

Connection between dysmenorrhea and depression among a group of Turkish high school female students

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ABSTRACT

Objective: The aim was to estimate the prevalence of dysmenorrhea and also the connection between dysmenorrhea and depression among girl students.

Methodology: This study was conducted at both vocational high schools in a province in the west of Turkey from March 1st to April 30th 2010. The Beck Depression Scale (BDS) to determine the presence of depression, and the Visual Analogue Scale (VAS) were used. In analysis of the data, Chi square and Student's t test were used, with a p value lower than 0.05 being considered significant.

Results: The extent of dysmenorrhea was 71.5%. It was higher in those with menstrual irregularity, in those with positive family history of dysmenorrhea and in those consuming coffee ($p < 0.05$ in each case). The prevalence of depression was higher in girls experiencing dysmenorrhea compared to those without ($p < 0.05$). There was a positive correlation between the severity of painful menstruation and mean BDS scores ($p < 0.05$).

Conclusion: Educational programs need to be considered in terms of recommendation to reduce dysmenorrhea.

KEY WORDS: Dysmenorrhea, High school, Depression, Adolescents.

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INTRODUCTION

Dysmenorrhea, which is one of the most common gynecologic symptoms in women, often manifests

itself as crampy, colicky pain in the abdominal region. It usually begins with menstruation, lasting a few days.¹ The etiology of primary dysmenorrhea is not exactly understood, but the reason for most symptoms can be explained by the activity of uterine prostaglandins.²

Its reported prevalence has been highly variable, indicating a prevalence of dysmenorrhea ranging 29.0% to 71.7%.^{3,4} In the surveys conducted in Turkey, its prevalence has been showed to range between 55.5% to 89.4% in adolescent or younger adults.^{5,6} Agarwal and Agarwal reported that there are a positive connection between the existence of dysmenorrhea and the prevalence of depression.⁷ They found that 44.1% of adolescent girls were in depression on the first day of menstruation.

In this study, the aim was to determine the prevalence of dysmenorrhea and also to explicit the connection between painful menstruation and depression in a group of Turkish female students studying at two vocational high schools.

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METHODOLOGY

This cross-sectional study was conducted among a group of female students studying at the two vocational high schools mentioned above in a province in the west of Turkey from 1 March to 30 April 2010. According to records of the Provincial National Education Directorate, the number of the students studying at the Anatolian Girls' Vocational High School was 89, and the number of those studying at the Eskisehir Girls' Maturing Technical Education High School was 311. Out of a total of 400 students, the study was performed on a total of 390 students who agreed to participate in the research. The questionnaire, which was used in this study, consisted of the following parts.

The first part of the survey included their socio-demographic and school features and menstrual characteristics, some habits, any history of chronic disease that requires continuous drug use, and obesity-related questions. The second part of the questionnaire included visual analogue scale (VAS)⁸ questions and multidimensional scoring system (MSS)⁹ to evaluate the menstrual severity, and the last part included the questions of the Beck Depression Scale (BDS)¹⁰ to determine to depression of the students. The necessary permissions for this study were received from the Eskisehir Osmangazi University and the national education authority in the province.

In addition to the above, those consuming one and more cigarettes a day were estimated as those

smoking cigarette, those drinking 4 glasses or more of tea daily (75 cc × 4) as those drinking tea, those drinking 3 cups or more of coffee daily (150 cc × 3) as those drinking coffee, those drinking a glass or more of cola in a day (200 cc × 1) as those drinking cola, and those consuming 2 bars or more of chocolate daily (150 cc × 3) as those eating chocolate. The family income status was grouped as enough, medium or insufficient in the students' own statements. The existence of painful menstruation in adolescent's first degree relatives was estimated as the presence of dysmenorrhea in family. Those who had a Body Mass Index (BMI) of 25 kg/m² and over were assessed as overweight or obese.¹¹

Statistical differences were analyzed using the Pearson's chi-square statistical test (χ^2) and one way ANOVA test. The level of significance was set at 5% ($p < 0.05$).

