

# Prevalence of Premenstrual Syndrome and Methods of Coping with the Symptoms in Nursing Students

## Hemşirelik Öğrencilerinde Premenstrual Sendrom Yaşama Sıklığı ve Öğrencilerin Semptomlarla Baş Etme Yöntemleri

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### ABSTRACT

**Objectives:** The aim of the present study is to determine the prevalence of premenstrual syndrome in nursing students and the methods used by students to cope with the symptoms.

**Methods:** The population of this descriptive and cross-sectional study consisted of 350 female students studying at the nursing faculty of a private university. 322 (92%) students, who were voluntary to participate in the study, represented the sample of the study. Personal information form and premenstrual syndrome scale were used as data collection tools.

**Results:** In our study, it was found that while 74% of the participants had at least moderate level of premenstrual syndrome symptoms ( $PMSS \geq 114$ ), 33.5% had premenstrual syndrome symptoms at a severe level ( $PMSS \geq 164$ ). The mean PMSS score of the participants was  $142.36 \pm 40.74$ , the mean score for the depressive affect subscale was  $24.29 \pm 7.94$  and the mean score for the fatigue subscale was  $21.33 \pm 6.77$ .

**Conclusion:** It was observed that the majority of the students experienced at least moderate premenstrual syndrome and used more non-pharmacological methods to cope with the symptoms. The rates of using different coping methods and getting information from health professionals in coping with premenstrual syndrome symptoms were found to be low.

**Keywords:** Premenstrual syndrome, coping, non-pharmacological method

### Öz

**Amaç:** Bu çalışmanın amacı hemşirelik öğrencilerinde premenstrual sendromun yaygınlığını ve öğrencilerin semptomlarla başa çıkmada kullandıkları yöntemleri belirlemektir.

**Yöntem:** Tanımlayıcı ve kesitsel tipteki bu çalışmanın evrenini özel bir üniversitenin hemşirelik fakültesinde öğrenim gören 350 kız öğrenci oluşturmuştur. Araştırmaya katılmaya gönüllü olan 322 (%92) öğrenci araştırmanın örneklemini temsil etmiştir. Veri toplama aracı olarak 'Kişisel Bilgi Formu' ve 'Premenstruel Sendrom Ölçeği' kullanılmıştır.

**Bulgular:** Çalışmamızda katılımcıların %74'ünde en az orta düzeyde premenstrual sendrom semptomları ( $PMSS \geq 114$ ) bulunurken, %33,5'inde ise ileri düzeyde ( $PMSS \geq 164$ ) premenstrual sendrom semptomları olduğu saptanmıştır. Katılımcıların PMSS puan ortalamaları  $142,36 \pm 40,74$  idi. Katılımcıların depresif duygulanım alt ölçeği için ortalama puanları  $24,29 \pm 7,94$  ve yorgunluk alt ölçeği için  $21,33 \pm 6,77$  idi.

**Sonuç:** Öğrencilerin büyük çoğunluğunun en az orta düzeyde premenstrual sendrom yaşadığı, semptomlarla baş etmek için daha fazla nonfarmakolojik yöntem kullanmakta olduğu görülmüştür. Farklı baş etme yöntemleri kullanım oranı ve premenstrual sendrom semptomları ile baş etmede sağlık profesyonellerinden bilgi alma durumları düşük bulunmuştur.

**Anahtar kelimeler:** Premenstrual sendrom, baş etme, nonfarmakolojik yöntem

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## INTRODUCTION

Premenstrual syndrome (PMS) is defined as a problem that begins five days before menstruation throughout at least three menstrual cycles and is diagnosed by reporting at least one of emotional and somatic symptoms. Emotional symptoms are explained as outburst of anger, anxiety, clouding of consciousness, depression, irritability, and social isolation. Somatic symptoms are described as abdominal distention, breast tenderness and swelling, headache, joint or muscle pain, swelling of the extremities, and weight gain <sup>(1)</sup>. These symptoms seen in PMS are classified as mild, moderate and severe. Mild symptoms do not affect personal, social and professional approach, moderate symptoms hinder personal, social and professional life, but the persons interact with their circle. Severe symptoms are described as withdrawal from personal/social/professional activities and treatment resistance <sup>(1,2)</sup>.

