Prevalence of Dysmenorrhea and its Impact on Quality of Life among Nursing Students at Assuit University, Egypt

Dr. Heba A. Osman[1] and Dr. Amira A. El-Houfey[2]

[1]Lecturer of Obstetric and Gynecological Nursing, Faculty of Nursing, Assuit University, Egypt
[2]Lecturer of Community Health Nursing, Faculty of Nursing, Assuit University, Egypt
E-Mail: amiraelhoufey@yahoo.com

Abstract: Primary dysmenorrhea is one of the most common complains and gynecological problem worldwide among young female girls. A cross sectional descriptive study was implemented on 188 nursing students at Assuit University, Egypt. The main aim was to determine the prevalence of dysmenorrhea and its impact on the quality of life, particularly absenteeism from college. Data were collected through self-structured interviewing questionnaire for data related to socio-demographic characteristics, menstrual characteristics, habits and medical characteristics, menstrual associated symptoms activities, treatment used, and methods of managing dysmenorrhea. Moreover; Quality of Life Scale and verbal multidimensional scoring system were used to assess the severity of dysmenorrhea.The mean age of the students was 20 (range 17-22) years. The average age of menarche was 13.2 years, (9 to 15 years).The vast majority (90.4%) were single, suffered from dysmenorrhea, had a regular menstruation, menstrual duration between 21-34 days, had a positive family history of dysmenorrhea, and prepared for menarche. The prevalence of dysmenorrhea was very high (90.4%), which significantly higher with consummation of tea, coffee, coke, chocolate, and obesity as well, females with menstrual bleeding duration 7 days and more, menstrual duration cycle between 21 and 34 days, and those who had a positive family history of dysmenorrhea. There was a significant association between Quality of Life and severity of dysmenorrhea. Based on the results of the study it can be concluded that dysmenorrhea is a common health problem, having negative effects on the quality of life among university female students. So., we suggest implementation of an educational program to increase the awareness of the adolescent girls during the activity time. College officials and college health program coordinators may benefit from considering dysmenorrhea in the context of improving their college attendance rates and academic performance of their students. Participating in regular physical activity program to help them to decrease the negative impact of dysmenorrhea on their academic, social and even personal life.

Key words: Dysmenorrhea; Adolescent students; Quality of Life; Severity of Menstruation.

INTRODUCTION

Menstruation is a natural phenomenon which is an important indicator of women's health [1], reflecting as it does their endocrine function [2]. Dysmenorrhea, for example, is a common problem, yet it remains poorly understood and is rarely taken in to consideration when assessing adolescents' health and life experiences [1].Dysmenorrhea is defined as painful menses in women with normal pelvic anatomy, usually beginning during adolescence. It is characterized by cramp pelvic pain beginning shortly before or at the onset of menses and lasting 1 to 3 day[22].The pain is more in the first day and rarely continues to next day [7].

Dysmenorrhea may be either primary, when there is no identifiable cause, or secondary to organic pelvic diseases. Primary dysmenorrhea occurs typically between 17 and 22 years of age while secondary dysmenorrhea is more common in older women [4]. Primary dysmenorrhea begins when young girls first experience the ovulatory cycles and its prevalence increases during adolescence (15-17 years) and reaches to its highest in 20- 24 years and decreases progressively thereafter [8,9, 10].

Prevalence rates have been reported to be as high as 93% [5] and as low as 16%[6].In the Middle East, the prevalence of dysmenorrhea in Egypt has been estimated to be 75%.4 [3,

29]. It is estimated that more than 10% of adolescent girls suffer from severe dysmenorrhea, which is the leading cause of recurrent short-term school absenteeism (SA) in this population [30]. Dysmenorrhea pains are felt in lower abdomen and may radiate into inner parts of thighs. In a high percentage of cases, girls may experience systematic symptoms such as backache, nausea, vomiting, diarrhea, fatigue and headache, bloated feeling [3].

Studies on the prevalence of menstrual pain have shown that many factors are related to this disorder. These factors include a younger age, low body mass index (BMI), smoking, early menarche, prolonged or aberrant menstrual flow, premenstrual somatic complaints, pelvic infections, previous sterilization, somatization, psychological disturbance, genetic influence, and a history of sexual assault influencing the prevalence and severity of dysmenorrhea [23,24].

