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PREVALENCE AND IMPACT OF DYSMENORRHEA ON HEALTH RELATED QUALITY OF LIFE IN THE UNITED ARAB EMIRATES

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ABSTRACT

Background: little attention is paid to understanding of women's menstrual complaints. Menstrual dysfunction is not included in the Global Burden of Disease estimates and, even as reproductive health programs expand their focus to address gynecologic morbidity, the utility of evaluating and treating menstrual problems is not generally considered. **Objective:** To find out the prevalence of dysmenorrhea and its impact on the health related quality of life (HRQL) in female university students using SF-12 questionnaire. **Methods:** A cross sectional study was carried out over a period of one month from 15th February till 15th March 2014. A total of 569 subjects were selected randomly from the pharmacy college and the college of dentistry. SF-12 health survey questionnaire was used in this study. **Results:** Approximately 79% described their dysmenorrhea as severe and moderate; the distribution of the severity of dysmenorrhea cases was as follows: mild 21%, moderate 43% and severe 36%. Family history of dysmenorrhea seems to be an important characteristic for women with dysmenorrhea. **Conclusion:** The prevalence of dysmenorrhea among female students was relatively high throughout this study, reaching almost 79% and HRQL showed a decrease in the presence of dysmenorrhea and with the increase in the severity of dysmenorrhea.

KEYWORDS: Dysmenorrhea, menstrual, university students.

INTRODUCTION

Dysmenorrhea is one of the most common gynecologic complaints in young women who present to clinicians.[1]

Optimal management of this symptom depends on an understanding of the underlying cause.

Some studies have found obesity and alcohol consumption to be associated with dysmenorrhea (6-8). Physical activity and the duration of the menstrual cycle do not appear to be associated with increased menstrual pain.[2]

Primary dysmenorrhea has been attributed to behavioral and psychological factors. Although these factors have not been convincingly demonstrated to be causative, they should be considered if medical treatment fails.

In addition to appropriate analgesia, patients require appropriate antibiotic coverage. The most commonly used regimen consists of ceftriaxone 250 mg IM and doxycycline 100 mg daily for 14 days.[3] Patients should be hospitalized if outpatient therapy fails, if they have intractable nausea or vomiting, if they have a complicating tubo-ovarian abscess, or if they are immunocompromised.[3] Complications include tubo-ovarian abscess and Fitz-Hugh Curtis syndrome (perihepatitis) if pus from the fallopian tubes leaks into the peritoneum.

Dysmenorrhea may affect more than 50% of menstruating women and its reported prevalence has been highly variable. A survey of 113 patients in a family practice setting showed a prevalence of 29-44%[15], but figures as high as 90% in women aged 18-45 years have been reported.[4] The use of oral contraceptives (OCs) and nonsteroidal anti-inflammatory drugs (NSAIDs), both of which are effective in ameliorating symptoms of primary dysmenorrhea, may hinder accurate assessment of prevalence.

Primary dysmenorrhea peaks in late adolescence and the early 20s.[5] The incidence falls with increasing age and with increasing parity. In many studies,[2,6,7] though not all[1], the reported prevalence and severity of dysmenorrhea in women are substantially lower.

An epidemiologic study found no significant differences in prevalence and severity of dysmenorrhea between null gravid women and those in whom pregnancy had been terminated by either spontaneous or induced abortion.[2]

In an epidemiologic study of an adolescent population (age range, 12-17 years), Klein and Litt reported that dysmenorrhea had a prevalence of 59.7%.[8] Of patients reporting pain, 12% described it as severe, 37% as moderate and 49% as mild. Dysmenorrhea caused 14% of patients to miss school frequently. Although black adolescents reported no increased incidence of dysmenorrhea, they were absent from school more frequently (23.6%) than whites were (12.3%), even after socioeconomic status was adjusted for.

The prevalence of dysmenorrhea worldwide is similar to that in the United States. Reported prevalence have ranged from 15.8% to 89.5%, with higher rates reported in adolescent populations.[2,9-13]

A study of 408 young Italian women found that the prevalence of dysmenorrhea was 84.1% when only menstrual pain was considered, 55.2% when menstrual pain was associated with a need for medication, 31.9% when menstrual pain was associated with absenteeism and 25.3% when menstrual pain was associated with both a need for medication and absenteeism.[14]

Associated general symptoms, such as malaise, fatigue (85%), nausea and vomiting (89%), diarrhea (60%), lower backache (60%) and headache (45%), may be present with primary dysmenorrhea. Dizziness, nervousness and even collapse are also associated with dysmenorrhea.

