

FREQUENCY OF MENSTRUAL DISORDERS IN EARLY REPRODUCTIVE AGE GROUP AND ITS EFFECTS ON QUALITY OF LIFE

Dr. Maryam Fatima¹, Dr. Shazia Tazion², Mubashar Sultan Hashmi³, Samia Jamil⁴, Dr. Arooj Fatima⁵

¹ Postgraduate Resident, Sharif Medical and Dental College, Lahore; E-mail: dr.maryamfatima1993@gmail.com

² Associate Professor, Sharif Medical and Dental College, Lahore; E-mail: drtazion@yahoo.com

³ Consultant Critical Care, Bahria International Hospital, Lahore; E-mail: Drmubi@hotmail.com

⁴ FCPS (Gyne-Obs), Assistant Professor, Narowal Medical College, Narowal; E-mail: Samiajamil100@gmail.com

⁵ WMO, DHQ Hospital Hafizabad; E-mail: glowingbud@hotmail.com

ABSTRACT

Menstrual disorders are common among females of reproductive age and can significantly affect their physical, psychological, and social well-being.

Objective: This study was aimed to ascertain the frequency of menstrual disorders and their effect on life quality among females aged 18–25 years.

Methods: A descriptive cross-sectional study was conducted at the Obstetrics and Gynaecology Department of a tertiary hospital in Lahore, over a period of six months. A total of 150 females aged 18–25 years presenting with menstrual complaints were part of the study. A structured proforma was employed for data collection, and quality of life was evaluated using the WHOQOL-BREF questionnaire. SPSS (version 26) was used for data analysis and evaluation. A p -value ≤ 0.05 was taken as statistically significant.

Results: The mean age of participants was 21.2 ± 2.1 years. The overall prevalence of menstrual disorders was 78.7%. Premenstrual syndrome (73.3%) and dysmenorrhea (68.0%) were the most common disorders. Irregular menstrual cycles were observed in 57.3% of participants. Quality of life was moderate in 52.0%, low in 24.0%, and high in 24.0% of participants. A significant association was found between menstrual disorders and quality of life ($p = 0.002$). Significant associations were also observed with age ($p = 0.041$) and BMI ($p = 0.018$).

Conclusion: Menstrual disorders are highly prevalent and significantly impair quality of life among young females.

KEYWORDS: Menstrual disorders, Dysmenorrhea, Premenstrual syndrome, Quality of life, WHOQOL-BREF

INTRODUCTION

Menarche, the onset of the first menstrual period, represents a significant milestone in female pubertal development and marks the initiation of reproductive capability (1). During the early years following menarche, menstrual cycles frequently demonstrate irregularity resulting from the immaturity of the hypothalamic–pituitary–ovarian axis. Consequently, cycle lengths may vary considerably, ranging from less than 20 days to more than 45 days, although a normal cycle typically spans 21–34 days. Prolonged or irregular cycles are frequently associated with anovulatory cycles, reflecting physiological immaturity during adolescence (2).

Menstrual disorders encompass a spectrum of abnormalities, including menstrual irregularities, heavy menstrual blood flow (menorrhagia), disturbed menstruation cycle (oligomenorrhea), polymenorrhea, bleeding between periods, absence of menstruation, painful menstruation, and premenstrual syndrome (PMS) (3, 4). These conditions are among the most common gynecological complaints in females and are associated with substantial physical discomfort as well as psychological, social, and economic burdens. Such disturbances can significantly impair daily functioning, limiting participation in academic, social, and physical activities. In particular, dysmenorrhea has been identified as a leading cause of school absenteeism and reduced productivity among young females (5).

Adolescents and young women, especially undergraduate students, are particularly vulnerable to menstrual irregularities due to ongoing hormonal fluctuations. Differentiating between normal physiological variations and pathological menstrual disorders remains a clinical challenge, often resulting in delayed diagnosis and management (3, 6). This delay may exacerbate symptoms and negatively impact overall health outcomes. Moreover, menstrual disorders during early reproductive years (18–25 years) can influence quality of life at a critical stage characterized by academic demands, career development, and psychosocial growth (7).