It is believed that a symptom of primary dysmenorrhea is caused by increased prostaglandin production by the endometrium in an ovulatory cycle. This hormone causes contraction of the uterus, and levels tend to be higher in women with severe menstrual pain than women who experience mild or no menstrual pain. These levels are highest during the first 2 days of menses, when symptoms peak [17, 18, 19].

Secondary dysmenorrhea is painful menstruation due to pelvic or uterine pathology. It may be caused by endometriosis, adenomyosis, fibroids, pelvic infection, an intrauterine device, cervical stenosis, or congenital uterine or vaginal abnormalities. Adenomyosis involves the ingrowth of the endometrium into the uterine musculature. Endometriosis involves ectopic implantation of endometrial tissue in other parts of the pelvis. It occurs most commonly in the third or fourth decades of life and affects 10% of women of reproductive age [20]. Endometriosis is the most common cause of secondary dysmenorrhea and is associated with pain beyond menstruation, dyspareunia, and infertility [21]. Treatment is directed toward removing the underlying pathology.

Dysmenorrhea usually a common cause of (SA) among adolescents. [3, 22] Dysmenorrhea pains are felt in lower abdomen and may radiate into inner parts of thighs. In a high percentage of cases, girls may experience systematic symptoms such as backache, nausea, vomiting, diarrhea, fatigue and headache [25]. With severe pain, the suffers may be absent from school or work for one or two days [3]and it could have negative impact on academic, social and sports activities of young girls [13].

Although primary dysmenorrhea is not a real threat of life, but can impact on the quality of female life and in case of severity it may lead to disability and inefficiency [25, 26]. On the other hand, dysmenorrhea can cause psychological problems in some of the females resulting in their loneliness and inactive participation in different social activities [7]. The detrimental impact of dysmenorrhea on the lives of women has been considered by most of the researchers in this area. In many countries, primary dysmenorrhea is the leading cause of recurrent short-term college and work absenteeism in young girls and women [13, 27]. Data from few longitudinal studies showed that the absenteeism from college due to primary dysmenorrhea is 34 to 50 percent [28]. Indeed, as reported by many studies, there is a considerable cost to both the individual and society as a result of dysmenorrhea.

Significant of the study:

Data on experiences of menstruation and its impact on the health status, quality of life and social integration amongwomen in developing countries are scant [3]. Based on findings of many studies, dysmenorrhea is one of the most important health issues of young girls which must be considered because many researchers claimed that primary dysmenorrhea affects between 50 to 90% of general population [12, 13, 14, and 16].

AIM OF THE STUDY

The aim of this study is to determine the prevalence of dysmenorrhea and its impact on the quality of life among Nursing Students at Assuit University, Egypt.

SUBJECTS AND METHODS

Research design:

A cross - sectional descriptive study was used in the current study to fulfill the aim.

Research questions:

1. What is the prevalence of dysmenorrhea among Nursing Students at Assuit University?
2. What is the impact of dysmenorrhea on quality of life among Nursing Students at Assuit University?
3. What is the relation between quality of life and severity of dysmenorrhea?
4. What is the relation between severity of dysmenorrhea and the activity of the students?

Setting and Sampling:

Quota sample technique was adopted to recruit the study participants. The study target was one tenth of the total students' number who was regularly enrolled at Faculty of Nursing, Assuit University. The total number was (188) participants, classified as follow: (47, 41, 51 & 49 students respectively), were from first, second, third and fourth year.

Tools of data collection:

In order to collect data, the following tools were prepared and used with reference to previous studies in the literature [30,44].

1) A structured Questionnaire for socio-demographic data:

This part includes questions about (age, social insurance, family income, family type, marital status, gravidity and parity). Menstrual characteristics such as (age of menarche, menstrual regularity, menstrual cycle duration, menstrual bleeding duration, use of medicine regulating menstruation, family history, preparation for menarche and location of pain). Moreover; some habits and medical characteristics of students as (tea, coffee, coke and chocolate consumption), obesity, presence of any chronic necessitating the use of any medicine). In addition to; menstrual associated symptoms, activities among students, treatment used by students and methods of managing dysmenorrhea.