RESULTS

The students' average menarche age was 13.34±1.16, ranging from 9 to 16. Most students' menarche age was ranging from 13 to 14 (62.1%), and the rate of those with delayed age of first menstruation was 14.6%. About 70% reported experiencing regular menstruation (67.2%). Mean menstrual cycle duration of the students was 29.64±7.87 days (min=15, max=90). Their mean bleeding period was 5.39 ±1.48 days, (range=2-15). Many students' menstrual cycle duration was between 22-34 days (78.5%). Most students'

Table-I: Distribution of students with/without dysmenorrhea by some dysmenorrheal and menstrual characteristics.

Some characteristics	Dysmenorrhea			Analysis χ^2 ; p
	No n(%)	Yes n(%)	Total n(%)	
Age at menarche				
≤12	26 (28.6)	65 (71.4)	91 (23.3)	0.344; 0.842
13-14	67 (27.7)	175 (72.3)	242 (62.1)	
≥15	18 (31.6)	39 (68.4)	57 (14.6)	
Menstrual order				
Regular	83 (31.7)	179 (68.3)	262 (67.2)	4.060; 0.044
Irregular	28 (21.9)	100 (78.1)	128 (32.8)	
Menstrual cycles period				
≤21 days	6 (19.4)	25 (80.6)	31 (7.9)	2.050; 0.359
22-34 days	87 (28.4)	219 (71.6)	306 (78.5)	
≥35 days	18 (34.0)	35 (66.0)	53 (13.6)	
Menstrual bleeding time				
≤6	85 (28.9)	209 (71.1)	294 (75.4)	0.119; 0.730
≥7	26 (27.1)	70 (72.9)	96 (24.6)	
Using a menstrual regulatory drug				
Yes	6 (18.8)	26 (81.3)	32 (8.2)	1.137; 0.286
No	105 (29.3)	253 (70.7)	358 (91.8)	
Family history of dysmenorrhea				
Yes	30 (17.5)	141 (82.5)	171 (43.8)	17.827; 0.000
No	81 (37.0)	138 (63.0)	219 (56.2)	
Total	111 (28.5)	279 (71.5)	390 (100.0)	

Table-II: Some habits and medical characteristics of students with/without dysmenorrhea..

Some habits	Dysmenorrhea			Statistical Analysis
	No n(%)	Yes n(%)	Total n(%)	χ^2 ; p
Smoking				
No	89 (28.6)	222 (71.4)	311 (79.7)	0.000; 1.000
Yes	22 (27.8)	57 (72.2)	79 (20.3)	
Tea consumption				
No	45 (26.9)	122 (73.1)	167 (42.8)	0.329; 0.566
Yes	66 (29.6)	157 (70.4)	223 (57.2)	
Coffee consumption				
No	59 (33.5)	117 (66.5)	176 (45.1)	4.035; 0.045
Yes	52 (24.3)	162 (75.7)	214 (54.9)	
Cola consumption				
No	31 (31.6)	67 (68.4)	98 (25.1)	0.646; 0.421
Yes	80 (27.4)	212 (72.6)	292 (74.9)	
Chocolate consumption				
No	27 (29.3)	65 (70.7)	92 (23.6)	0.046; 0.829
Yes	84 (28.2)	214 (71.8)	298 (76.4)	
Overweight/obese				
No	106 (29.4)	254 (70.6)	360 (92.3)	1.637; 0.201
Yes	5 (16.7)	25 (83.3)	30 (7.7)	
Any chronic disease necessitating the use of any medicine				
No	104 (29.3)	251 (70.7)	355 (91.0)	0.934; 0.334
Yes	7 (20.0)	28 (80.0)	35 (9.0)	
Total	111 (28.5)	279 (71.5)	390 (100.0)	

menstrual bleeding duration was less than 6 days (75.4%).

About 50% students (43.8%) reported having a family history of dysmenorrhea. Only 8.2% reported using a regulatory drug for menstruation. The proportion of dysmenorrheal symptoms was more in those with irregular menstruation than those with regular menstruation ($p<0.05$). Prevalence of dysmenorrhea was found to be more in those with a positive painful menstruation history in the family.

More detailed data are presented in Table-I. The proportion of those who reported that menstrual intensity of pain as moderate or severe was 62.0%. The most common symptoms of dysmenorrhea for the students in the study group were nervousness and weakness (64.4% in each one), followed by arthralgia (40.5%). Table-II shows the distribution of some habits and medical features of participants by presence of dysmenorrhea. In the study group, the frequency of consuming cigarette was 20.3%. Nearly 50% of the students reported drinking no tea (42.8%), with a proportion of 45.1% consuming no coffee. Mean BMI of the students was $20.59 \pm 2.971 \text{ kg/m}^2$ (range=14.69-32.32), and the prevalence of overweight or obesity was 7.7% ($n=30/390$).