Evidence from epidemiological studies highlights the high frequency of menstrual disorders in this population. A cross-sectional investigation carried out among female undergraduates at a University in Uganda reported that

97.8% of participants encountered at least one type of menstrual disorder. Premenstrual symptoms (93.8%) and dysmenorrhea (63.6%) were the most commonly reported conditions, with a significant proportion of participants also reporting irregular menstruation, abnormal cycle frequencies, and intermenstrual bleeding. Notably, the severity of dysmenorrhea ranged from moderate to severe in a majority of affected individuals, underscoring its substantial impact on quality of life (QoL) (8).

Menstrual disorders such as dysmenorrhea, menorrhagia, oligomenorrhea, and PMS not only affect physical health but also contribute to psychological distress, reduced academic performance, and increased absenteeism (9). Despite their high prevalence and significant impact, these conditions remain underreported and inadequately addressed in many healthcare settings, particularly in developing countries. Cultural stigma, lack of awareness, and limited access to healthcare services further contribute to the neglect of menstrual health issues.

Although menstrual disorders are highly prevalent among females in the early reproductive age group, there is a paucity of local data assessing their frequency and impact on QoL in this population. Most available studies are conducted in different sociocultural contexts, limiting their generalizability to the local population. Furthermore, menstrual health is often overlooked in clinical practice, and its implications on physical, psychological, and social well-being remain underexplored.

Assessing the frequency of menstrual disorders and their association with QoL among females aged 18–25 years is essential for identifying the burden of disease and guiding evidence-based interventions. Early recognition and management can improve health outcomes, reduce absenteeism, and enhance overall QoL. Therefore, this study aims to bridge the existing knowledge gap by providing local evidence, which may contribute to improved clinical awareness, targeted health education, and the development of effective management strategies for menstrual disorders in young females.

METHODS

This descriptive cross-sectional study was held at the Obstetrics and Gynaecology Department, Sharif Medical City Hospital, Lahore, for the duration of six months after the approval of the research synopsis. Ethical approval was obtained from the Institutional Review Board of Sharif Medical and Dental College, and permission was granted by the College of Physicians and Surgeons Pakistan (CPSP) prior to the commencement of data collection. The sample size was calculated using the World Health Organization (WHO) sample size calculator; however, the exact parameters could not be retrieved from the source document. A non-probability consecutive sampling method was employed for participant recruitment.

Females aged 18–25 years presenting to the outpatient department (OPD) with menstrual complaints were included in the study. Participants who met the inclusion criteria were enrolled after obtaining written informed consent. Confidentiality and anonymity of all participants were strictly maintained throughout the study.

A structured, pre-designed proforma was employed for data collection. Demographic variables included age, age at menarche, marital status, educational level, height, weight, and body mass index (BMI). A detailed menstrual history was obtained, including cycle regularity, cycle length, duration of menstruation, and the presence of menstrual disorders such as dysmenorrhea, menorrhagia, oligomenorrhea, polymenorrhea, amenorrhea, and intermenstrual bleeding.

QoL was assessed using the validated World Health Organization Quality of Life-BREF (WHOQOL-BREF) questionnaire through face-to-face interviews. The scores were transformed onto a scale ranging from 0 to 100 and categorized as low (<45), moderate (46–65), and high (>65).

Measures were taken to minimize bias. Selection bias was reduced by adopting consecutive sampling, while measurement bias was controlled through the use of a standardized data collection tool and a validated questionnaire. Recall bias was minimized by limiting the menstrual history to the last three menstrual cycles.

Potential extraneous variables such as age, body mass index (BMI), and age at menarche were controlled through stratification. Stratified variables included age groups (18–21 years and 22–25 years), BMI groups (underweight, normal weight, overweight, and obese), and age at menarche (<12 years and ≥12 years).

All collected data were entered and analyzed using Statistical Package for Social Sciences (SPSS) (version 26). Quantitative variables such as age, BMI, and age at menarche were presented as mean ± standard deviation. Qualitative variables, including types of menstrual disorders and QoL categories, were documented as frequencies along with percentages. Confidence Interval (CI) was also calculated for the suitable variables.

The overall frequency of menstrual disorders was calculated. Post-stratification analysis was performed, and the chi-square test was applied to assess the association between menstrual disorders and quality of life. A p-value of ≤0.05 was considered statistically significant.

