

## PRIMARY DYSMENORRHEA PREVALENCE AND ITS IMPACT ON THE FEMALE STUDENTS QUALITY OF LIFE AT UMM AL-QURA UNIVERSITY: A CROSS SECTIONAL STUDY

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### Abstract

**Background:** Dysmenorrhea or painful menstruation is a common menstrual discomfort characterized by a severe painful cramping in the lower abdomen that occurs before or during menstruation and has a significant impact on productivity, quality of life, and health care utilization.

**Purpose:** This study was aimed to determine the prevalence of primary dysmenorrhea and its impact on female students quality of life at Umm Al-Qura University.

**Methods:** A cross-sectional study was conducted at Umm Al-Qura University with a total of five hundred (517) female students with primary dysmenorrhea aged 18-25 years. Data were collected through an online questionnaire, including the incidence and duration of dysmenorrhea and severity assessment was performed using a visual analog scale (VAS), and quality of life according to the EuroQol-5D quality of life scale.

**Data Analysis:** Data were analyzed through statistical package SPSS version 16.

**Results:** The results showed that the prevalence of primary dysmenorrhea was (91.1%) among 471 female students, while the prevalence of non-dysmenorrhea was (9.9%) among 46 female students. A significant difference was found (P value < 0.0001), with the primary dysmenorrhea group having a lower level of quality of life according to the EuroQol-5D quality of life scale than the non-dysmenorrhea group.

**Conclusion:** The research underscores a high prevalence of primary dysmenorrhea (91.1%) among female university students. It emphasizes how primary dysmenorrhea and its associated pain symptoms detrimentally impact university performance and overall quality of life.

**Keywords:** Prevalence, Dysmenorrhea, Primary, Menstrual pain, Quality of life, EuroQol-5D quality of life scale, VAS

### Introduction

Dysmenorrhea is characterized by painful menstrual cramps originating from the uterus. It is typically categorized

Manuscrito recibido: 27/09/2024  
Manuscrito aceptado: 12/10/2024

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into primary and secondary dysmenorrhea types (Guimarães & Póvoa, 2020; Hashim et al., 2020). Primary dysmenorrhea is characterized by menstrual pain without any identifiable organic gynecological cause. However, current understanding emphasizes an excess of prostaglandins and vasopressin. Conversely, secondary dysmenorrhea occurs due to an underlying disease. Both types of dysmenorrhea present similar clinical symptoms, with menstrual pain as a primary feature. Nevertheless, specific symptoms such as pain during bowel movements and sexual intercourse are more commonly associated with secondary dysmenorrhea resulting from endometriosis, as evidenced by several studies (Abreu-Sánchez et al., 2020). Dysmenorrhea may also affect social aspects and quality of life (Joshi et al., 2015). The pain of the dysmenorrhea can be very disabling and consequently affect the person's mood and everyday life leading to missing work or university which, in turn, can have an important economic and social impact (Joshi et al., 2015; Fernández-Martínez et al., 2019). Few studies have examined the dysmenorrhea prevalence among samples of university students globally (Fernández-Martínez et al., 2018; Wang et al., 2022). According to what international studies and local studies the incidence of primary dysmenorrhea has increased such as King Saud University (Hashim et al., 2020; Wang et al., 2022). Therefore, this study's aim was to determine the dysmenorrhea prevalence in university students sample and to assess their quality of life.

### Methodology

**Design:** A cross sectional study was conducted between October 2023 - April 2024 at the Department of Medical Rehabilitation Sciences, Umm Al-Qura University. Ethics review has been approved by the Biomedical research ethics committee at Umm Al-Qura University with approval number (HAPO-02-K-012-2024-02-2005).

**Participants:** The study included a total of five hundred (517) female students with primary dysmenorrhea, collected through a survey questionnaire shared on social media, aged between 18 and 25 with a body mass index (BMI) between 18-25, who agreed to voluntarily participate in the study. We excluded students with neurological problems, with a history of abdominal or pelvic surgeries, and also students with any metabolic disorder such as thyroid dysfunction.

**Procedure:** An online questionnaire survey translated from English to Arabic, was designed by referencing similar studies and adapting it to the specific research objectives. It assessed the prevalence of primary dysmenorrhea, menstrual characteristics, and potential contributing factors. Prior to administration, the principal investigator and trained research assistants

conducted informed consent procedures, providing a comprehensive explanation of the study aims, and clarifying any potentially unclear medical/gynecological terms.

**Questionnaire and tools:** The questionnaire included three parts. The first part of the questionnaire covered the state of their socio-demographic and medical characteristics. The second part of the questionnaires included menstrual characteristics, and dysmenorrhea status and habits. The third part of the questionnaires included menstrual pain and was evaluated by the visual analogue scale (VAS) questions (Aktas et al., 2021; Nyirenda et al., 2023) and about quality of life by EuroQol-5D quality of life scale (Thabet et al., 2023).

### Data analysis

The descriptive statistics for the mean and standard deviation included the participants age and BMI. Frequencies and percentages were used to represent categorical variables. The primary dysmenorrhea and non-dysmenorrhea mean differences were assessed using the Mann-Whitney U test, and the primary dysmenorrhea and quality of life the relationship was assessed by using bivariate correlation. A P-value below 0.05 was assumed to be significant.

