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A Descriptive Study of the Prevalence of Dysmenorrhea in University Students and Its Relationship with Quality of Life

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ABSTRACT

Purpose: This study aimed to determine the prevalence of dysmenorrhea and its relationship with quality of life in university students.

Methods: The study was conducted with females in University, Faculty of Health Sciences. 395 students were included. Visual analogue scale (VAS) was used for evaluate menstrual pain, and the short form health survey (SF-36) was used for assess quality of life.

Results: It was determined that 82% of the student's experienced dysmenorrhea. The pain intensity level of the students with dysmenorrhea was found to be moderate in 40.1%, and severe in 34.9%. It was determined that 61.3% of the students with dysmenorrhea used painkillers to control dysmenorrhea, 88.3% used different non-pharmacological methods and 28.7% consulted a doctor due to dysmenorrhea. Students reported that dysmenorrhea affected their daily activities (74.8%), school attendance (66.7%), school or course performance and success (78.4%), concentration (93.2%) and interpersonal relationships (84.9%) negatively. All domain average scores of the SF-36 of participants with dysmenorrhea were significantly lower than those without dysmenorrhea ($p<0.05$).

Discussion: The prevalence and the severity of dysmenorrhea were found to be high in university students, and it was determined that dysmenorrhea caused the students' quality of life to decrease.

Key Words: Menstrual pain, quality of life, women's health

INTRODUCTION

Menstruation is a process that indicates a woman's fertility ability, and a number of symptoms accompanied by physical, behavioral and emotional changes can be experienced during this process. The most common of these symptoms is dysmenorrhea (1). Dysmenorrhea is one of the most important problems in terms of women's health in the world and refers to painful menstrual cramps that in the lower abdomen during menstruation. It may be primary in the absence of identifiable pelvic pathology or secondary in the presence of demonstrable organic pathology such as endometriosis and pelvic inflammatory disease (2-5). The prevalence of dysmenorrhea is highly variable and common among women, with varying degrees of severity (5). The variation in prevalence rates can be attributed to the lack of a universally accepted method for defining dysmenorrhea, the lack of differentiation between different types of dysmenorrhea, the absence of standardized pain level grading, and the fact that the studies were conducted in diverse age groups (2,6,7). Several meta-analyses have examined the prevalence of dysmenorrhea among university students. The prevalence in Ethiopia was found to range from 62.3% to 85.4% (2). A review covering 20 countries reported a prevalence of 70% among high school and university students (8). Additionally, studies have shown high rates of dysmenorrhea in university students, including 83.6% in Ghana, 76.5% in Spain, 79.4% in Saudi Arabia, 89.2% in

Greece, 78.4% in Romania, and 62.4% in Mexico (3,5,9-13). Previous research from Türkiye has also reported dysmenorrhea prevalence between 66.2% and 98% among university students (4,14-19).

Dysmenorrhea, although not life-threatening, is known to impact women's daily activities, leading to missed work and school, reduced work efficiency, and negative effects on social life, academic success, school attendance, sports participation, and sleep. Consequently, dysmenorrhea decreases the quality of life for women, increases healthcare costs, and poses a significant burden on both women and society (2, 4, 8, 11, 13, 20).

Given the high prevalence of dysmenorrhea and its significant impact on women's quality of life, promoting healthy lifestyles and self-care practices among young women should be a key goal of socio-health initiatives (11). For these reasons this study aimed to determine the prevalence of dysmenorrhea in university students and examine its relationship with their quality of life.

METHODS

Study Design

The study was conducted with the approval of the university non-interventional clinical research ethics committee of the faculty where the study was conducted (Number: 92340882-050.04.04, Date: 02.02.2018). The participants were informed about the nature of the study and for expediting recruitment provided verbal consent to take part. The tenets of the Declaration of Helsinki were adhered to throughout the course of the study. The data were collected from Adnan Menderes University to determine the prevalence of dysmenorrhea in university students and its relationship with quality of life.

Patients

The study participants were female students enrolled in the midwifery and child development departments at Adnan Menderes University Faculty of health sciences. Inclusion criteria were: being an active student, being single and aged 18-30, and not using hormonal contraception or IUD (Intrauterine device) within the last 3 months. Individuals with gynecologic or systemic chronic diseases, pregnant or multiparous women, psychotherapeutic drug users, and those with secondary dysmenorrhea were excluded from the study.

