

Research Article

Menstrual Disorders Among Nursing Students at Al Neelain University, Khartoum State

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Abstract

Background: Menstrual disorders can severely affect the daily life of young females, particularly the student population, which generates a massive tension that extends to families, but they seldom affect the quality and standard of life.

Objectives: The aim of this study was to determine the morbidity nature of menstrual disorders among nursing students and their effect on students' life activities.

Methods: This study was a descriptive cross-sectional institutional-based study conducted at the Al Neelain University, Faculty of Nursing. Of the 200 students recruited, 149 completed the questionnaire with the responding rate of (74.5%). Data were collected using a self-administered structured questionnaire.

Results: Of the 149 participants, most were young and in the age range of 18–24 years with a mean age of 21 years. Most students (74%) started their menarche at a normal age range of 12–15 years. A relatively high dysmenorrhea (94.0 %) was observed among the participants. More than half of the respondents (55.0%) had irregular menstruation.

Conclusion: The authors concluded that the prevalence and morbidity of dysmenorrhea and menstrual irregularity were high but broadly comparable to those observed in similar developing countries. Therefore, national health policies need to consider the health and educational impact of menstrual disorders on nursing students and develop the plan through a change in students' lifestyle; moreover, school authorities and teachers need to be aware of the problems to provide psychological and academic support.

Keywords: morbidities, dysmenorrhea prevalence, menstrual disorders, nursing students, irregular menstruation

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1. Introduction

Menstrual disorders are an acute class of problem that young women face during their reproductive years, the most prominent gynecology sickness occurring between 20 and 25 years of age [1]. This not only affects their family life but also the day-to-day activities,

seldom affecting the quality and standard of life, as well the social and national economy [2]. Menstruation is an episodic and repeated peeling of endometrium accompanied by loss of blood, it is a regular biological process in females of reproductive age that starts during puberty and may be accompanied by numerous symptoms [3]. It started as assessment means for normal development and the exclusion of irrational situations. The normal menstruation starts at the age of menarche which is ranged between 9 and 15 years [4]. The length of menstrual cycle is 28 to 32 days, duration of flow is 3 to 7 days, and the amount of blood flow per period is ≤ 80 ml [5]. Menstrual disorders are one of the main difficulties facing women worldwide [6], greatly affecting the daily life activities of young women [7], and represents 1% of women's gynecological appointment [6]. The common types of menstrual disorders are premenstrual syndrome (PMS), dysmenorrheal (painful menstruation), amenorrhea (absence of menstruation), hypomenorrhea (light menstruation), menorrhagia (heavy flow), metrorrhagia (intermenstrual bleeding), menometrorrhagia (prolonged excessive irregular and more frequent menstruation), polymenorrhea (frequent menstruation), and oligomenorrhea (infrequent menstruation) [8]. While most women experience menstrual discomfort or disruption during their reproductive life, more than 10% of young women are affected for up to three days due to monthly menstrual disorder and nearly 50% of them go through painful menstruation frequently. Besides that, abnormal uterine bleeding, which is one of dangerous menstrual disorders, affects about 5–15% of women of reproductive age [9]. Menstrual disorders are common health problems but with greater burden than any other gynecological complaints [10]. That stated, there is a very scant data on its effects on the health status and quality of life of young females and very little or no attention is given to it in developing countries [5, 11]. In spite of that, the Global Burden of Disease (GBD) approach integrates valuation of morbidity and quality of life in identifying priorities a moment ago [6]. Menstrual disorders, like other parts of sexual and reproductive health are not involved in the GBD estimations [12, 13]. Nevertheless, these morbidities are reported as an important unmet area of reproductive health services for women worldwide including in developing countries [6]. Researches in morbidity and risk factors of menstrual disorders are recommended and anxiously warranted and awaited by many researchers [6, 14].

Students are the future of a country, so they must be qualified to become good future leaders and be responsible for improving the health and social and economic status of the country [15]. Menstrual disorders are the common cause of anxiety morbidity in female life and can possibly have significant physical and emotional consequences among students [7, 16]; moreover the stress of education causes emotional and physical

discomfort during menstruation and leads to absenteeism from school or college [7], affecting the educational performance and attendance of students and hindering their practical growth [17, 18]. Khadir and colleagues studied menstrual disorders among nursing students and reported that they affected students' academic performance in forms of lectures absence, loss of concentration and understanding, sleeping desire during lectures in addition to affecting their practical performance [17]. Various risk factors have been suggested to be associated with dysmenorrhea such as hormonal imbalance, failure to cope with stress, greater BMI, younger age of menarche, nutritional deficiencies, smoking or exposure to passive smoking, and lack of physical activity. Dysmenorrhea has negative physical and psychological consequences at school, university, leading to absence, academic underachievement, and undermining quality of life [19]. Several studies have been published on the prevalence of dysmenorrhea among female students and especially among female medical students since they are under a lot of academic pressure and have to attend hospitals at difficult times. Most of these studies reported high prevalence of dysmenorrhea among this category, it was found to be more than three quarters among technical secondary schools' girls, and medical college students [20–25]. Although menstrual disorders among students have been studied in various countries [26, 27], to the best of our knowledge, very little information on the topic is available in Sudan [28].