### Results

A total of 517 female students of Umm Al-Qura University had responded to online forms (Google forms) published on social media. Students experiencing primary dysmenorrhea were reported by 471 which represent 91.1% about 11.70% of them need hospital admission monthly. While students without dysmenorrhea were reported 46 which represents 9.9%.

**Demographic characteristics:** (Table 1) represents the demographic characteristics of 517 participants in both groups (primary dysmenorrhea and non-dysmenorrhea groups) that show non-significant differences (P-value > 0.05) between them regarding age and BMI.

**Dysmenorrhea and Pain severity:** (Table 2) represent different pain severity in the primary dysmenorrhea group according to the visual analog scale that shows different degrees as follows: mild dysmenorrhea in 17.2%, moderate dysmenorrhea in 43.74% and severe dysmenorrhea in 39.06%.

**Dysmenorrhea and Mood swing:** (Table 3) represents the mood swing of students in the primary dysmenorrhea group according to that show different degrees as follows: minimal mood swing in 3.18%, mild mood swing in 16.98%, moderate mood swing in 38.85% and severe mood swing in 40.97%.

**Table 1.** Demographic characteristics of participants at baseline.

Character	Primary dysmenorrhea group	Non-dysmenorrhea group	P-Value
	Mean ± SD	Mean ± SD	
Age (years)	20.77 ± 1.44	20.80 ± 1.60	0.866*
BMI (kg/m <sup>2</sup> )	22.10 ± 4.85	22.71 ± 5.25	0.813*

Non-significance SD: standard deviation

**Table 2.** Different degrees of pain of primary dysmenorrhea group.

Symptoms	No.	%
Mild dysmenorrhea	81	17.2%
Moderate dysmenorrhea	206	43.74%
Severe dysmenorrhea	184	39.06%

**Table 3.** Different degrees of Mood swing of primary dysmenorrhea group.

Mood swing	No.	%
Minimal mood swing	15	3.18%
Mild mood swing	80	16.99%
Moderate mood swing	183	38.85%
Severe mood swing	193	40.98%

**Table 4.** Mean values of quality of life in primary dysmenorrhea group and non-dysmenorrhea group.

Character	Primary dysmenorrhea group	Non-dysmenorrhea group
		Mean ± SD
Mean ± SD	62.85 ± 1.88	85.87 ± 1.16
Z	8.08	
P-Value	0.0001*	

\* Significance SD: standard deviation

**Table 5.** Correlation analysis between pain severity and quality of life level.

Variable	Pain severity	
	r	P-Value
Quality of life level	- 0.59	0.0001**

\*\* Significance

**Dysmenorrhea and Quality of life:** (Table 4) represent a comparison between the primary dysmenorrhea group and the non-dysmenorrhea group regarding the quality of life according to the EuroQoL-5D quality of life scale and results show that there was a significant difference (P-value < 0.0001) in quality of life between both groups with the primary dysmenorrhea group has a low level of quality of life than non-dysmenorrhea.

**Correlation analysis between pain severity and quality of life level:** (Table 5) Correlation analysis between pain severity and quality of life level that revealed a significant inverse relationship (negative correlation) between pain severity and quality of life level with moderate strength correlation (r = - 0.59, p = 0.0001) that mean there is a decrease in quality of life level with an increase of pain severity.

**Discussion**

This research aimed to determine the primary dysmenorrhea prevalence and its effect on quality of life among Umm Al-Qura University female students. The study found a high prevalence of primary dysmenorrhea (91.1%), with different severity including, mild (17.2%), and moderate (43.74%), and severe (39.06%), with about 11.70% of them needing hospital admission monthly, while non-dysmenorrhea (9.9%) was reported among 517 female university students. When comparing primary dysmenorrhea and non-dysmenorrhea students, we found that primary dysmenorrhea students have a lower level of quality of life than non-dysmenorrhea students, with a significant difference (P value < 0.0001). Our result is in line with a local previous study of the primary dysmenorrhea prevalence and the factors related to dysmenorrhea in medical students, which found a high prevalence of primary dysmenorrhea (80%) and international studies measured the primary dysmenorrhea prevalence and students behaviors toward dysmenorrhea and found a higher prevalence of primary dysmenorrhea (88%) (Polat et al., 2009; Hashim et al., 2020). Our result is in line with a previous study that evaluated the dysmenorrhea prevalence

and factors associated and its effect on the medical students' quality of life and found that students with dysmenorrhea have a significant decline in quality of life compared to students without dysmenorrhea (Hashim et al., 2020). Our result agrees with a previous study that assessed the prevalence of dysmenorrhea and its effect on quality of life and found that more severe dysmenorrhea is associated with a negative impact on quality of life (Unsal et al., 2010). Our result is consistent with a previous study that aimed to evaluate the dysmenorrhea prevalence and factors associated with it in the females' population and to show the impact on daily activity and proven relief measures experienced by them and found only a small percentage (4%) of women have complicated dysmenorrhea symptoms severe enough to require hospitalization (Aduloju, 2013). This difference may be due to the difference in the number of samples studied.

**Limitations:** The data collection was self-administered, which decreased the reliability of the results. Moreover, we must focus on dysmenorrhea's major causes.

**Conclusion**

This study highlights that the primary dysmenorrhea prevalence is high among female Umm Al-Qura University students (91.1%), and it has been found that primary dysmenorrhea and the pain symptoms accompanying it negatively affect university performance and quality of life.

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