Assessments

The participant information form, the Visual Analog Scale (VAS), and the short form health survey (SF-36) were used for data collection.

Participant Information Form, inquiries about the sociodemographic and menstruation-related characteristics of the students (presence of dysmenorrhea, age at menarche, cycle and menstruation duration, day of onset of menstrual pain, menstrual pain duration, effect of dysmenorrhea on daily activities and school success, practices for controlling dysmenorrhea, etc. (4-6, 11, 15, 16). It was pretested on 10 students, and no revisions were made to the form based on the pretest results. The students themselves completed this form.

VAS, is used to quantitatively assess pain intensity, which is a subjective experience. If any participant reported experiencing menstrual pain in the past six months, they were considered to have dysmenorrhea (21). VAS has been employed in studies to evaluate the intensity of primary dysmenorrhea and has demonstrated reliability and validity (4- 6, 11, 15, 16). The VAS consists of a 10-cm horizontal line, which labeled "no pain" at one side end and "unbearable pain" at the other side. Participants are asked to indicate their pain level by placing a mark along the line. The distance from the "no pain" end to the participant's mark provides a numerical value representing their pain intensity. In this study, the severity of dysmenorrhea among the students was determined using the VAS. Those who reported a pain intensity of "0" on the VAS were considered to have no dysmenorrhea, those reporting "10-40 mm" had mild dysmenorrhea, "41-70 mm" had moderate dysmenorrhea, and "71-100 mm" had severe dysmenorrhea (21). Participants were instructed to mark the severity of their dysmenorrhea pain on the VAS.

SF-36, was used to assess quality of life. This scale, consisting of 36 questions, covers eight dimensions: physical function, social function, role limitations due to physical problems, role limitations due to emotional problems, mental

health, energy/vitality, pain and general health perception. The participant is asked to consider their experiences in the last four weeks. The Likert-type scale evaluates health from 0 to 100, which 0 indicates poor health condition, 100 indicates good health condition (22).

The researchers collected the data from the students who came to class on the day of the data collection, volunteered to participate in the study, and were present in the classroom environment. Prior to the application, the researchers explained the study's purpose and the process of completing the data collection form and scale to all the participating students. The data collection process took approximately 15 minutes on average.

Statistical Analysis

The Statistical Package for the Social Sciences (SPSS, version 24.0) was used to analysis. Descriptive statistical analyses (percentage calculations, mean, standard deviation), independent group t test, one-way analysis of variance, Fisher's Exact, Chi-Square and Tukey HSD tests were performed. Statistical analyses were conducted using parametric tests for data that conformed to a normal distribution, while nonparametric tests were utilized for data that did not meet the assumptions of normality. The results were evaluated at 95% confidence interval and significance accepted at $p<0.05$ level. The sample size was calculated to be 221 (with 95% confidence and 5% margin of error).

RESULTS

The study was completed with 395 students. The sociodemographic and menstrual characteristics of the participants are shown in Table 1. It was found that 76.2% of the students in this study were midwifery students, 76% of them had regular menstrual periods and 82.3% of them had their first menstruation between the ages of 12-14. The mean cycle day and menstrual day averages of the students were 29.36±4.43 and 5.83±1.29, respectively. It was found that the department, age groups, menstrual patterns, age at menarche, cycle duration and mean menstrual days did not affect the students' dysmenorrhea ($p>0.05$) (Table 1).

Table 1. Sociodemographic and menstrual characteristics of the students

	Mean ± SD	Min-Max	P value
Age (year)	20.58±1.92	18-29	
Height (cm)	164.02±10.63	158-178	
Weight (kg)	58.06±12.07	57-80	
Menarche age	13.04±1.18	9-16	
Cycle day (avg)	29.36±4.43	17-60	
Menstrual day (avg)	5.83±1.29	3-12	
Menstrual cycle	**n**	**%**	
Regular	298	76	0.166+
Irregular	94	24	

SD: Standard deviation; avg: average; n: Number of participants; + Fisher's Exact test

It was found that 82% of the students experienced dysmenorrhea and 40.1% of those who experienced dysmenorrhea had moderate pain and 34.9% had severe pain. 49.3% of the students stated that they experienced pain only on the first day of menstruation and 42% on the first 2-3 days of menstruation (Table 2). It was found that 61.3% of the students with dysmenorrhea used painkillers, 88.3% used any non-pharmacological method and 28.7% consulted a doctor due to dysmenorrhea. 74.8% of the students reported that dysmenorrhea negatively affected their daily activities, 66.7% school attendance, 78.4% school/lecture performance and success, 93.2% concentration and 84.9% interpersonal relationships.