2. Materials and Methods

2.1. Study design

This descriptive cross-sectional institutional-based study was conducted at the Al Neelain University, Faculty of Nursing to determine the nature of morbidity for menstrual disorders among nursing students and their effect on students' educational activities. About 420 female nursing students from different class levels (from level one to level four) registered in the academic year 2018–2019 were included in the study; 25% of them had menstrual disorders with 5% error and 95% confidence interval calculated using internet sample size; 200 sample size was estimated and recruited in clusters to participate according to their proportional representation in the class levels.

2.2. Data collection

A self-administered, structured, questionnaire in English was designed for the study. It was translated to Arabic to ensure the harmony in understanding; then, a pilot study was conducted with 12 students, three students randomly selected from each of the four class levels and were analyzed to determine the tool-reliability. Self-administered questionnaires were distributed to be filled by the nursing students in their break which took them about 15 min to respond.

2.3. Data analysis

Data were clean coded and interred in SPSS, version 20, and analyzed using frequencies and percentages. Bivariate analysis of data with a chi-squared test of significance was done where appropriate, $P < 0.05$ was considered statistically significant.

2.4. Ethical considerations

The study was approved by the Ethical Committee obtained and all participants gave their consent before participating in the study.

3. Results

All students included in this study are young, aged between 18 and 24 years with a mean age of 21 years. Most of them were prepared for menarche (the first onset of menstruation) period by their mothers and teachers as shown in Table 1.

Menarche varies between the populations due to diverse factors such as nutritional, geographical, and environmental conditions. In this study, most of the respondents (74%) began their menarche at the normal age range of 12–15 years, with a mean age of 13.5 years as shown in Table 2.

With regard to the number of days of the menstrual cycle, we found that in the current study, most respondents had normal menstrual duration of 4 to 7 days. In the present study, more than half of our respondents (55.0%) had irregular menstruation, while dysmenorrhea was relatively very high (94.0%) as shown in Table 2.

In this study most respondents reported absence from study for a one to three days due to menstrual problems. Concerning reasons of absentees from the study, the third (32.89%) of the respondents confirmed very painful period and 13.16% suffered painful

TABLE 1: Background characteristics (*n* = 149)

	Frequency	Percentage	Valid Percentage	Cumulative Percentage
Age group				
< 18 years	5	3.9	3.9	3.9
18–20 years	82	64.1	64.1	68.0
21–24 years	37	28.9	28.9	96.9
> 24 years	4	3.1	3.1	100.0
Total	128	85.0	85.0	
Missing value	21	15.0	15.0	
Total	149	100.0	100.0	
Student educational level				
Level one	27	21.1	21.1	21.1
Level two	24	18.8	18.8	39.8
Level three	42	32.8	32.8	72.7
Level four	35	27.3	27.3	100.0
Total	128	85.0	85.0	
Missing value	21	15.0	15.0	
Total	149	100.0	100.0	
Preparation for the menarche (first menstruation)				
Yes	119	79.9	79.9	79.9
No	30	20.1	20.1	100.0
Total	149	100.0	100.0	
Menstruation information source				
Mother and grand mother	54	36.2	45.4	45.4
Older sisters	16	10.7	13.4	58.8
Books and magazines	5	3.4	4.2	63.0
Mass media	6	4.0	5.0	68.1
Teachers	38	25.5	31.9	100.0
Total	119	79.9	100.0	

heavy period with vomiting that hindered them from attending their study as shown in Figure 1.

In the present study, correlations between absentness from study and different menstrual problems were presented as shown in Table 3.

4. Discussion

While much data concerning menstrual problems are available in the other countries [26, 27, 29], very scant such data among nursing students are available in Sudan [30].