A different pattern of pain is observed with secondary dysmenorrhea that is not limited to the onset of menses; this is usually associated with abdominal bloating, pelvic heaviness and back pain. Typically, the pain progressively increases during the luteal phase until it peaks around the onset of menstruation.

There is a wide variation in the estimate of dysmenorrhea from studies around the world reporting a range between 28% and 71.7%. 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 menstrual flow, pri-menstrual somatic complaints, pelvic infections, previous sterilization, somatization, psychological disturbance, genetic influence and a history of sexual assault influencing the prevalence and severity of dysmenorrhea.[15]

In India, one of the studies was carried out by Dr. V Patel et al[16] to describe the burden, determinants and impact of dysmenorrhea in a population of women aged 18-45 years in Goa, India. Finding from this study was a high prevalence of menstrual dysfunction. The most common menstrual disorder was dysmenorrhea which was reported by over half of the participants and in moderate to severe intensity, by one-third of the participants. The complaint was associated with significant levels of disability; the majority of sufferers took analgesics or bed rest to cope with the pain and there was a linear association between severity of pain and its impact.

In India, one more study was carried out by Dr. Avasarala AK et al[17] to study differences in epidemiological profiles, perceptions, socioeconomic losses, quality of life losses and management of dysmenorrhea in urban and rural population settings. The prevalence of dysmenorrhea among adolescent girls was 54% in this study, which is almost the same as reported by other Indian and western studies. Old literature from the Middle East and Europe is rippled with studies showing high prevalence. This means almost more than half of the adolescent girls throughout the world suffer from dysmenorrhea and need attention. In this study, prevalence of dysmenorrhea appears to be little more 3% in rural girls.

In Turkey, Unsal A. et al[15] studied the prevalence of dysmenorrhea and determine its effect on health related quality of life (HRQol) among a group of female university students. Prevalence of dysmenorrhea was found to be 72.7% and was significantly higher in coffee consumers, females with menstrual bleeding duration>7 days and those who had a positive family history of dysmenorrhea when compared to others (P<0.05, for each one). By multivariate analysis, coffee consumption (OR2.084), menstrual bleeding duration > 7days (OR 1.590) and positive family history of dysmenorrhea (OR3.043) were important risk factors for dysmenorrhea.

Unsal et al, 2010[15] studies 623 female students. The severity of dysmenorrhea was determined with a 10-point visual analog scale. The Short Form-36 (SF-36) form was used to determine HRQoL. Except for social functioning, role emotional and mental health domains, the SF-36 points received from the other domains were higher in females with dysmenorrhea (for each one P<0.05). With the exception of the scores received from physical functioning and role emotional domains, the scores received from the other domains of the SF-36 scale showed a decrease with increasing severity of dysmenorrhea (P<0.05, for each one). Dysmenorrhea is a common health problem, having negative effects on the HRQoL among university female students.

A recent review of menstrual disorders in developing countries revealed high rates of menstrual morbidity in population based studies. However, much of the existing research focuses on prevalence estimates; there is little information on the determinants and consequences of menstrual disorders.[16] The aim of the present study was to evaluate the prevalence of dysmenorrhea and its effect on health – related quality of life among female university students in the United Arab Emirates.

METHODS

This cross-sectional study was conducted between 15 February 2014 and 15 March 2014 at Ajman University

of Science and Technology, Ajman, United Arab Emirates. Ajman is centrally located on the western coast of the UAE, a short distance from Sharjah, representing the northern flank of the (Dubai-Sharjah - Ajman) metropolitan area.

The study was performed on a total of 569 students who agreed to participate in the research. Of the 800 distributed questionnaires, 231 questionnaires were excluded from the survey due to unwillingness to participate in the research and not being at classes at the time of the study. The remaining 71% (569/800) completed questionnaires constituted the study group.

All 569 students surveyed at school completed the questionnaires during a class period. After distributing the questionnaires to students at the school, they were informed of how the questionnaires were to be filled in and then were requested to make a choice applicable to themselves. The students completed questionnaires in the presence of a member of the research team. The data collected was self reported by the students. All subjects (n=569) were told that participation in the investigation was strictly voluntary and that the data collected would not be used for anything except for this research study and they were given the questionnaire to complete.