As the severity of dysmenorrhea pain increased, there was a significant rise in the rates of painkiller use, negative impacts on daily activities, school attendance, and consulting a doctor ($p=0.001$) (Table 3).

Table 2: Characteristics related to dysmenorrhea

		n	%
Presence of dysmenorrhea	Yes	324	82
	No	71	18
Dysmenorrhea Severity	Mild	81	25
	Moderate	130	40.1
	Severe	113	34.9
Duration of dysmenorrhea (days)	First day	160	49.3
	First 2-3 days	136	42.0
	During menstrual period	8	2.5
	Varies	20	6.2
Time of first painful menstruation	With FM	133	41.8
	6m-2y post-FM	104	32.7
	During stressful periods	38	11.9
	Other	43	13.5

n: number of participants; VAS: Visual Analog Scale; %: percentage; FM: first menstruation; 6m-2y post-FM: 6 months to 2 years after first menstruation.

Table 3. Attitudes of students experiencing dysmenorrhea towards the control of dysmenorrhea and the impact of dysmenorrhea on their daily lives

Parameters		Total (n=324)	Severity of Dysmenorrhea			p value
			Mild (n=81)	Moderate (n=130)	Severe (n=113)	
		n (%)	n (%)	n (%)	n (%)	
Using painkillers due to dysmenorrhea	Yes	200(61.7)	31(15.5)	82(41.0)	87(43.5)	0.001*
	No	124(38.3)	50(40.3)	48(38.7)	26(21.0)	
Using any non-pharmacological method for dysmenorrhea	Yes	288(88.9)	73(25.3)	113(39.2)	102(35.4)	0.654
	No	36(11.1)	8(22.2)	17(47.2)	11(30.6)	
Seeing a doctor for dysmenorrhea	Yes	93(28.7)	9(9.7)	28(30.1)	56(60.2)	0.001*
	No	231(71.3)	72(31.2)	102(44.2)	57(24.7)	
Dysmenorrhea affects daily activities	Yes	232(74.8)	35(15.1)	95(40.9)	102(44.0)	0.001*
	No	78(25.2)	43(55.1)	28(35.9)	7(9.0)	
Dysmenorrhea affects school attendance	Yes	216(66.7)	29(13.4)	87(40.3)	100(46.3)	0.001*
	No	108(33.3)	52(48.1)	43(39.8)	13(12.0)	
Dysmenorrhea affects school/course performance and success	Yes	254(78.4)	50(19.7)	103(40.6)	101(39.8)	0.001*
	No	70(21.6)	31(44.3)	27(38.6)	12(17.1)	
Dysmenorrhea affects concentration status	Yes	302(93.2)	68(22.5)	122(40.4)	112(37.1)	0.001*
	No	22(6.8)	13(59.1)	8(36.4)	1(4.5)	
Dysmenorrhea affects interpersonal relationships	Yes	275(84.9)	52(18.9)	114(41.5)	109(39.6)	0.001*
	No	49(15.1)	29(59.2)	16(32.7)	4(8.2)	

n: Numbers of participants; *: showed statistically significant values, %: percentage, Chi-squared test.

It was found that students with moderate dysmenorrhea pain had higher rates of school/lecture performance and achievement (40.6%), concentration (40.4%), and interpersonal relationships (41.5%) than those with mild or more severe pain (p=0.001), (Table 3).

It was found that scores of all subdomains of SF-36 of students with dysmenorrhea were lower than those without dysmenorrhea, and this was found to be significant (p<0.05). In the analysis performed to evaluate the difference between the severity levels of pain experienced in dysmenorrhea in students with dysmenorrhea, it was found that the severity level of pain experienced in dysmenorrhea affected physical function, physical pain, general health perception, energy/vitality, social function and emotional role difficulty subdomains of quality of life (p<0.05), while physical role limitations and mental health subdomains were not affected (p=0.16, p=0.18) (Table 4). In the further analysis (Tukey HSD); in the areas of physical function, general health perception, energy/vitality and social function, the quality of life of those with severe dysmenorrhea was found to be lower than those with moderate and mild dysmenorrhea (p<0.05). In the physical pain domain, it was found that quality of life decreased as the pain level increased, and in the emotional domain, those with severe pain had lower quality of life than those with mild pain (p<0.05), (Table 4).