TABLE 2: Menstrual history (n = 149)

	Frequency	Percentage	Valid Percentage	Cumulative Percentage
First menses				
< 9 years old	0	0	0	0
9–11 years old	4	2.7	2.7	2.7
12–15 years old	107	71.8	72.2	74.9
> 15 years old	38	25.5	26.1	100.0
Total	149	100.0	100.0	
Menstrual duration				
< 3 days	11	7.4	7.4	7.4
4–7 days	133	89.3	89.3	97.3
> 7 days	4	2.7	2.7	100.0
Total	148	99.3	100.0	
Missing System	1	0.7		
Total	149	100.0		
The length of the cycle				
28–32 days	76	51.0	51.0	51.0
< 28 or > 32 days	73	49.0	49.0	100.0
Total	149	100.0	100.0	
Regularity during the last 12 months				
Regular	67	45.0	45.0	45.0
Irregular	82	55.0	55.0	100.0
Total	149	100.0	100.0	
Presence of dysmenorrhea				
There is dysmenorrhea	140	94.0	94.0	94.0
No dysmenorrhea	9	6.0	6.0	100.0
Total	149	100.0	100.0	

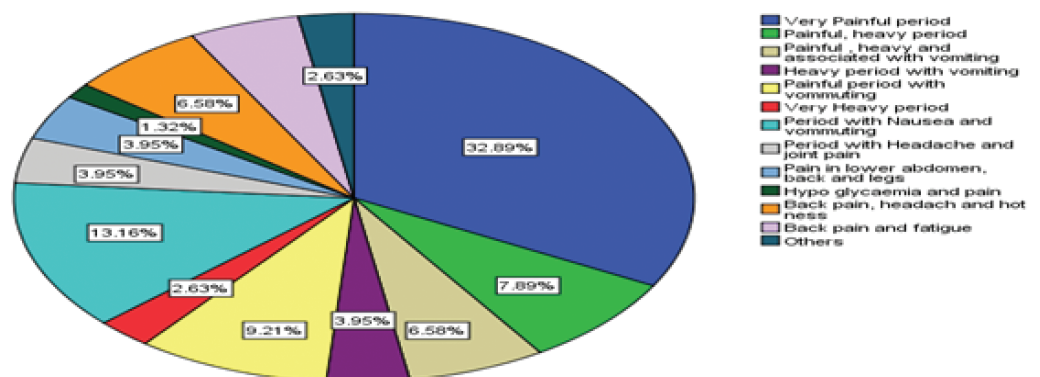


Figure (iii): Events (reasons) of Absentees from study in the faculty

Figure 1: Reasons of absentees from study in faculty

TABLE 3: Correlations between absentness from study and different menstrual problems (n=149)

		Absentees from study	Age of Menarche	Menstrual duration	Length of the cycle	Regularity	Presence of Dysmenorrhea
Absentees from study	Pearson Correlation	1	-0.032	-0.087	-0.185*	0.090	0.282**
	Sig. (2-tailed)		0.697	0.293	0.024	0.274	0.001
	N	149	149	149	149	149	149
Age of menarche	Pearson Correlation	-0.032	1	-0.136	0.020	-0.022	0.021
	Sig. (2-tailed)	0.697		0.098	0.809	0.785	0.800
	N	149	149	149	149	149	149
Menstrual duration	Pearson correlation	-0.087	-0.136	1	0.110	0.070	-0.175*
	Sig. (2-tailed)	0.293	0.098		0.182	0.398	0.033
	N	149	149	149	149	149	149
Length of the cycle	Pearson Correlation	-0.185*	0.020	0.110	1	0.075	-0.129
	Sig. (2-tailed)	0.024	0.809	0.182		0.366	0.118
	N	149	149	149	149	149	149
Regularity	Pearson Correlation	0.090	-0.022	0.070	0.075	1	-0.058
	Sig. (2-tailed)	0.274	0.785	0.398	0.366		0.486
	N	149	149	149	149	149	149
Presence of Dysmenorrhea	Pearson Correlation	0.282**	0.021	-0.175*	-0.129	-0.058	1
	Sig. (2-tailed)	0.001	0.800	0.033	0.118	0.486	
	N	149	149	149	149	149	149

*Correlation is significant at 0.05 level (2-tailed)
**Correlation is significant at 0.05 level (2-tailed)

So, our study aimed to determine the morbidities of menstrual disorders on nursing students.

The finding of this study is in accordance with that of many other studies that revealed mothers are the main source of information on menarche period for young females aged [31, 32, 34]. This is partially in accordance with others who found that 75% received this information from their relatives such as mother and sister [35, 36], and differs from many studies that reported school nurse were the first source of information [37], friends were the most important source of information [38]. A study by Singh *et al.* revealed that the major source of information was media (television, radio) [31].

Menarche is the key of women's physical development during adolescence when they become capable to reproduce; menarche varies between populations according to various factors such as nutritional, geographical, and environmental conditions [39, 40].

Most females experience at an age of 9 to 15 year [4]. However, age at menarche has generally declined in most industrialized nations and is reported at 13 years with 0.5 year deviations between countries, the decreased age of menarche is important because of its potential impact on early maturation in girls' behaviors [41]. In our study, most of our respondents (74%) started their menarche at a normal age range of 12–15 years, with a mean age of 13.5 years, which is comparable with other reports in Khartoum schools girls in Sudan [30], 13.85 year in Egypt [42, 43], 13.40 years in Nigeria [29], and in 13.91 years in Mozambique [26]. However, 25.5% of our studied students had delayed menarche at age more than 15 years in consistent with the study conducted in Kassala, Eastern Sudan that reported a delayed menarche age [44] contradicting most industrialized nations [41]. This delay in menarche may be due to nutritional, geographical, and environmental conditions [39, 40], particularly in Sudan .

