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ASSESSMENT OF MENSTRUAL DISORDERS AMONG ADOLESCENT GIRLS ATTENDING AL SUKAR PRIMARY HEALTH CARE CENTER IN MOSUL CITY

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ABSTRACT

Background: Menstrual disorders are common health problems among adolescent girls and may negatively affect their physical, psychological, social, and academic wellbeing. Early identification and management of these disorders are important to reduce their adverse effects and improve quality of life. **Objectives:** To assess the prevalence and pattern of menstrual disorders among adolescent girls attending Al Sukar Primary Health Care Center in Mosul city and to evaluate the association between body mass index and menstrual irregularities. **Methods:** A cross-sectional descriptive study was conducted at Al Sukar Primary Health Care Center in Mosul city from November 2024 to February 2026. A convenient sample of 300 adolescent girls aged 10–19 years was included. Data were collected using a structured questionnaire through direct interviews. Information regarding socio-demographic characteristics, menstrual patterns, menstrual disorders, and body mass index was obtained. Data analysis was performed using SPSS version 31, and statistical significance was considered at p-value <0.05. **Results:** The mean age of participants was 15.8 ± 2.1 years. Irregular menstrual cycles were reported in 34.3% of participants. Dysmenorrhea was the most common menstrual disorder affecting 67% of participants, followed by premenstrual symptoms (57.7%) and heavy menstrual bleeding (24.3%). Moderate dysmenorrhea represented the highest severity grade (58.7%). School absenteeism related to menstruation was reported by 32% of participants. Menstrual irregularities were significantly more common among overweight and obese adolescents compared with those having normal body mass index (P = 0.033). **Conclusions:** Menstrual disorders were highly prevalent among adolescent girls, particularly dysmenorrhea and menstrual irregularities. Abnormal body mass index was significantly associated with menstrual irregularities. Health education, early screening, and promotion of healthy lifestyle practices are recommended to improve menstrual health among adolescents.

KEYWORDS: Adolescents; BMI; Dysmenorrhea; Menstrual irregularities.

1- INTRODUCTION

Menstrual disorders are a significant public health concern around the world and are among the most prevalent reproductive problems that affect adolescent females. Adolescence is a period of transition that is marked by the physical, psychological, and reproductive maturation of the hypothalamic–pituitary–ovarian axis following menarche. Menstrual irregularities are relatively prevalent during this time; however, certain disorders may suggest underlying hormonal or pathological abnormalities that necessitate medical evaluation and management.[1-2]

Menstrual disorders that are frequently encountered in adolescents include dysmenorrhea, irregular menstrual cycles, excessive menstrual hemorrhage, oligomenorrhea, amenorrhea, and premenstrual syndrome. Evidence reported that dysmenorrhea is the most common menstrual complaint among adolescent females, with prevalence rates worldwide ranging from 60% to 73%. The quality of life, academic performance, emotional wellbeing, social activities, and physical health of adolescents can be substantially impacted by menstrual disorders.[2-4]

Menstrual disorders have been linked to school absenteeism, impaired concentration, sleep disturbances, and reduced participation in daily activities. Menstrual pain and associated symptoms may result in over one-fifth of adolescents who are menstruating missing school on a regular basis. Many adolescent females fail to seek medical advice due to social stigma, a lack of awareness, or limited access to healthcare services, despite the high prevalence of these disorders.[5-6]

Menstrual irregularities are notably prevalent in the initial two years following menarche, as a result of the hypothalamic–pituitary–ovarian axis's immaturity. However, persistent menstrual abnormalities may be linked to polycystic ovary syndrome, obesity, endocrine disorders, nutritional deficiencies, stress, or chronic medical conditions. To prevent future reproductive and psychological complications, it is crucial to identify and manage menstrual disorders at an early stage.[7-9]

Another significant concern among adolescents is the presence of heavy menstrual menstruation, which can have a detrimental impact on their quality of life and result in fatigue and anemia. Recent systematic reviews have found that a significant number of adolescent females experience excessive menstrual hemorrhage, which frequently goes undiagnosed and untreated.[10]

A significant role is played by primary health care centers in the early detection, counseling, health education, and management of menstrual disorders of adolescents. By evaluating the prevalence and pattern of menstrual disorders among adolescent females who attend PHCCs, healthcare providers can identify frequent problems and establish effective preventive and therapeutic strategies.. As a result, the aim of this study is to analyze menstruation abnormalities among teenage girls who frequent attend primary health care centers.