Table 4. Comparison of students' dysmenorrhea experiences and SF 36

SF-36 Quality of Life Short Form	Dysmenorrhea (Mean±SD)		p Value	Severity of Dysmenorrhea (Mean±SD)			p Value
	Present (n=324)	Absent (n=71)		Mild (n=81)	Moderate (n=130)	Severe (n=113)	
PF	88.53±17.38	95.21±8.03	0.002	90.98±15.66	90.69±15.04	84.29±20.19	0.005*
RP	74.38±37.00	91.67±21.30	0.002	79.01±35.23	75.96±35.41	69.26±39.66	0.160
BP	55.84±23.23	79.78±18.86	0.002	67.77±21.36	57.55±19.94	45.31±23.53	0.001*
GH	58.71±17.99	68.52±13.95	0.002	63.18±16.91	61.10±16.46	52.75±18.98	0.001*
VT	54.49±19.17	60.63±18.14	0.014	57.83±20.59	56.15±18.01	50.17±18.80	0.010*
SF	66.36±19.62	75.30±18.61	0.002	73.14±20.77	67.58±18.45	60.09±18.31	0.001*
RE	59.82±41.48	75.91±34.90	0.003	70.67±39.63	60.33±40.21	51.46±42.71	0.006*
MH	59.00±17.59	64.33±16.3	0.02	61.23±17.53	59.62±16.54	56.69±18.66	0.181

PF: Physical Functioning; RP: Role Physical; BP: Bodily Pain; GH: General Health; VT: Vitality; SF: Social Functioning; RE: Role Emotional; MH: Mental Health; SD: Standard Deviation; *: showed statistically significant values, independent group t test.

DISCUSSION

The objective of our study was to determine the prevalence of dysmenorrhea in university students and its relationship with quality of life. Unlike previous studies, this study, specifically targeted a specific population by providing a focused examination of the prevalence of dysmenorrhea in an underrepresented demographic. This specificity provides a more nuanced understanding of how dysmenorrhea affects this particular group compared to larger studies that may include a variety of age ranges and educational backgrounds. Furthermore, unlike previous studies that primarily focused on pain intensity, this study evaluates the multifaceted impact of dysmenorrhea on daily activities, academic performance, concentration, and interpersonal relationships. This holistic approach adds depth to the understanding of how menstrual pain affects quality of life beyond just physical symptoms. Our findings revealed that the prevalence of dysmenorrhea in university students was high (82%). Dysmenorrhea, which is common in adolescents and young women, is a serious reproductive health problem that negatively affects women's quality of life (13). In studies conducted with female university students in different countries, the prevalence of dysmenorrhea was found to be between 62.4% and 89.2% (3,5,9-13). In studies conducted in Türkiye, it was found to be between 66.2% and 85.7% (4, 15-17, 19, 22). The prevalence of dysmenorrhea was found to be high in studies conducted both in different countries and in our country, albeit at different rates, and our study findings were consistent with these findings. The difference in dysmenorrhea rates between studies can be explained by various reasons such as the lack of a universally accepted definition of dysmenorrhea, the subjective nature of pain perception, and the fact that dysmenorrhea varies according to the region and culture.

It is difficult to define the severity of pain because it is subjective. In our study, the pain intensity of students with dysmenorrhea was evaluated with VAS and it was found that the majority of the students had a high level of dysmenorrhea pain intensity (40.1% severe, 34.5% moderate). In studies conducted with university students abroad and in our country, it was determined that the severity level of dysmenorrhea (moderate and severe) varied between 55.8% and 97% abroad and between 59.5% and 90% in our country (3, 4, 9-12,16, 18, 20, 25). Our findings support previous studies. The high prevalence and severity of dysmenorrhea demonstrate that dysmenorrhea may be considered one of the most prevalent health problems that may impact the health, psychological status, and daily activities of female university students, and dysmenorrhea is still an important public health problem (23, 24). The difference in pain intensity between the studies may be attributed to differences in pain perception among the participants and also to the use of different scales to assess pain intensity.