2) **The Quality of Life Scale**, devised by American Chronic Pain Association was modified as per the activities most suited for the college students most commonly limited to attending classes and mild to moderate form of exercise.

3) **Verbal Multidimensional Scoring System** for assessment of dysmenorrhea severity designed by **[48]**

Methodology:

I) Preparatory phase and administrative design:

1- The questionnaire was translated into Arabic by the researchers to suit the Egyptian culture. Also, it was revised and refined to remove any possible lack of clarity and ambiguity of wording or phrasing. The questionnaire was produced in a dual language (Arabic and English). After the construction of the tool, it was revised by a jury consisting of three professors (two Obstetric and Gynecological Nursing and one Community Health Nursing), so; the content validity was obtained and the alpha chronbach's reliability was 0.95.

2- Before embarking on the study, an official approval letter was obtained from Dean of Faculty of Nursing, to implement the study. This letter briefly explained the purpose and nature of this study.

3- Ethical committee: The approval of the ethical committee was obtained to implement this study.

4- Pilot Study:After developing the tool, a pilot study was carried out on (10) students. The students who participated in the pilot study were excluded from the sample. The aim of the pilot study was to test the feasibility and clarity of the tool and also to estimate the time required to fill in the questionnaire. According to the result of the pilot study, some necessary modifications were made to avoid the ambiguity of the questionnaire and the reconstruction of the tool was done.

II) Data collection:

A) Ethical consideration:

At the initial interview, each student was informed of the purpose and nature of the study, and the researchers emphasized that participation would be voluntary; hence every student had the right to participate or refuse to be included in the study. The consent for participation was taken orally. In addition, the confidentiality of the data was maintained, explained and also printed in the questionnaire.

B) Field work:

Data was collected in the period from the 1st of October 2014 until the 1st of November 2014. The researchers harmonized and organized field work with teaching staff members who were responsible for the desired sections; as well, data was collected from sections only, when students were in small groups because the researchers were able to control students.If they agreed, then the researcher asked them about the preferred time for data collection, either in the first or last part of the selected sections or lectures. After that, the participants were asked if they were interested and agreed to participate in the study. Then researchers explained the main parts of the questionnaire. In additions, the questionnaire forms were distributed and the participants were asked to complete the questionnaires. The researchers demonstrated any difficulty that the participants might face during answering the questionnaires.

After students completed the questionnaire, weight was measured using a calibrated scale adjusted on zero, while students were bare-footed, wearing light clothes and without a coat. Then height was measured by the same scale. Students were asked to stand straight and bare-footed against the scale. All students had their weight measured at one scale to avoid variations in reading. Then the body mass index was calculated based on WHO classification [31].

C) Statistical analysis:

Statistical analysis was done using SPSS PC version 20. Descriptive statistics (frequency, percentage, mean and standard deviation) were used to determine mean age of participants, age at menarche, cycle length, bleed length, frequency of associated symptoms, prevalence and treatment of dysmenorrhea, and activities affected by this condition. Chi-square test, T-test and Pearson correlation test were done . It is considered significant when P <0.05.

RESULTS

Table (1) shows that the age of female college students ranged between18 and 21years with a mean of 20 ±1.3 years. Nearly two thirds (66%) of the students were in the age group of 20 years and below. A total of 59% of the students does not have social health insurance. The vast majority was single (90.4%).

Table (2) the finding of the present results revealed that the students' average menarche age was 13.2±1.2, ranging from 9 to 15. Regarding to age of menarche about three- quarters of them was between 13 and 14 (74%). In addition, 73% reported experiencing regular menstruation. The average menstrual cycle duration of the students in the study group was 27.1 ±4.4 days(min 20, max 35). The vast majority of students their menstrual duration was between 21 and 34 days (97%).Their average menstrual bleeding duration was 5.8±1.8 days, ranging between 2 and 10. Most students' menstrual bleeding duration was less than 7days (63.3%). More than half of students 55% reported not using medicine regulating menstruation. About 62% of students reported having a family history of dysmenorrhea.