2-Patients and methods

An official agreement was obtained from the directorate of Health in Mosul before conduction of the present study. A verbal consent was taken from the patients who included in the study.

This cross-sectional descriptive study was conducted at Al Sukar Primary Health Care Center, from 1st of November 2024 to the 1st of February 2026. The study population included adolescent girls aged 10–19 years who attended the Al Sukar Primary Health Care Center during the study period. Girls who had menarche and agreed to participate in the study were included. Adolescents with known chronic systemic diseases, congenital reproductive tract abnormalities, coagulation disorders, or those receiving hormonal therapy were excluded from the study. A convenient sample of 300 patients was recruited based on their attendance during the study period. The sample size was calculated according to the standard formula for prevalence studies, and participants were selected using a convenient sampling technique. Data were collected through direct interviews using a structured questionnaire designed according to the study objectives and relevant literature. The questionnaire included socio-demographic characteristics such as age, educational level, residence, body mass index, age at menarche, menstrual cycle characteristics, duration and regularity of menstruation, amount of menstrual bleeding, presence of dysmenorrhea, premenstrual symptoms, school absenteeism, and family history of menstrual disorders.

Menstrual disorders were defined according to standard gynecological criteria. Dysmenorrhea was defined as painful menstruation interfering with daily activities; oligomenorrhea as menstrual cycles longer than 35 days; polymenorrhea as cycles shorter than 21 days; amenorrhea as absence of menstruation for three consecutive months or more; and heavy menstrual bleeding as excessive menstrual blood loss affecting physical, emotional, social, or material quality of life.

Height and weight measurements were obtained using standardized methods, and body mass index was calculated as weight in kilograms divided by the square of height in meters.

Data analysis were carried out using of Microsoft Office Excel software programs. Data analysis was conducted using the Statistical Package for Social Sciences (SPSS) version 31. Descriptive statistics were presented as frequencies, percentages, means, and standard deviations. Associations between categorical variables were assessed using the Chi-square test, and a p-value of less than 0.05 was considered statistically significant.

3-RESULTS

A total of 300 adolescent girls attending selected primary health care centers were included in the study. The mean age of the participants was 15.8 ± 2.1 years. Table 1 shows the socio-demographic and anthropometric characteristics of the participants. Most participants were aged 14–17 years and the majority were living in urban areas. Normal body mass index was observed in most participants.

Table (1): Sociodemographic and anthropometric characteristics of the study patients (n = 300).

Variable	Category	Number	Percentage
Age group (years)	10–13	72	24.0%
	14–17	170	56.7%
	18–19	58	19.3%
Residence	Urban	204	68%
	Rural	96	32%

Body mass index	Underweight	23	7.7%
	Normal	184	61.3%
	Overweight	66	22%
	Obesity	27	9%

Table 2 demonstrates the menstrual characteristics and the prevalence of menstrual disorders among the participants. Dysmenorrhea was the most common disorder, followed by premenstrual symptoms and heavy menstrual bleeding. While amenorrhea was the least frequent finding.

Table (2): Menstrual characteristics and disorders among the study participants (n = 300).

Variable	Number	Percentage
Regular menstrual cycle	197	65.7%
Irregular menstrual cycle	103	34.3%
Dysmenorrhea	201	67.0%
Heavy menstrual bleeding	73	24.3%
Oligomenorrhea	47	15.7%
Polymenorrhea	27	9.0%
Amenorrhea	12	4.0%
Premenstrual symptoms	173	57.7%
School absenteeism	96	32.0%

Table 3 illustrates the severity of dysmenorrhea among participants affected by dysmenorrhea. Moderate dysmenorrhea represented the highest proportion.

Table (3): Severity of dysmenorrhea among patients with dysmenorrhea (n = 201).

Variable	Number	Percentage
Mild	34	16.9
Moderate	118	58.7
Severe	49	24.4

Table 4 shows the association between body mass index and menstrual irregularities among the participants. Menstrual irregularities were more common among overweight and obese participants, with a statistically significant difference (P value = 0.33).

Table (4): Association between BMI and menstrual irregularities (n = 300).

