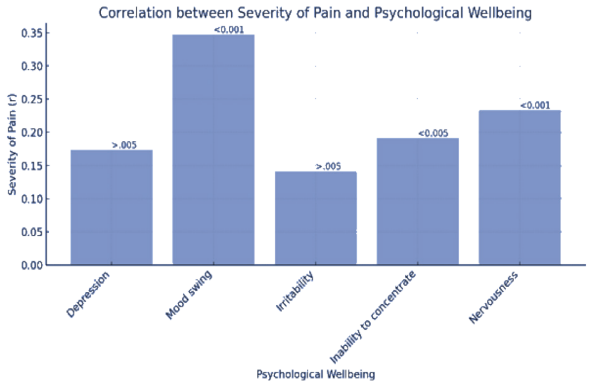


Figure 3: Correlation between severity of pain and psychological wellbeing

Notably, mood swings showed the strongest correlation with pain severity ($r = .347$, $p < .001$), suggesting a significant association. In contrast, irritability demonstrated a weaker and non-significant correlation ($r = .141$, $p > .005$). Depression ($r = .173$, $p > .005$) and inability to concentrate ($r = .191$, $p < .005$) also displayed correlations with pain severity, albeit with varying degrees of significance. Nervousness was moderately correlated with pain severity ($r = .233$, $p < .001$), indicating a significant relationship. These findings highlight the diverse psychological impacts of dysmenorrhea pain severity, suggesting a need for comprehensive approaches to pain management that consider both physical and psychological factors.

Discussion

Within the context of our study, the observed menstrual cycle characteristics and dysmenorrhea experiences underscore the complexity of menstrual health and its impact on the lives of affected individuals. Our findings align with previous research indicating a wide range of menstrual cycle irregularities and the significant burden of dysmenorrhea, both physically and psychologically. The variety of self-management strategies reported reflects a proactive engagement with personal health, yet also highlights the need for more effective, evidence-based interventions[8-10].

Dysmenorrheal is one of the most common widespread gynecologic disorders among female adolescents[11,12]. Dysmenorrhea in adolescent females is usually the primary type. The present study revealed that 66.3% of female have dysmenorrhea their age was 25 <30 years. 90.7% of them were single.

According to a current investigation, the menstrual characteristics revealed that 55.1% of female students start menarche

at age 12-14 years. 69.2% have regular menstrual cycles. 54.2% of students' frequency of menstrual cycle was between 26 and 28 days. 46.7 of them have menstrual duration between 6-8 days and 50.5% have blood clots. The study findings support the study. Findings by Johnston 13 reported that that most of the participants 84.2% (472) had started menstruating between 12-14 years of age. A large chunk of students had menstrual cycle duration of 21 to 35 days; 97.2 % and a very small number (2.8%) had cycle length <21 days and >35 days. And agree in line with Almanasef and Alqarni 14 who reported in his recent study the age of menarche in 85% of study samples was between 12 and 14 years. About 53% of students' frequency of menstrual cycle was between 6 and 8 days and over half of them have clots in their menstrual blood.

As regards the duration of dysmenorrhea pain in the present study, 47.7% of female student's pain lasted from one to two days. Banikarim, et al.[15] found in their study that the duration of pain of dysmenorrhea was less than 24 h among 57.6% of students and only 10.3% of students reported pain lasting for more than 48 h. Banikarim and his colleagues reported that 90% of adolescents had menstrual pain continuing for 48 hours or less.

As regards to severity of pain, the present study revealed that 59.8% of studied females have moderate pain and 31.8% severe pain the findings were supported by a cross-sectional study conducted in Egypt by Eleneen[16] among the four Nursing Students at Suez Canal University. Simple random sampling was used to select 845 adolescent girls. The results of the study showed that the prevalence of dysmenorrheal was 76.1% (n = 643); of these, 26.6% described their menstrual pain as mild, 32.0% as moderate 8, and 41.4% as severe. In other countries, severe pain was reported by 6.3% to 42% of adolescent girls suffering from dysmenorrhea[17]. Those differences in pain severity may be associated with cultural differences as regards pain perception and variability of pain threshold.