The questionnaire, prepared with reference to previous studies in the literature[4], included three parts. In the first part of the questionnaire, students were asked to state their socio-demographic and medical characteristics and dysmenorrheal status and habits. The second part of the questionnaires include the visual analogue scale (VAS) to assess the severity of dysmenorrhea and the last part included the questions of the Outcomes Study Short Form- 12 (SF-12) Health Survey Questionnaire to determine to HRQoL of the students. The VAS using a 10 cm line represented the continuum of the female student's opinion of the degree of pain. One extremity of the line represented "unbearable pain" and the other extremity represented "no pain at all". The participants were asked to rate the degree of pain by making a mark on the line. The scores received from the scale were classified into mild dysmenorrhea if it was between 0-3 points, moderate between 4-6 points and severe between 7-10 points.

The SF-12 scale is commonly used generic instrument for rating HRQoL. The validity and reliability of this instrument has been established for measuring HRQoL in large populations of both health and diseased individuals. It is a self-evaluation instrument consisting of 12 items which provide assessment in eight domains: physical functioning, social functioning, role limitations due to emotional problems(role-emotional), role limitations due to physical problems (role-physical), bodily pain, vitality, mental health and general health perception. In this study, the UAE version of SF-12 was used which showed good reliability and validity. Scores changed from 0 to 100 for each domain separately. The high scores obtained from the scale shows that the HRQoL increases in a positive way.

Following the completion of the questionnaires and inventory, the participant's body mass index (BMI) were calculated. Those who had a BMI less than 19 kg/m2 were classified as underweight, adolescents with BMI values that corresponded to a BMI of 19- 24 kg/m2 were classified as healthy weight, adolescents with BMI values that corresponded to a BMI of 25- 29 kg/m2 were classified as overweight, adolescents with BMI values that corresponded to a BMI >30 kg/m2 were classified as Obese.

In addition, those smoking at least one cigarette a day and smoking shisha once a week were evaluated as smokers, those consuming at least 4 glasses of tea in a day as those consuming tea, those consuming t least 3 cups of coffee in a day as those consuming coffee, those consuming at least a glass of cola in a day as those consuming cola and those eating at least 1 bar of chocolate in a day as those consuming chocolate.

The presence of dysmenorrhea in an adolescent's mother or sister was accepted as a positive family history of dysmenorrhea. The statistical package for social science SPSS version 17.0 was used to enter and analyze the data on a personal computer. The statistical analysis was carried out using chi-square, student's t test, back ward stepwise logistic regression analysis and one way ANOVA test. A value of P <0.05 was considered statistically significant.

Permission for the study was obtained by making a petition prior to collecting data. This was achieved by contacting and receiving approval from the deans of the Pharmacy College and the dean of Dentistry College. Participants completed and informed consent form in which they were assured of the confidentiality of their responses following which they provided informed verbal consent that participation was voluntary and anonymous. It was also stated that the participant' responses were unidentifiable. All students gave their informed consent prior to their inclusion in the study.

Statistical Analysis

In this study the data analysis was conducted using SPSS version 20. Instituting identification numbers were given for all questions. All questions were coded and then they were imported for SPSS for analysis. All variables categories were coded with numbers. The items were checked for accuracy by examining unusual coding values. Descriptive analysis was used to analyze the Socio-demographic data. The descriptive statistics were including mean, standard deviation, frequency and percentage. Stepwise linear regression analysis was used to exam the simultaneous effect of various characteristics on dysmenorrhea and QoL. P value of less than 0.05 was considered significant.

RESULTS

Socio-demographic and medical characteristics

The mean age of the participants was 20.5 years (range 17-35 years). A total of 63.4% (n=361) were covered by health insurance and 1.8% (n=10) of students reported that their family income status was poor. The proportion of those whose family was of a nucleus type was 55.5% (n=316).

In the study group, the prevalence of smoking cigarettes was 13% (n=74), with a 1.8% (n= 10) proportion of students consuming alcohol. More than half of the students 58.3% (n=332) reported that they consumed coffee on daily basis; 306 students (53.8%) reported consuming cola every day and 479 students (84.2%) reported consuming at least one bar of chocolate a day. The mean BMI of the students was 22.8 kg/mm (min 13.38, Max 43.75) and the prevalence of overweight/obesity was 26.5% (n= 151). Altogether 35 students (6.2%) reported having a chronic disease. More detailed socio-demographic and medical characteristics of students are given in Table 1 and Table 2.

Table 1: Mean and Standard Deviation of respondents' age, weight, height and BMI.