Table (3) it is observed that more than three-quarters of students suffer from dysmenorrhea drank coke, eats chocolate and obese. More than halfdrank coffee (56.4 %,).The vast majority (93%) of them not having any chronic diseases necessitating the use of any medicine.

Table (4) indicates the menstruation-associated symptoms, 73% indicated nervousness, 60.6% irritability, 41.2% depression, 40% dizziness, 56.4% back pain, 41.8% fatigue, 44% headache, 46.4%sleeplessness, 40% loss of appetite, 40% acne / flushing.

Table (5) revealed that more than half of participants with severe menstrual pain reported college absenteeism, decreased academic performance, and limited socialization with friends and sports participation than those with mild menstrual pain.

Table (6) shows thatthe participants with dysmenorrhea reported using multiple treatments to relieve their symptoms: medications (38%), rest (34%), hot tea (18%), herbal drinks (39.4%), heating pad (22%), and exercise (5%).

Table (7) shows thatthe participants who had severe dysmenorrhea were 6 times more likely to stay in bed all day when compared to women who had normal quality of life. We also found that participants who had severe dysmenorrhea were 5.3 times more likely to stay at home all day when compared to women who had normal quality of life. In addition to these participants who had severe dysmenorrhea were 2 times more likely to attend college after taking medication (with no other outdoor activities) when compared to women who had normal quality of life. Lastly, we found that participants who had severe dysmenorrhea were 2 times more likely attend college without taking medication (with no other outdoor activities) when compared to women who had normal quality of life.

As illustrated in table (8) more than half of students drank hot fluids, 20% do physical exercises, 10% ingestion of salt, 18% ingestion of holy water, 29% sleeping, lastly only 7.4% of students ingestedcarbonated drinks.

Table (1): Socio-demographic characteristics of students by status of dysmenorrhea

Variables:	No (%)
Age group (year)	
17–19	77 (41%)
20->21	48 (25.5%)
21- >22	53 (33.5%)
Age: Mean ± SD	20 ±1.3
Range	(18-21)
Social insurance	
Yes	77 (41%)
No	111 (59%)
Marital status	
Single	170 (90.4%)
Married	18 (9.6%)

Table (2): Menstrual characteristics of students with dysmenorrhea

Variables:	No (%)
Age at menarche/ (year)	
≤12	40(21.8%)
13–14	139(74%)
≥15	9(4.2%)
Mean± SD Range	13.2± 1.2 (9-15)
Menstrual regularity	
Regular	137(73%)
Irregular	51(27%)
Menstrual cycle duration (days)	
≤20	4(2%)
21–34	182(97%)
≥ 35	2(1%)
Length of menstruation cycle (days, Mean ± SD)	27.2 ± 4.4
Range	20-35
Menstrual bleeding duration /(days):	
≤6	119(63.3%)
≥7	69(36.7%)
Length of menstruation phase (days, Mean ±SD) range	5.8±1.8 2-10
Use drugs to regulate menstruation:	
Yes	84(45%)
No	104(55%)
Family history of dysmenorrhea:	
Yes	116(62%)
No	72(38%)
Preparation for menarche:	
Yes	138(73.4%)
No	50(26.6%)
Severity of pain	
Mild	31 (16.5%)
Moderate	63 (33.5%)
Severe	76 (40.4%)
Location of pain:	34(20%)
Abdominal pain	9(1.2%)
Back pain	2(5.2%)
Abdominal pain extends to the thighs	
Back pain extends to the anus	15(9%)
Other (abdominal pain extends to the thighs and anus)	7(4%)

Table (3): Some habits and medical characteristics of students with dysmenorrhea

Some habits	Dysmenorrhea
	Total (%)
Tea consumption	
Yes	135 (71.8%)
No	53 (28.2%)
Coffee consumption	
Yes	82 (43.6%)
No	106 (56.4%)
Coke consumption	
Yes	42(22.3%)
No	146(77.6%)
Chocolate consumption	
Yes	158(84%)
No	30 (16%)
Overweight/obese	
Yes	24 (12.7%)
No	164 (87.3%)
Any chronic disease necessitating the use of any medicine	
Yes	175(93%)
No	13(7%)

