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Evaluation of the Relationship Between Menstrual Symptoms and Eating Attitudes in University Students in Turkey

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ABSTRACT

This study aimed to evaluate the relationship between menstrual symptoms and eating attitudes among university students. Conducted between January and June 2022, the study included 375 female students from a private university, determined with a 99.9% confidence interval and a 0.05 bias level. Data were collected using the "Personal Information Form," "Menstrual Symptom Scale," and "Eating Attitude Test Scale." Statistical analysis included number, percentage, mean, standard deviation, and Pearson correlation. The average age of participants was 22.24±3.23 years; 29.9% were in their fourth year, and 57.9% had a monthly income below the minimum wage. The mean total score of the Menstrual Symptom Scale was 65.59±19.87, with subscale scores of 38.61±11.70 for negative effects, 19.16±6.44 for pain symptoms, and 7.82±3.53 for coping methods. The average score on the Eating Attitude Test-40 was 23.07±21.21, with 77.9% of students predisposed to eating behaviour disorders. Participants predisposed to eating behaviour disorders had significantly higher scores in negative effects, pain symptoms, and total menstrual symptom scores ($p<0.05$). Menstrual symptoms and eating behaviour disorders are common among university students, and those predisposed to eating attitude disorders experience menstrual symptoms more frequently, suggesting a potential relationship between the two

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Introduction

Menstruation is a normal physiological process that begins with menarche in young girls and occurs regularly every month throughout the childbearing age, indicating a woman's fertility. Approximately half of women's lives are spent with menstruation and the physical, behavioural and emotional changes that accompany this process [1, 2]. Studies in the literature have revealed that 34% to 94% of women experience menstrual symptoms. These symptoms are among the most common health problems affecting women throughout their productive years. Studies on menstrual symptoms, which are more common in young adult women, have been conducted mainly on university students [3-5]. Although the prevalence of menstrual symptoms is high, there is not yet complete information on their etiology. However, in general terms, factors such as hormonal changes, neurotransmitters, prostaglandins, diet, drugs and lifestyle are reported to be effective on menstrual symptoms [6].

Menstruation-related symptoms are generally classified into two groups: premenstrual syndrome (PMS) and dysmenorrhea. Studies have shown that the most common menstrual cycle problem is dysmenorrhea [2, 7]. The Greek origin of the term "dysmenorrhea" is known as painful menstruation. PMS, on the other hand, is a luteal phase disorder seen in 80-90% of women of reproductive age, which gives the body the signals that menstruation is approaching and somatic, cognitive, emotional and behavioural symptoms are observed [8]. Premenstrual disorders are a group of psychiatric or somatic symptoms that develop during the luteal phase of the menstrual cycle and disrupt the normal daily functioning of the patient and disappear spontaneously within a few days following the end of menstruation [9, 10]. If the symptoms are clinically significant, this is called premenstrual syndrome (PMS), but if these symptoms are more severe and cause significant impairment in the patient's daily activities, school, work or social relationships, this condition is called premenstrual dysphoric disorder (PMDD). PMDD is included as an official diagnostic category in the Fifth Edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) [11]. Although the pathogenesis of PMDD has not been fully elucidated, various biological, psychological and sociocultural factors are likely to play a role. Emotional fluctuations, irritability, anger, depression and anxiety are the main symptoms of PMDD. In addition, markedly increased appetite in the late luteal phase is among the diagnostic criteria for PMDD [12]. Disordered eating attitude is a common feature of disorders such as anorexia nervosa, bulimia nervosa and binge eating disorder. A national epidemiologic study has shown that women with PMS and PMDD are more likely to have BN regardless of comorbid mental health illness. Women are approximately 3 times more susceptible to developing eating disorders than men [13].