BMI Category	Regular cycle	Irregular cycle	Total	P value
Underweight	12 (52.2%)	11 (47.8%)	23	**0.033**
Normal BMI	131 (71.2%)	53 (28.8%)	184	
Overweight	39 (59.1%)	27 (40.9%)	66	
Obese	15 (55.6%)	12 (44.4%)	27	
Total	197 (65.7%)	103 (34.3%)	300	

4- DISCUSSION

The present study demonstrated that menstrual disorders are highly prevalent among adolescent girls attending primary health care centers, with dysmenorrhea being the most common complaint, followed by premenstrual symptoms and heavy menstrual bleeding. Similar findings were reported in a recent Sudanese study, where dysmenorrhea represented the most frequent menstrual abnormality among adolescents, affecting more than half of participants, followed by premenstrual symptoms and heavy menstrual bleeding.[11] Similarly, another comprehensive analysis discovered that patients with skin diseases, including acne, had pooled prevalence rates of 27.2% for depression and 28.8% for anxiety, highlighting the substantial burden of psychological disorders in dermatological problems.[11] Another recent study from Iran also found dysmenorrhea to be the predominant menstrual disorder among adolescent girls.[12] These similarities may be explained by hormonal immaturity during adolescence, psychosocial stressors, and lifestyle factors affecting menstrual health.

In the current study, 34.3% of participants had irregular menstrual cycles. This finding is comparable to a recent Iraqi study conducted among adolescent school girls, which reported menstrual irregularities in approximately one-third of participants.[13] Likewise, a study from Ukraine found that nearly one-quarter of adolescent girls experienced irregular menstrual cycles.[14] Menstrual irregularities during adolescence are often attributed to immaturity of the hypothalamic–pituitary–ovarian axis in the first years after menarche.

Dysmenorrhea affected 67% of participants in this study, and moderate dysmenorrhea was the most common severity grade. Comparable prevalence rates were reported in studies from Sudan and India, where dysmenorrhea prevalence ranged from 56% to 78% among adolescent girls.[11,15] Severe dysmenorrhea was also associated with reduced daily activities and school absenteeism in those studies, which is consistent with the present findings showing school absenteeism in 32% of participants. Menstrual pain remains one of the leading causes of impaired academic performance and reduced quality of life among adolescents.

Premenstrual symptoms were reported by 57.7% of participants in the present study. This prevalence is higher than that observed in a recent Ukrainian study that reported premenstrual symptoms in approximately one-third of adolescents.[14] Variations between studies may be related to differences in diagnostic criteria, cultural perceptions, stress levels, and nutritional status among study populations.

The present study also showed a statistically significant association between body mass index and menstrual irregularities, where overweight and obese adolescents had higher frequencies of irregular cycles compared with girls having normal BMI. Similar associations were reported in recent studies demonstrating that both obesity and underweight status can adversely affect menstrual regularity and reproductive hormonal balance. [7, 12] Adipose tissue influences estrogen metabolism and insulin resistance, which may contribute to ovulatory dysfunction and menstrual abnormalities among adolescents with abnormal BMI.

The present study had several limitations. First, the cross-sectional design limited the ability to establish causal relationships between body mass index and menstrual disorders. Second, the data were based mainly on self-reported menstrual history, which may be affected by recall bias or inaccurate reporting. Third, the study was conducted in selected primary health care centers in Mosul city; therefore, the findings may not be generalized to all adolescent girls in other regions. In addition, hormonal assays and pelvic ultrasonography were not performed routinely to identify underlying organic causes of menstrual disorders.

5- CONCLUSION AND RECOMMENDATION

Menstrual disorders were highly prevalent among adolescent girls attending primary health care centers, with dysmenorrhea, premenstrual symptoms, and menstrual irregularities being the most common findings. A significant association was observed between abnormal body mass index and menstrual irregularities, indicating the possible influence of nutritional and lifestyle factors on menstrual health. These disorders negatively affected daily activities and school attendance among many participants. Therefore, increasing awareness regarding menstrual health through school- and community-based educational programs is recommended, in addition to encouraging healthy dietary habits, regular physical activity, and early medical consultation for adolescents with persistent menstrual abnormalities. Further large-scale longitudinal studies are also recommended to better evaluate the underlying risk factors and long-term consequences of menstrual disorders among adolescent girls.

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