Table (4): Menstruation-associated symptoms among adolescent school girls

Symptoms (Symptomatology)	Dysmenorrhea	
	No. N	(%)
Nervousness	124	73
Irritability	103	60.6
Depression	70	41.2
Dizziness	68	40
Backaches	96	56.4
Legache	58	34
Fatigue	72	41.8
Headache	75	44
Sleeplessness	79	46.4
Diarrhea	50	29
Nausea / vomiting	33	19.4
Loss of appetite	68	40
Acne / flushing	68	40
General aching	21	12.4
Beginning of the symptomatology:		
1–2 days before menses	48	25.5%
First day of menstruation	86	45.7%
2–3 days after menses	54	28.7%
Incapacitating		
30min	32	19
31–60min	58	34
61–180min	49	29
>3–6h	11	6.2
>6–24h	16	9.3
>24h	4	2.2

Table (5): Association between dysmenorrhea and limited activities among participants

		Mild Pain %	Moderate Pain %	Severe Pain %
-	**College absence:**	24	31	56
-	**Class participation:**	35	42	69
-	**Class concentration:**	30	55	70
-	**Sports participation:**	42	50	65
-	**Homework tasks:**	20	32	46
-	**Going out with friends:**	29	47	60

Table (6): Treatment used by participants to alleviate dysmenorrhea symptoms

Treatment options	No.	%
Medications	71	(38 %)
Rest	63	34%
Tea	34	18%
Herbal drink	74	39.4%
Heating pad	41	22%
Exercise	9	5%

Table (7): Effect of Dysmenorrhea on Quality of Life and Severity of Pain

Quality of Life and Severity of Dysmenorrhea (grades of pain)	Severity of Dysmenorrhea (grades of pain)		
Quality of Life	Severe	Moderate	Mild
In bed all day	31 (18%)	19 (11.2%)	11 (6.5%)
Unable to attend college	28 (16.5%)	15(8.8%)	7(4%)
Attend college with medications, but no other outdoor activities	10 (5.9%)	27 (18.9%)	9 (5.3%)
Attend college without medications, but no other outdoor activities	10 (5.9%)	17 (10%)	16 (9.4%)
Normal	5 (3%)	13 (7.6%)	24 (14%)

Table (8) Methods of Managing Primary Dysmenorrhea

Methods	Number (N)	Frequency (%)
Drinking hot water and hot Pap	100	(53.2%)
Physical exercise	37	(20%)
Ingestion of salt water	19	(10%)
Ingestion of Holy water	34	(18.1%)
Sleeping	54	(29%)
Ingestion carbonated drinks	14	(7.4%)

DISCUSSION

Prevalence of dysmenorrhea is a common cause of referral to the gynecology clinic and the problem has a considerable impact on the health status and the quality of life of women [32].The present study found a high prevalence of dysmenorrhea (90.4%) among female students. This result is in accordance with the previous studies reporting rates 93%, 89.5% [6,33, 9, 38, and 39]. But, our findings incongruent with[6] which found that the prevalence was as low as 16% .On the other hand, lower prevalence of dysmenorrhea was observed by [34, 35]. Such discrepancy between the findings of these and those of the present study is self-explainable by the fact that the subjects in the former study were adult women and not adolescents like the present study, where dysmenorrhea is more common at the extremes of reproductive life. Moreover, a reason for the variation in these estimates may be the use of selected groups of women, and the absence of a universally accepted method of defining dysmenorrhea, which was probably as greatly responsible for the disparity as the methods of collecting data, the study definitions of dysmenorrhea and pain, and the study populations themselves [40].The prevalence rates reported for dysmenorrhea vary widely across studies due to the differences in measurement methods.

Regarding to severity of the dysmenorrhea, more than three-quarters of the women (82%) described their dysmenorrhea as severe and moderate, in line with the study by [41, 42]. This indicates that dysmenorrhea is still an important public health problem and that these female students experience severe or moderate dysmenorrhea, which may have a negative effect on health related quality of life, social environment, work, and psychological status.