The link between excessive energy intake or hunger, i.e. hyperphagia and binge eating, and PMDD has not yet been defined, but there is a close relationship between abnormalities in eating attitude in the luteal phase and estrogens and progestogens. It has been suggested that women with PMDD may be more sensitive to fluctuations of estrogens and progestogens throughout the menstrual cycle than normal women. Healthy women and women with PMDD may differ in appetite, eating attitudes and emotional eating tendencies according to the relationships between their estrogens and progestogens [12, 14]. It has been reported that 80% of women worldwide experience PMS symptoms and 5% are affected by more severe forms such as PMDD. This can lead to physical and emotional discomfort, especially in young women, which can severely impact quality of life. In addition to hormonal fluctuations, biological, psychological and sociocultural factors have been reported to play a role in the etiology of PMS. It is suggested that especially changes in estrogen and progesterone levels affect serotonin metabolism and lead to changes in mood and physical symptoms [15, 16].

In addition, risk factors for PMS and PMDD include the presence of depression or other mood disorders in the family, low educational level and smoking. Symptoms of these disorders include depression, anxiety, tantrums, changes in eating habits and physical disorders. The diagnosis of PMDD requires that the symptoms cause a significant impairment in social, occupational or other areas of functioning. It is generally recommended to keep a daily symptom record for the diagnosis and treatment of this condition [17, 18].

In the light of these data, it is seen that disorders such as PMS and PMDD are an important problem not only at the individual level but also in terms of public health, and environmental and lifestyle factors along with hormonal changes are also effective on this condition. Studies conducted especially on young women contribute to increasing awareness on this issue [19, 20].

Material Method

This study was conducted between January and June 2020 on 375 volunteer female menstruating students aged 18-45 years, who were studying at a university in Istanbul, Turkey.

A questionnaire including demographic information, health status, anthropometric measurements, dietary habits, menstrual symptom scale questionnaire and YTT-40 tests was administered to the participants online due to the periodic pandemic.

Data Collection

In the data collection phase, a personal information form and demographic information as well as the Menstrual Symptoms Scale (MSS) and Eating Attitude Test (EAT-40) questionnaires were used.

Menstrual Symptom Scale (MSS)

Chesney and Tasto developed the scale in 1975 to assess menstrual pain and symptoms. Negriff et al. (2009) updated the scale by re-evaluating its factor structure and usability on adolescents. Turkish validity and reliability are performed by Güvenç et al. in 2014. The Menstrual Symptom 23 Scale (MSS) is a 5-point Likert-type scale consisting of 22 items. Participants are asked to rate the symptoms they experience related to menstruation between 1 (never) and 5 (always). The scale consists of three sub-dimensions: Negative Effects/Somatic Complaints (Items 1-13), Menstrual Pain Symptoms (Items 14-19) and Coping Methods (Items 20-22). The highest score that the participants can obtain is 110 and the lowest score is 22. The average of the total score obtained from the items in the scale gives the MSS score. An increase in the mean score indicates an increase in the severity of menstrual symptoms. The score obtained from the sub-dimensions of the scale is calculated by the average total score of the items in the sub-dimensions. An increase in the mean score for the sub-dimensions indicates an increase in the severity of menstrual symptoms in that sub-dimension. The Cronbach's Alpha value of the original scale was 0.86 [21].

Eating Attitude Test (YTT-40)

The Eating Attitudes Test was created by Garner and Garfinkel as a 40-question self-assessment scale that aims to assess disorders in eating attitudes and behaviours in individuals with or without eating disorders and objectively measures the symptoms of anorexia nervosa and bulimia nervosa. The items are a 6-point multiple-choice scale consisting of "always", "very often", "often", "sometimes", "rarely" and "never" options. The results of the eating attitude test; for the questions numbered 1-18-19-23-27-39, 'sometimes' 1 point, 'rarely' 2 points and 'never' 3 points, the other options were given 0 points, and the answers to the other questions were 'always' 3 points, 'very often' 2 points, ''often'' 1 point and the other options are evaluated as 0 points. A maximum of 120 points can be obtained from the test. As the score obtained from the scale increases, the eating attitude deteriorates. The cut-off score for the scale is 30. If the score obtained from the scale is below 30 points, it indicates normal eating attitude, and if it is 30 and above, it indicates eating attitude disorders [22].

Evaluation of the Data

SPSS 20.0 program was used to evaluate the statistical data. For each participant, the normal distribution of the data from their answers to the questionnaire was tested with the Kolmogorov-Smirnov method since the sample size was greater than 30. In cases where the variables in the dataset did not show normality, Mann-Whitney U test was used for variables with two categories and Kruskal-Wallis H test was used for variables with more than two categories.