Variables	Mean	Standard Deviation	Range
Age	20.5	2.5	17.00 - 35.00
Weight "kg"	59.4	11.1	36.00 - 100.00
Height "cm"	161.2	6.4	120.00 - 184.00
BMI	22.8	3.8	13.38 - 43.75

Table 2: Frequency, Percentage and "P" value of Respondents' Demographics and Habits.

Variables	Frequency	Percentage %	P
Marital status			
Single	538	94.6	0.574
Married	31	5.4	
Insurance			
Yes	361	63.4	0.293
No	208	36.6	
Family income			
Good	367	64.5	0.527
Middle	192	33.7	
Bad	10	1.8	
Family size			
Small	316	55.5	0.973
Large	253	44.5	
Smoking			
Yes	74	13	0.252
No	495	87	
Alcohol			
Yes	10	1.8	0.407
No	559	98.2	
Tea			
Yes	393	69.1	0.774
No	176	30.9	
Coffee			
Yes	332	58.3	0.851
No	237	41.7	
Coke			
Yes	306	53.8	0.711
No	263	46.2	
Chocolate			
Yes	479	84.2	0.710
No	90	15.8	
Chronic Disease			
Yes	35	6.2	0.555
No	534	93.8	
Chronic Medication			
Yes	26	4.6	0.695
No	543	95.4	

No association – demographic vs. VAS – odd ratio.

Menstrual characteristics

The menarche age for 315 students (55.4%) was between 13 and 14. About 77% (n= 438) reported experiencing regular menstruation. The menstrual cycle length of 381 students (67%) was between 21 and 34 days and the menstrual bleeding duration of 370 students (65%) was less than 6 days. Only 12.5% (n= 71) students reported using medicine regulating menstruation. About 99 students (17.4%) reported having a positive family history of dysmenorrhea. More detailed menstrual characteristics of students are given in Table 3.

Table 3: Frequency and Percentage of Respondents' Menstrual Characteristics.

Variables	Frequency	Percentage%
Age at menarche "year"		
<12	146	25.6
13-14	315	55.4
>15	108	19
Menstrual regularity		
Regular	438	77
Irregular	131	23
Menstrual cycle length "Day"		
≤20	136	23.9
21-34	381	67
≥35	52	9.1
Menstrual bleeding duration "Day"		
<6	370	65
>7	199	35
Use of medicine regulating period		
Yes	71	12.5
No	498	87.5
Family history		
Yes	99	17.4
No	470	82.6
VAS "Pain"		
Mild	120	21.1
Moderate	245	43.1
Severe	204	35.8

Health related quality of life outcomes

Profiles versus severity of pain

The distribution of the severity of dysmenorrhea cases was as follows: mild 21% (n=120), moderate 43% (n=245) and severe 36% (n=204). The average scores that students received from the SF-12 scale by severity of dysmenorrhea are given in Table 4.

Table 4: Mean and Standard Deviation of SF-12 versus Pain.

SF-12 variables	Mean	Standard deviation
Physical functioning		
Mild n=120	75.8	30.3
Moderate n=245	71.7	28.1
Severe n=204	61.5	28.1
Role-physical		
Mild n=120	67.3	26.4
Moderate n=245	63.1	22.3
Severe n=204	54.9	25.8
Bodily pain		
Mild n=120	71.0	24.0
Moderate n=245	56.1	23.5
Severe n=204	43.8	28.7
General health perception		
Mild n=120	74.8	22.6
Moderate n=245	72.5	18.0
Severe n=204	70.7	20.8
Vitality	53.5	22.9

Mild n=120	51.4	22.4
Moderate n=245	49.1	25.1
Severe n=204		
Social functioning		
Mild n=120	66.6	27.7
Moderate n=245	59.2	24.2
Severe n=204	50.1	26.7
Role-emotional		
Mild n=120	62.5	27.3
Moderate n=245	56.2	23.1
Severe n=204	48.4	28.9
Mental health		
Mild n=120	59.1	20.1
Moderate n=245	55.5	17.8
Severe n=204	46.5	22.0
Physical component		
Mild n=120	51.3	7.0
Moderate n=245	49.2	6.7
Severe n=204	46.8	7.0
Mental component		
Mild n=120	43.3	9.2
Moderate n=245	41.4	8.0
Severe n=204	38.4	10.3

There was an inverse relationship between the severity of dysmenorrhea and the average scores received from HRQoL scale; the more severe the dysmenorrheal is, the worse the HRQoL.

Profiles versus BMI

There was no clear relationship between the average scores that students with different BMI received from HRQoL scale, with the exception of the domains physical functioning, role physical, social functioning, role emotional and physical component were inversely proportional with the BMI. The average scores that students received from the SF-12 scale by BMI are given in Table 6.