RESULTS

In total 150 females aged 18–25 years were part of the study. The average age of participants was 21.2 ± 2.1 years (95% CI: 20.9–21.5), while the mean BMI was 23.8 ± 4.2 kg/m² (95% CI: 23.1–24.5). Over half of the participants (54.7%) were categorized under the 18–21 years age group, and most were unmarried (80.0%) (Table I).

Regarding menstrual characteristics, 57.3% (95% CI: 49.4–65.2) of participants reported irregular menstrual cycles, while 42.7% had regular cycles. The majority of participants (61.3%; 95% CI: 53.5–69.1) had a normal cycle length (21–34 days), whereas 30.7% reported cycles longer than 35 days. Most participants (64.0%) had a menstrual flow duration of 3–7 days (Table II).

The overall prevalence of menstrual disorders was 78.7% (n = 118; 95% CI: 72.1–85.3). Premenstrual syndrome was the most frequently reported disorder, affecting 73.3% (95% CI: 66.2–80.4) of participants, followed by dysmenorrhea (68.0%; 95% CI: 60.5–75.5). Other disorders included menorrhagia (32.0%), oligomenorrhea (28.0%), polymenorrhea (10.7%), amenorrhea (8.0%), and intermenstrual bleeding (9.3%) (Table III).

Assessment of QoL showed that 52.0% (95% CI: 44.0–60.0) of participants had moderate QoL, while 24.0% (95% CI: 17.2–30.8) each had low and high QoL (Table IV).

Inferential analysis demonstrated a statistically significant association between menstrual disorders and QoL ($p = 0.002$), with participants having menstrual disorders more likely to report poorer quality of life (Table V).

Stratification analysis revealed that age and menstrual disorders are significantly related ($p = 0.041$), with a higher prevalence observed in the younger age group (18–21 years) (Table VI). Similarly, BMI was significantly associated with menstrual disorders ($p = 0.018$), with increased prevalence among overweight and obese participants (Table VII).

Table I: Demographic Characteristics of Participants (N = 150)

Variable	Category	Frequency (n)	Percentage (%)
Age (years)	18–21	82	54.7
	22–25	68	45.3
Marital Status	Single	120	80.0
	Married	30	20.0
Education Level	Intermediate	40	26.7
	Graduate	78	52.0
	Postgraduate	32	21.3
BMI Category	Underweight	18	12.0
	Normal	72	48.0
	Overweight	38	25.3
	Obese	22	14.7

Table II: Menstrual Characteristics (N=150)

Variable	Category	Frequency (n)	Percentage (%)
Cycle Regularity	Regular	64	42.7
	Irregular	86	57.3
Cycle Length	<21 days	12	8.0
	21–34 days	92	61.3
	>35 days	46	30.7
Duration of Flow	<3 days	20	13.3
	3–7 days	96	64.0
	>7 days	34	22.7

Table III: Frequency of Menstrual Disorders (N=150)

Disorder	Present (n)	Percentage (%)	95% CI
Dysmenorrhea	102	68.0	60.5–75.5
Menorrhagia	48	32.0	24.6–39.4
Oligomenorrhea	42	28.0	20.8–35.2
Polymenorrhea	16	10.7	5.8–15.6
Amenorrhea	12	8.0	3.7–12.3
Intermenstrual Bleeding	14	9.3	4.7–13.9
Premenstrual Syndrome	110	73.3	66.2–80.4

Table IV: Quality of Life (N=150)

QoL Category	Frequency (n)	Percentage (%)	95% CI
Low	36	24.0	17.2–30.8
Moderate	78	52.0	44.0–60.0
High	36	24.0	17.2–30.8

Table V: Association of Menstrual Disorders with Quality of Life (N=150)

Menstrual Disorder	Low QoL	Moderate QoL	High QoL	P-value
Present (n=118)	34	66	18	0.002
Absent (n=32)	2	12	18	

Table VI: Age vs Menstrual Disorders (N=150)

Age Group	Disorder Present	Disorder Absent	p-value
18–21	70	12	0.041
22–25	48	20	

Table VII: Stratification of Mental Disorders Frequency According to BMI (N=150)