Since dysmenorrhea is a painful condition that negatively affects daily life, students may resort to both non-pharmacological and pharmacological methods to cope with dysmenorrhea (3, 5, 14). In our study, it was determined that the majority of students with dysmenorrhea took painkillers, the rate of painkiller use increased as the severity of their pain increased, and the majority of them used non-pharmacological applications other than painkillers. In previous studies, it was reported that between 75.7% and 87% of students used both pharmacological and non-pharmacological methods, while 17.3% used only pharmacological methods for cope with dysmenorrhea (3,26). It was also reported that the rate of painkiller use was up to 71.4% (5). In our study, it was determined that the rate of visiting a doctor due to dysmenorrhea was low (28.7%) despite the high rate of dysmenorrhea, the majority of them experienced moderate/severe pain, and the majority of them stated that dysmenorrhea negatively affected their daily activities, and among those who visited a doctor, the application to the doctor increased as the severity of dysmenorrhea increased. The rate of seeking medical help among students with dysmenorrhea is 25.9% in Mexico and 16.3% in Ghana (10, 12). Previous studies conducted at different universities in our country have reported the rates of students seeking medical assistance for dysmenorrhea, ranging from 9%, to 34.4% (14, 15, 17). Our findings are consistent with these studies. In our study and other studies, it is thought that students did not see dysmenorrhea as a problem that would require an application to a health institution, therefore, they did not feel the need to seek medical help and sought to cope on their own, their hesitation

or embarrassment to visit a doctor for cultural and social reasons may have prevented students from seeking medical help, and only those with high pain intensity sought medical help (15).

It was found that three-quarters of the students with dysmenorrhea had negative effects on their daily activities, two-thirds had negative effects on their school attendance, the majority had negative effects on their school or course performance and achievement, and the majority had negative effects on their concentration and interpersonal relationships, especially when the severity of dysmenorrhea was moderate or high. Although at different rates, studies conducted in our country and abroad indicate that dysmenorrhea negatively affects students' school attendance, school success, concentration, and interpersonal relationships as well as their daily activities (10, 12, 15, 16, 20, 26). A comprehensive meta-analysis examining dysmenorrhea in low- and middle-income nations revealed a statistically significant negative impact on academic performance in both secondary and tertiary education settings (8). Our findings are similar to the findings of other national and international studies. All these results support that dysmenorrhea is an important health problem that negatively affects the lives of young girls in many aspects. This suggests that it is extremely important to identify young girls with dysmenorrhea and provide them with education and counseling on effective coping and treatment methods.

Dysmenorrhea is a gynecologic problem that negatively affects students' quality of life (11, 20, 22). In our study, the SF-36 was used to assess the quality of life of the students, and the quality of life of students with dysmenorrhea was found to be significantly lower in all areas compared to those without dysmenorrhea. In addition, with increasing severity of dysmenorrhea, mean scores in all domains except physical role difficulty and mental health decreased. In a study conducted with university students in Kütahya, in which the same scale was used to evaluate quality of life, the mean scores of other domains except social function, emotional role difficulty and mental health were found to be lower in students with dysmenorrhea (4). In a study conducted in Istanbul, it was found that the quality of life of students with dysmenorrhea was negatively affected in all areas except physical function and physical-role difficulties (22). Alp Yılmaz and Avcı stated that dysmenorrhea is an important problem that reduces all areas of quality of life in their study conducted in university students in Yozgat (26). Our findings are consistent with the findings of this study and show that the treatment of dysmenorrhea, which is a common gynecologic problem among young people, should not only control pain but also increase the quality of life, which is an indicator of the physical, emotional and social aspects of life.

Limitations

The results of the study cannot be generalized to all female university students in Türkiye since the study was conducted in a single university and the data were filled in according to the self-reports of the students. In addition, considering that dysmenorrhea decreases with increasing age, the fact that the study was conducted in a specific age group limits its comparability with all population-based studies. Another limitation of this study is that it is a cross-sectional study and therefore causality inferences between variables are not possible.

CONCLUSION

In conclusion, the incidence and severity of dysmenorrhea were found to be high in university students. It was found that dysmenorrhea negatively affected students' daily activities, school attendance, school or course performance/achievement and interpersonal relationships and caused a decrease in the quality of life of students. In line with these results, due to the high prevalence and severity of dysmenorrhea among university students and the decrease in their quality of life, it is recommended that awareness-raising activities be organized for students on dysmenorrhea management or that reproductive health courses be added to university curricula. In addition, it is recommended to organize training programs for students about the treatment and management of dysmenorrhea, to provide effective counseling services through written and visual materials, to develop appropriate coping methods.

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