Table 6: Mean, Standard Deviation and Range of SF-12 versus BMI.

SF-12 variables	Mean	Standard deviation
Physical functioning		
Underweight n=57	77.6	29.7
Normal weight n=361	68.9	31.1
Overweight n=118	67.5	31.0
Obese n= 33	58.3	34.0
Role-physical		
Underweight n=57	64.6	27.2
Normal weight n=361	61.5	24.9
Overweight n=118	60.4	24.6
Obese n= 33	52.6	21.1
Bodily pain		
Underweight n=57	53.5	28.5
Normal weight n=361	54.2	27.9
Overweight n=118	57.4	26.6
Obese n= 33	54.5	22.9
General health perception		
Underweight n=57	69.0	21.2
Normal weight n=361	73.6	19.9
Overweight n=118	69.9	20.8
Obese n= 33	73.1	16.8
Vitality	50.8	26.7
Underweight n=57	51.3	23.1
Normal weight n=361	49.7	23.9
Overweight n=118	53.0	22.3

Obese n= 33		
Social functioning		
Underweight n=57	57.0	28.2
Normal weight n=361	57.6	26.7
Overweight n=118	57.8	25.6
Obese n= 33	56.8	26.7
Role-emotional		
Underweight n=57	54.3	27.4
Normal weight n=361	54.8	26.4
Overweight n=118	56.2	27.9
Obese n= 33	49.2	24.3
Mental health		
Underweight n=57	52.4	19.8
Normal weight n=361	53.1	20.7
Overweight n=118	52.4	52.4
Obese n= 33	55.3	15.9
Physical component		
Underweight n=57	50.0	7.3
Normal weight n=361	48.9	6.9
Overweight n=118	48.5	48.5
Obese n= 33	46.7	6.3
Mental component		
Underweight n=57	39.8	9.7
Normal weight n=361	40.8	9.4
Overweight n=118	40.8	9.3
Obese n= 33	41.5	6.8

Pain variation among different parameters

The distribution of the severity of dysmenorrhea cases was as follows: mild 21% (n=120), moderate 43% (n=245) and severe 36% (n=204).

Severity of pain versus menstrual characteristics

The distribution of students with different levels of menstrual pain according to a range of more detailed menstrual characteristics is given in Table 8.

Table 8: Frequency and Percentage of Menstrual Characteristics versus Pain.

Menstrual characteristics vs. Pain	Mild n=120		Moderate n=245		Severe n=204	
	Frequency	%	Frequency	%	Frequency	%
Age at menarche "year"						
<12 n=146	28	23.3	53	21.6	65	31.9
13-14 n=315	71	59.2	148	60.4	96	47.1
>15 n=108	21	17.5	44	18.0	43	21.1
Menstrual regularity						
Regular n=438	98	81.7	186	75.9	154	75.5
Irregular n=131	22	18.3	59	24.1	50	24.5
Menstrual cycle length "Day"						
≤20 n=136	34	28.3	66	26.9	36	17.6
21-34 n=381	73	60.8	157	64.1	151	74.0
≥35 n=52	13	10.8	22	9.0	17	8.3
Menstrual bleeding duration "Day"						
<6 n=370	85	70.8	165	67.3	120	58.8
>7 n=199	35	29.2	80	32.7	84	41.2
Use of medicine regulating period						
Yes n=71	11	9.2	26	10.6	34	16.7
No n=498	109	90.8	219	89.4	170	83.3
Family history						
Yes n=99	12	10.0	33	13.5	54	26.5
No n=470	108	90.0	212	86.5	150	73.5

Severity of pain versus BMI

The distribution of students with different levels of menstrual pain according to BMI is given in Table 10.

Table 10: Frequency and Percentage of BMI versus Pain.

BMI vs. Pain	Mild n=120		Moderate n=245		Severe n=204	
	Frequency	%	Frequency	%	Frequency	%
Underweight n=57	13	22.8	20	35.1	24	42.1
Normal weight n=361	71	19.7	165	45.7	125	34.6
Overweight n=118	28	23.7	43	36.4	47	39.8
Obese n= 33	8	24.2	17	51.5	8	24.2

Severity of pain versus habits and medical characteristics

More detailed habits and medical characteristics of those experiencing different level of menstrual pain are shown in Table 11. There was statistically no difference between habits and medical characteristics of students by different levels of menstrual pain, except for caffeine containing food/drinks.