In the current study, most participants had normal menstrual duration (4–7 days), supported by the study of Menoufiya University, Egypt [45]. About half of them had cycle with abnormal length either oligo or polymenorrhea, this finding is supported by a study in Lebanon [46], Egypt [45], and Saudi Arabia [46] and disagrees with the study carried out by Neamat *et al.* in which the majority of respondents had normal menstrual cycle. (31) Polymenorrhea is stated as the top reason for gynecologic visits [5] and may put women at risk of anemia [27, 47, 48]. Moreover, it can result in poor menstrual hygiene and increased risk of infection since many young girls may not be able to afford costly sanitary pads to take care of the extra days especially when they are on campus [21, 49]. In Sudan, especially in the capital of Khartoum, most nursing students came from various districts.

More than half of the respondents (55.0%) in this study had irregular menstruation, indeed the prevalence of irregular menstrual cycle is varying within different students' studies. Our finding is observed to be consistent to the finding of the Indian college students the prevalence rate of 57.1% [50] , relatively higher than the findings of the study of school girls in Kassala, Eastern Sudan, Turkey University students, and Saudi nursing students with the prevalence rates of 25.1%, 31.2%, and 36.4%, respectively [44, 51, 52]. In contrast, it is relatively lower than the recent finding of the Palestinian study that reached 74.1% [53]. Irregular menstruation is a factor that increases the rate of emotional and psychological stresses for the female and over prolonged periods can lead to development of infertility, endometrial hyperplasia, and problems due to prolonged anovulation, besides the deterioration in the quality of life and being the leading cause for clinical visits [54, 55].

Dysmenorrhea was relatively high (94.0%) in our respondents; this finding is in line and fits within the published reported values from developing and developed countries as in Saudi, Egypt, and Oman nursing students which is about 94.0% [31, 43, 52, 56–58]. However, it is relatively higher than found in the studies in India, Kassa Eastern Sudan, Palestine, Ethiopia, Australia, and Nigeria that reached 87.87%, 85.1%, 80%, and (76%), respectively [44, 53, 59–62].

The literature has suggested various risk factors for dysmenorrhea hormonal imbalance, namely, failure to cope with stress, greater BMI, younger age of menarche, nutritional deficiencies, smoking or exposure to passive smoking, and lack of physical activity [47, 63, 64]. Since our respondents were under a lot of academic pressure and had to attend the clinical training and practice in the hospital which is more stressful for them; in addition to that most of them are living away from their families that can expose them to nutritional deficiencies and possible lack of activities. Our finding is answerable and supported by many studies that reported high prevalence of dysmenorrhea among medical students [20–22].

In this study, most respondents reported absence from the study for a period ranging between one and three days due to menstrual problems; this is similar to the findings of the studies of Kassala, Eastern Sudan, Kingdom of Saudi Arabia, Amhara- Ethiopia, Nigeria, and India [5, 44, 52, 60, 65–68]. In contrast, our finding is relatively higher compared to the Egyptian and Australian findings [31, 69]. Our respondents' absenteeism seems to be due to the high prevalence of dysmenorrhea which is declared as having negative physical and psychological consequences leading to school/university absence, academic underachievement, and undermined quality of life [47, 63, 70]. The respondents' absence from study in the current research is significantly associated with the presence of dysmenorrhea and the length of the cycle, similar to the finding of a study in Nigeria [67].

Concerning reasons of absentees from the study, one-third (32.89%) of the respondents confirmed very painful period, and 14.47% suffered painful heavy period accompanied with vomiting, hindering them from attending their study. This finding is supported by the literature that evident painful menses is an important health problem in university female students and has a negative effect on their academic performance [66].

5. Conclusion

The authors conclude that the prevalence and morbidity of dysmenorrhea and menstrual irregularity were high but broadly comparable to those observed in similar developing

countries. Therefore, national health policies need to consider the health and educational impact of menstrual disorders on nursing students and develop the plan through a change in students' lifestyle. Moreover, school authorities and teachers need to be aware of the problems to provide psychological and academic support. Besides, health authorities who are working in the university's student clinic should design a health education program to organize the college community to adjust students' behaviors. Further research into risk factors for menstrual disorders and their morbidity is recommended.

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Conflict of Interest

Authors declare that there is no conflict of interest.

Availability of data and material

The study materials are available with the corresponding author on request.

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