Ethical Regulations

Approval was obtained from the Istanbul Sabahattin Zaim University Rectorate Ethics Committee for the implementation of the study (Number: E-20292139-050.01.04-20565). Before starting the study, the students were informed about the research, it was stated that their personal information would be protected, and they were included in the study by signing the informed consent form.

We declare no conflict of interest.

Findings

As seen in Table 1, most of the participants (86.4%) (n=324) were women between the ages of 18-24. Most of the students (78.8%) are employed outside of school. The monthly income of 57.9% of the students is below the minimum wage

Table 1: Demographic Characteristics Table.

Demographic Characteristics	Number of People (n)	Percentage (%)
Age		
18-24 Years	324.0	86.4
25-34 Years	48.0	12.8
35-44 Years	3.0	0.8
Classroom		
Preparation	8.0	2.1
1st Class	98.0	26.1
2nd Class	90.0	24.0
3rd Class	67.0	17.9
4th Class	112.0	29.9
Employment Status Outside of School		
Yes	295.0	78.7
No	80.0	21.3
Monthly Income		
Below Minimum Wage	217.0	57.9
Minimum Wage	52.0	13.9
Above Minimum Wage	106.0	28.3
Place of Residence		
At home with my family	243.0	64.8
At home with a friend	53.0	14.1
Student Dormitory	79.0	21.1
Marital Status		
Single	350.0	93.3
Married	23.0	6.1
Divorced	2.0	0.5

Regarding the living arrangements of the students, many of them live at home with their families (64.8%), while 53 of them live at home with friends (14.1%). Most of the participants, 350, were single.

Table 2: Mean Scale Scores of the Participants

Scales	Min	Mean ±ss	Max
Menstrual Symptoms Scale- Negative Effects/Somatic Complaints	13	38.61±11.70	62
Menstrual Symptoms Scale, Menstrual Pain Symptoms	6	19.16±6.44	30
Menstrual Symptoms Scale- Coping Methods	3	7.82±3.53	15
Menstrual Symptoms Scale- Total Score	22	65.59±19.87	106
Eating Attitude Test Score	2	23.07±21.21	102

Table 2 shows the evaluation of the scales answered by the participants. The Menstrual Symptom Scale (MSS), which was applied to determine the sample group's menstrual symptom experience, was evaluated in 3 sub-dimensions as negative effects/somatic complaints, menstrual pain symptoms and coping methods. It was determined that the mean score obtained from negative effects/somatic complaints was 38.61 ± 11.70, the mean score of menstrual pain symptoms was 19.16 ± 6.44, and the mean score obtained from coping methods was 7.82 ± 3.53. The mean score of the participants' Eating Attitude Test-40 (EAT-40) was 23.07 ± 21.21, and according to the results of the EAT-40, the participants were classified as prone to eating behaviour disorder.

Table 3: Participants' Eating Attitude Test Classification

Classification by YTT-40 Score	n	%
Predisposed to Eating Behavior Disorder	292	77.9
Not Predisposed to Eating Behavior Disorder	83	22.1
Total	375	100

According to the classification of the YTT-40 test scores to evaluate the eating attitudes of the participants, 77.9% of the participants were predisposed to eating behaviour disorder and 22.1% were not predisposed to eating behaviour disorder (Table.3).

Table 4: The Relationship Between Participants' Eating Attitude Test Classification and Menstrual Symptoms Scale Scores

Menstrual Symptoms Scale Score According to Eating Attitude Test Classification				
	Eating Attitude Test Classification	**n**	**Mean**	**p**
Menstrual Symptoms Scale- Negative Effects/Somatic Complaints	Predisposed to Eating Behavior Disorder	292	39,69±10,62	0,01*
	Not Predisposed to Eating Behavior Disorder	83	34,80±14,33	
Menstrual Symptoms Scale, Menstrual Pain Symptoms	Predisposed to Eating Behavior Disorder	292	19,77±5,96	0,001*
	Not Predisposed to Eating Behavior Disorder	83	17,02±7,54	
Menstrual Symptoms Scale- Coping Methods	Predisposed to Eating Behavior Disorder	292	7,98±3,53	0,07
	Not Predisposed to Eating Behavior Disorder	83	7,21±3,46	
Menstrual Symptoms Scale- Total Score	Predisposed to Eating Behavior Disorder	292	67,44±18,06	0,001*
	Not Predisposed to Eating Behavior Disorder	83	59,04±24,24	