Regarding dysmenorrhea and associated symptoms, the present study illustrated that 43.9% of female students experienced nausea, diarrhea, vomiting, headache, and dizziness.50.5% of them have severely disturbed sleep, 29.0 % have severe depression, 34% have moderate mood swings, 46.7% have moderate irritability, 43.9% have moderate inability to concentrate and 63.4% of them have severe nervousness. Al-Kindi and Al-Bulushi [18], and Wong and Khoo [19] identified that the prevalent symptoms of dysmenorrhea among students include sleep disturbances (56%), anxiety

(3.7%), restlessness (45%), impaired concentration (57.9%), fatigue (83.1%), and back pain (52%). These findings suggest a significant impact of dysmenorrhea on students' academic performance and daily routines. The observed reduction in concentration aligns closely with other studies reporting similar impacts. Furthermore, the study highlights lethargy, depression, and concentration difficulties as the top menstrual symptoms, with a shift in symptom prevalence immediately following menstruation, indicating variable symptomatology and its effects on well-being and functionality.

Regarding self-management strategies for dysmenorrhea, the study observed diverse practices among women to alleviate pain. About 34.9% applied heat to the lower abdomen, while 43.0% turned to herbal remedies. Interestingly, a significant majority did not engage in exercise, massage, diet alterations, or medication, which may reflect a lack of awareness about effective self-management techniques. Contrastingly, research from Iran highlights the beneficial effects of physical activity on dysmenorrhea symptoms[20]. Physical activity can positively impact primary dysmenorrhea pain through several mechanisms. Exercise triggers the release of endorphins, natural painkillers produced by the body, which can reduce pain perception. It also improves blood circulation, which can alleviate menstrual cramps by ensuring better oxygen supply to uterine muscles, reducing uterine contractions' intensity. Furthermore, regular physical activity can regulate hormones and reduce stress, contributing to less severe dysmenorrhea symptoms[21, 22].

These findings were in agreement with a systematic review report from Australia among Chinese, which shows that university students were using Chinese traditional medicine as a non-pharmacological treatment[23]. Studies suggest that adopting a diet low in fat and rich in high-fiber vegetables, beans, fruits, and whole grains aids in the body's elimination of estrogens, leading to a decrease in menstrual cramps[24], beans, fruits, and whole grains do help the body eliminate estrogens and thereby bringing about a reduction in menstrual cramps as a lower hormone level will have less effect on the uterine cells[25]. This reduction is attributed to lower hormone levels having a diminished impact on uterine cells. Conversely, certain foods can exacerbate menstrual symptoms. Consuming high amounts of fats, and caffeine from beverages like tea, and sugary foods such as cakes, cookies, and pies contribute to water retention, causing bloating and increasing menstrual discomfort [26].

This study revealed that nursing stu-

dents engaged more in self-medication practices for dysmenorrhea than their peers in non-medical fields, contrasting with findings from another study that observed a higher prevalence of self-medication among non-medical students[27, 28]. This discrepancy might stem from the non-medical students' limited medical knowledge and restricted access to medications. The research underscores the importance of healthcare professionals adopting personalized approaches to menstrual healthcare, reflecting the varied experiences of individuals. It advocates for future research to create and evaluate customized interventions for managing menstrual pain, combining pharmacological and non-pharmacological methods, and exploring dysmenorrhea's underlying mechanisms for better treatment outcomes.

Competing interests

All authors in this article declare no conflict of interest.

Ethical considerations

We acknowledge the importance of ethical considerations in research involving human subjects. For the present study, a formal ethics committee approval was not required as per institutional guidelines. This study involved the collection of data with informed verbal consent obtained from all participants before data collection. The nature of the study was purely observational without any nursing or medical interventions that could affect the participants' wellbeing. Additionally, our institution does not have an ethics committee to oversee such studies. Nevertheless, all procedures performed were per the ethical standards of the institutional research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. We ensured that the confidentiality and anonymity of the participants' data were maintained throughout the study.

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