About 9.0% students reported having no chronic disease necessitating a continuous medicine use. The prevalence of dysmenorrhea was higher in

those consuming coffee when compared to the others ($p<0.05$). The prevalence of depression of those in the study group was 43.3% (169/390). The distribution of the students with and without depression by status of dysmenorrhea is given in Table-III. While the prevalence of depression was 51.6% in those with dysmenorrhea, this rate was only 22.5% in those without dysmenorrhea ($p<0.001$). The mean score that all students with and without dysmenorrhea received from the BDS was 18.43 ± 10.73 , ranging from 0 to 52. The severity of dysmenorrhea was mild in 38.0% of the students ($n=106$), moderate in 38.7% ($n=108$) and severe in 23.3% ($n=65$). As the intensity of dysmenorrhea increased, it was determined that the mean BDS score showed increase; 17.93 ± 9.38 , 20.29 ± 10.71 and 24.11 ± 12.75 for mild, moderate and severe, respectively ($F=6.639$; $p<0.05$). The mean point that the participants received from the BDS by the severity of dysmenorrhea was 20.28 ± 10.97 .

Table-III: Distribution of the students with/without depression by status of dysmenorrhea.

Dysmenorrhea	Depression		
	No (%)	Yes (%)	Total (%)
$\chi^2=27.366$; $p=0.000$			
No	86 (77.5)	25 (22.5)	111 (28.5)
Yes	135 (48.4)	144 (51.6)	279 (71.5)
Total	221 (56.7)	169 (43.3)	390 (100.0)

DISCUSSION

In the current study, female students had a high frequency of dysmenorrhea (71.5%), in line with previously conducted surveys indicating to range from 68.2% to 89.5% from both Turkey and another countries.^{5,6,12,13} This rather high proportions show that dysmenorrhea in adolescents should be given importance in terms of school success and school health.

In the present study, the proportion of dysmenorrhea was higher in those with irregular menstruation when compared to those with regular menstruation ($p<0.05$), in line with several study results.^{14,15} However, a few studies reported that there was no connection between dysmenorrhea and irregular menstruation.¹⁶ An explanation for this difference could be as follows: the evaluation of primary and secondary dysmenorrhea together leads to different conclusions in terms of the relationship between menstrual irregularity and dysmenorrhea.

The frequency of painful menstruation was significantly more in participants who had a positive family history ($p<0.05$), a result in line with various studies proposing that dysmenorrhea is associated with family history.¹² This result indicates that a family history of dysmenorrhea seems to be an important characteristic for women with dysmenorrhea.

The prevalence of dysmenorrhea was more in those drinking coffee when compared to those not consuming coffee ($p<0.05$). A reason could be that caffeine causes to fatigue and irritability by shortening menstruation time.¹⁷

Some studies^{18,19} reported that the proportion of painful menstruation was higher in obesity. In parallel, this study also found that dysmenorrhea was more in those who were overweight or obese ($p<0.05$). Depression and/or depressive signs are reported to have an impact on menstrual cycle function and painful menstruation. Since menarche occurs later in puberty and during the pubertal years there are increases in depressive symptoms and or anxiety.^{18,19} Depression, anxiety, and disruption of social support networks have been associated with menstrual pain.²⁰ Similarly, in this survey, the frequency of depression was more in the participants experiencing painful menstruation ($p<0.05$) in line with the studies by Pedrón-Nuevo et al.²¹ This connection may be explained as a co-existing feature that necessitates further studies. In the girls with dysmenorrhea as the severity of depression increased, the scores obtained from the BDS showed increase ($p<0.05$). Many studies reported similar findings.^{7,18,19}

CONCLUSION

From the current study it can be concluded that dysmenorrhea is a very common problem among female students, and they experience a number of depressive symptoms associated with dysmenorrhea, with the increased intensity of pain in occurrence of dysmenorrhea. The findings of this study also indicates a requirement for knowledge related to painful menstruation still exists, and the need for appropriate intervention through a change in lifestyle.

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