Table 11: Frequency and Percentage of Habits versus Pain.

Habits & medical characteristics vs. pain	Mild n=120		Moderate n=245		Severe n=204	
	Frequency	%	Frequency	%	Frequency	%
Smoking						
Yes	19	15.8	28	11.4	27	13.2
No	101	84.2	217	88.6	177	86.8
Alcohol consumption						
Yes	1	0.8	4	1.6	5	2.5
No	119	99.2	241	98.4	199	97.5
Tea consumption						
Yes	82	68.3	172	70.2	138	68.1
No	38	31.7	73	29.8	65	31.9
Coffee consumption						
Yes	69	57.5	131	53.5	132	64.7
No	51	42.5	114	46.5	72	35.3
Coke consumption						
Yes	62	51.7	141	57.6	103	50.5
No	58	48.3	104	42.4	101	49.5
Chocolate consumption						
Yes	99	82.5	209	85.3	171	83.8
No	21	17.5	36	14.7	33	16.2
Chronic disease						
Yes	6	5	16	6.5	13	6.4
No	114	95	229	93.5	191	93.6
Chronic medication						
Yes	5	4.2	12	4.9	9	4.4
No	115	95.8	232	94.7	195	95.6

DISCUSSION

In this survey, approximately 79% (n=449) described their dysmenorrhea as severe and moderate; the distribution of the severity of dysmenorrhea cases was as follows: mild 21% (n=120), moderate 43% (n=245) and severe 36% (n=204). Similarly, previous studies conducted in Turkey indicated that the prevalence of dysmenorrhea among the same age group women was 72.7%.[15] 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.[26] This indicates that dysmenorrhea is still an important public health problem and that these females students experience severe or moderate dysmenorrhea, which may have a negative effect on HRQoL, social environment, work and physiological status.

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 fall with increasing age.[26] However, this study did not find any connection between age groups and the prevalence of dysmenorrhea. This is probably because the students in the study group may not be in a higher range of years.

Epidemiological studies[15] have shown a link between dysmenorrhea and several environmental risk factors, including current cigarette smoking. However, this study didn't find any relationship between cigarette use and dysmenorrhea (P>0.05) as the non-smokers were the majority 87% (n=495).

By both univariate and multivariate analyses, "smoking, alcohol consumption, tea consumption, coffee consumption, coke consumption, chocolate consumption, chronic disease & chronic medication" were not important risk factors for dysmenorrhea as shown in Table 12, not in line with other studies. Similarly menstrual regularity and menstrual cycle length were not important risk factors for dysmenorrhea. These findings are not compatible with the result showing that the risk of dysmenorrhea is higher in women with long menstrual flows.[18]

According to the bivariate and multivariate analysis, those with family history of dysmenorrhea had a significantly higher prevalence of dysmenorrhea (P=0.040*, OR = 2.2), a finding which is consistent with some studies.[19] 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.[19] 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.[16]

In the present study, the scores received from many of the SF-12 domains (physical functioning, role-physical, bodily pain, social functioning, role-emotional, mental health, physical component and mental component) were significantly lower in students with dysmenorrhea (Table 5).

In the present study, with increasing severity of menstrual pain, the average scores received from all the domains of SF-12 (Physical functioning, Role-physical, Bodily pain, General health perception, Vitality, Social functioning, Role-emotional, Mental health, Mental component, Physical component) showed decrease, consistent with the study by Barnard et al[15], indicating that women with dysmenorrhea and the other menstrual symptoms had lower HRQoL values.

The prevalence of dysmenorrhea among female students in the present study was relatively high throughout our study, exceeding three quarters 79% and HRQoL showed a decrease in the presence of dysmenorrhea and with the increase in the severity of dysmenorrhea.

CONCLUSION

The prevalence of dysmenorrhea among female students was relatively high throughout this study, reaching almost 79% and HRQoL showed a decrease in the presence of dysmenorrhea and with the increase in the severity of dysmenorrhea.

The limitations of this study as follows

- Firstly, it was performed in a single district, and in a single university, therefore the sample may not be representative of all UAE female university students. In other words, its comparability with community-based studies is weak, because the mean age of the female students in the study group was rather low compared to that of the general population. In addition, when taking into consideration that dysmenorrhea decreases
- with increasing age, it's being done with a determined age group hinders its applicability to all women.
- Secondly, a further limitation is that this study was a cross-sectional study, thus precluding inferences of causality among variables.
- The last limitation is that the nature of self-reporting may have resulted in under-reporting of the conditions.

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