Table 4 shows the relationship between students' Eating Attitude Test Classification and Menstrual Symptoms Scale Scores. According to this, participants who were "Prone to Eating Behaviour Disorder" had higher Menstrual Symptoms Scale Negative Effects Symptom score, Pain Symptom score and total scale scores, which were found to be statistically significant, respectively ($p=0.01$, $p=0.001$, $p=0.001$, $p= 0.001$; $p<0.05$).

Discussion

When the literature is examined, it is seen that studies on menstrual symptoms are generally conducted with adolescent groups. The reason for working with the late adolescent group in this study is that menstrual symptoms are common in this period and the eating attitudes of this age group may be variable. When the general characteristics of the students in this study were analysed, it was seen that most of the participants (86.4%) were between the ages of 18-24. It was determined that most of the participants were in the 4th grade (29.9%), working in a job outside of school (78.7%), having a monthly income below minimum wage (57.9%), living at home with the family (64.8%), and marital status was single (93.3%) (Table.1). The mean ages of these studies on a similar subject are in parallel with this study. Our results are not greatly different from those in other parts of the world [23].

The Mental Symptom Scale, which was applied to determine the sample group's experience of menstrual symptoms, was evaluated in 3 sub-dimensions as negative effects/somatic complaints, menstrual pain symptoms and coping methods. It was found that the mean score obtained from negative effects/somatic complaints was 38.61 ± 11.70, the mean score of menstrual pain symptoms was 19.16 ± 6.43 and the mean score obtained from coping methods was 7.81 ± 3.52. (Table.2) It is seen that the MSS scores obtained in this study are similar to the MSS scores in other studies conducted with the same age group. When other studies conducted in Turkey on premenstrual syndrome (PMS) and dysmenorrhea are evaluated; the rates of experiencing menstrual symptoms vary. The reason for this may be thought to be the stress level caused by the physical and social conditions of the region where the person lives, the dietary habits of the person and genetic factors.

In our study, YTT-40 test results were used to evaluate the eating attitudes of the participants. The mean YTT-40 score of the participants was 23.07 ± 21.21 and the participants were classified as prone to eating behaviour disorder according to YTT-40 results (Table.2). When the relationship between the participants' Eating Attitude Test Classification and Menstrual Symptoms Scale Scores was examined, it was seen that the participants who were "predisposed to eating behaviour disorder" had higher Menstrual Symptoms Scale Negative Effects Symptom score, Pain Symptom score and total scale scores (Table.3). In a study conducted by Caka et al. on adolescents, it was concluded that 74% of the participants had PMS and that emotional eating attitude was higher in adolescents with PMS [24]. There is a strong association between menstrual migraine and the hormonal cycle. Menstruation is a common migraine trigger among women [25]. Ornello et al. (2015), in a systematic review of 15 studies examining the relationship between migraine and obesity, found that obese individuals had an increased risk of developing migraine [26]. In line with this information, it can be concluded that there is a relationship between menstrual pain, menstrual migraine and eating attitudes.

The findings obtained in this study are consistent with the literature. The study is limited to female students studying at a foundation university. In this context, more comprehensive studies on menstrual symptoms are needed.

The results reveal the relationship between menstrual symptoms and eating attitude disorder, which is the hypothesis of the study.

Conclusion

Menstrual symptoms are a condition that can occur in young girls in relation to their usual periods and can often cause a variety of problems in girls. Although the mechanism of these symptoms on individuals varies, one of the most affected conditions is nutrition. As seen in the present study, it is an accepted fact that menstrual symptoms, eating attitudes and dietary habits are closely related to each other. Our study also proves the existence of this relationship.

We declare no conflict of interest.

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