Regarding to the age of the participants in the current study the results revealed that the mean age of the respondents was 20 ±1.3 this finding is congruent with the results carried out in Nigeria 2010 [48] and synchronized with study done in India 2012[37]. Many studies determined that the prevalence of dysmenorrhea showed a decrease with increasing age, indicating that primary dysmenorrhea peaks in late adolescence and the early 20s and the incidence falls with increasing age [41,43, and 44]. This study found a connection between age groups and the prevalence of dysmenorrhea with statistically differences between age group. The current study reported that about 41% of the participants have social insurance, more than half was of a nucleus type, and about 90% of them were single these results is compatible with [42].

The present results showed that the age of menarche, regularity of menstruation, duration of menstrual cycle between 21- 34, bleeding duration of 7 days and over, presence of family history and preparation for menarche were an important risk factor for dysmenorrhea. This finding is consistent with the result showing that the risk of dysmenorrhea is higher in women with long menstrual flows [47]. According to the univariate and multivariate analysis, those with family history of dysmenorrhea had a significantly higher prevalence of dysmenorrhea, a finding which is consistent with some studies [44]. This result indicates that a family history of dysmenorrhea seems to be an important characteristic for women with dysmenorrhea. As an explanation for this, some researchers have reported that daughters of mothers who have menstrual complaints also experienced menstrual discomfort, and that the reason for this could be related with behavior that is learned from the mother [44,46]. The fact that family history was shown to be a risk factor for dysmenorrhea may be related to the risk for related conditions such as endometriosis, which has already been shown to have a familial pattern [43].

By both univariate and multivariate analyses, tea, coffee, coke, chocolate consumption, obesity and chronic disease necessitating the use of any medicine were an important risk factor for dysmenorrhea, this is congruent with some researchers' studies [42, 45].
While lower abdominal cramping is the most common dysmenorrhea symptom, many adolescents suffer from other menstruation- associated symptoms. The most commonly reported symptoms were nervousness, depression, irritability, and backache, loss of appetite, headache, sleeplessness, dizziness and fatigue. Our results were consistent with the results of [48]. The commonest associated symptoms reported by [3] were fatigue, headache, backache and dizziness. Symptoms typically accompany the start of menstrual flow or occur within a few hours before or after onset, and last for the first 24-48 hours.

The college absenteeism rate in this study was (28%) this finding is synchronized with the results reported by [64], higher than previously reported by [26], and lower than that reported by [49] and in agreement with that reported by [11]. The variation in (SA) rates among these studies may be related to the existence of different cultural perception and responses to various gradients of pain [13]. However, this relationship is difficult to evaluate without studying various ethnic groups simultaneously. Also, comparing (SA) rates in these studies is difficult because different time frames were used in determining the former. Not surprisingly, the rate of college absenteeism was higher among adolescent college girls with severe menstrual pain than mild menstrual pain, consistent with previous findings [3, 35].

Adolescent college girls with severe menstrual pain were nearly four times more likely to miss college, and to have limited academic performance than those with mild menstrual pain. Despite the high prevalence of dysmenorrhea in adolescents, many girls either do not seek medical advice or are under-treated. The majority of adolescents used non pharmacologic methods such as rest, heat, hot drinks, or sports to treat dysmenorrhea, consistent with previous findings [48, 12, 5]. Among participants with dysmenorrhea who reported taking medications, 38% reported self-medicating with over-the-counter pain medications without medical prescription. This figure was higher than previous study findings from different populations [6, 21].Dysmenorrhea is found to have significant effect on day to day activities, limiting daily activities [3], having negative effect on quality of life [38], leading to absenteeism in college or taking medication to carry out daily activities [49]. Similar findings appear in our study, most of the participants, most commonly limited to attending classes and mild to moderate form of exercise.

CONCLUSION

Dysmenorrhea is a common health problem, because the prevalence is greatly high, having a significant effect on the routine activities and a detrimental effect on the quality of life female adolescent girls.

RECOMMENDATION

Based on the finding of the present study, the following recommendations are suggested:
1. Educational program to increase the awareness of the adolescent girls during the activity time.
2. College officials and college health program coordinators may benefit from considering dysmenorrhea in the context of improving their college attendance rates and academic performance of their students.
3. Participating in regular physical activity program to help them to decrease the negative impact of dysmenorrhea on their academic, social and even personal life.

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