BMI Category	Disorder Present	Disorder Absent	p-value
Underweight	12	6	0.018
Normal	52	20	
Overweight	32	6	
Obese	22	0	

DISCUSSION

Menstruation is a physiological process; however, it is mostly associated with various menstrual disorders that can significantly affect the physical, psychological, and social well-being of females (10). In the present study, the overall prevalence of menstrual disorders was 78.7%, indicating a high burden among females in the early reproductive age group. Although this prevalence is lower than that reported by Karout et al. (97.8%) among university students in Uganda, it still highlights the substantial magnitude of menstrual disorders in young females (11). Similarly, Al-Gilany et al. reported a high prevalence (91%) among health science students in Saudi Arabia (12).

In the current study, the majority of participants had a normal BMI, which is consistent with findings reported by Thapa and Shrestha, where 61.3% of participants had normal BMI (13). However, BMI and menstrual disorders were found to be significantly associated ($p = 0.018$), supporting the evidence that abnormal BMI contributes to menstrual irregularities through hormonal dysregulation.

Menstrual irregularities were reported in 57.3% of participants in this study, which is almost double than the 20.7% reported by Karout et al. (11). This discrepancy may be due to differences in study population, definitions of normal menstrual cycle, and lifestyle factors. Similarly, Nagar and Aimol reported variations in menstrual cycle patterns among adolescents, emphasizing the role of environmental and physiological factors (14).

Dysmenorrhea was observed in 68.0% of participants in this study, which is comparable to the prevalence reported by Karout et al. (63.6%) (11), but lesser than that observed in studies conducted in Ghana (83.6%) and the United States (85%) (15, 16). These variations may be attributed to differences in pain perception, cultural attitudes, and genetic predisposition. Importantly, dysmenorrhea in the present study showed a significant association with reduced quality of life, which is consistent with findings reported by Unsal et al. and Fernández-Martínez et al., who demonstrated its negative impact on daily activities and well-being (17, 18).

PMS was the most frequently reported disorder in this study (73.3%), which is comparable to findings reported by Nisar (75%) among medical students (19). However, Yamamoto et al. reported even higher levels of psychological symptoms associated with PMS, particularly stress and anxiety, among Japanese college students (20). Differences in prevalence may be due to variations in diagnostic criteria, lifestyle, and cultural perceptions. QoL assessment in the present study revealed that a significant proportion of participants had moderate to low QoL, demonstrating significant effect of menstrual disorders on QoL of the effected women ($p = 0.002$). These findings are consistent with studies conducted by Unsal et al. and Fernández-Martínez et al., which demonstrated that menstrual disorders, particularly dysmenorrhea and PMS, negatively affect physical, psychological, and social domains of quality of life [8,9]. Similarly, Karout et al. reported that participants with menstrual disorders had lower QoL scores across multiple life activities (11).

The present study also found a significant association between age and menstrual disorders ($p = 0.041$), with higher prevalence among younger females (18–21 years). This finding may be explained by the immaturity of the hypothalamic–pituitary–ovarian axis and increased hormonal fluctuations in early reproductive years. Additionally, lifestyle factors such as stress, dietary habits, and physical inactivity may contribute to menstrual disturbances, as suggested by Nisar in his study (19).

Overall, the findings of this study are consistent with existing literature, reinforcing that menstrual disorders are highly prevalent and significantly impact the QoL of young females. Despite this, many individuals consider menstrual symptoms as normal and do not seek medical attention, as highlighted by Karout et al., where only a

small proportion of participants sought medical consultation (11). This indicates poor health-seeking behavior and underscores the need for increased awareness and early intervention.

Nevertheless, this study has several gaps. The sample size was comparatively modest and confined to a single institution, which could limit the applicability of the results to broader populations. Data were collected using self-reported questionnaires, which may introduce recall bias, particularly regarding menstrual history. Additionally, clinical diagnosis of menstrual disorders was not performed, and findings were based solely on participant responses. Potential confounding factors such as dietary habits, caffeine intake, physical activity, and psychological stress were not assessed in detail. Future studies with larger sample sizes and multi-center sampling are recommended to confirm these findings.

CONCLUSION

A high prevalence of menstrual disorders is observed among young females is observed that are significantly associated with reduced QoL. Early identification and management are essential to improve overall well-being.

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