It is difficult to estimate the prevalence of PMS due to the differences in its interpretation. Its prevalence in Asian countries ranges between 60% and 80%, and ACOG reported the prevalence of this syndrome as 65.5% <sup>(3)</sup>. Studies conducted with university students in Turkey in recent years have reported that the prevalence of PMS in students ranges between 33-70%.<sup>(4-8)</sup>. PMS is an important public health concern that negatively affects young women's self-confidence, mental health, social and family relationships, quality of life as well as school attendance and academic achievement of students <sup>(9-12)</sup>.

Women with PMS encounter this problem every month and can often prefer more reliable and effective non-pharmacological coping methods with fewer side effects in order to enhance their quality of life <sup>(13)</sup>. Non-pharmacological coping methods include lifestyle changes (such as diet, exercise and stress reduction, relaxation exercises, smoking habit), complementary therapies (such as acupuncture, acupressure, reflexology, music therapy, magnesium, vitamin D/calcium) and cognitive behavioral therapy <sup>(2,12-15)</sup>. In a study found that women with PMS mostly experienced emotional symptoms and coped with the symptoms mostly through the instrumental support method <sup>(9)</sup>.

University students are involved in the age group in which lack of psychological and social support can be experienced in managing the stressors in their daily

lives <sup>(11)</sup>. Therefore, it seems meaningful to examine the prevalence of PMS, which can significantly affect mental health and academic achievement of young women, among university students. Nurses have a role to counsel individuals and families in coping with PMS. Determining the level of knowledge of nursing students about coping with PMS before graduation and the coping methods they use will enable the determination of their educational needs in this regard. Thus, they will contribute to increasing the quality of care they will provide for PMS after graduation and to prevent PMS-related psychosocial problems in their own lives<sup>(16)</sup>. This study was carried out to determine the prevalence of PMS and the methods of coping with the symptoms in nursing students. Therefore, answers to following research questions were sought in the study:

1. What is the prevalence of PMS among female students attending a University's Faculty of Nursing?
2. What methods do female students with PMS use to cope with PMS?
3. Is there a relationship between PMSS mean scores of female students with PMS and menstrual period characteristics?

## METHODS

### Design

This research is a descriptive and cross-sectional study.

### Population and sample

The population of the study consisted of 350 female students studying at the Nursing Faculty of a private university in the Turkish Republic of Northern Cyprus (TRNC) between 2 December 2020 and 22 January 2021. Sample selection was not made, it was aimed to reach the entire population. All of the nursing students were invited to the study and 322 (92%) students who volunteered to participate in the study constituted the sample of the research.

### Data collection

"Personal Information Form" and "Premenstrual Syndrome Scale (PMSS) were used to collect the data. The researchers prepared data collection forms via google form and collected the data online. Survey links were sent to the students included in the study via e-mail (e-mail) and WhatsApp groups. Reminders were made to students regularly.

### Personal information form

The personal information form prepared by the researchers in line with the literature (15-17) consists of 24 questions about the socio-demographic characteristics of the students (11 questions) as well as their menstruation characteristics and coping methods (13 questions).

### Premenstrual Syndrome Scale (PMSS)

The scale developed by Gençdoğan consists of 9 subscales and 44 items<sup>(17)</sup>. While the “never” option gets “one point”, “very frequently” option gets “five points”. The lowest and highest total scores of the scale range from 44 to 220. The lowest and highest total scores to be obtained from the subscales are 7-35 for depressive affect, anxiety, and depressive thought subscales, 6-30 for fatigue subscale, 5-25 for irritability subscale, and 3-15 for pain, appetite change, sleep change, and bloating subscales. If the scores obtained from the overall scale and its subscales exceed 50% of the highest possible scores, the presence of PMS is mentioned. Distribution of scale total score ranges according to PMS level is as follows; 44 points stand for no PMS, 45-103 points for mild PMS, 104-163 points for moderate PMS, and 164-220 points for severe PMS.

### Data analysis

The data were evaluated by calculating percentage and average in SPSS 26 program. The conformity of the data to the normal distribution was evaluated with the Kolmogorov-Smirnov test. Since the data were not normally distributed, non-parametric tests were performed using Mann Whitney U and Kruskal Wallis analysis.

## RESULTS

When evaluating the socio-demographic characteristics of the 322 students included in the present study, their mean age was 21.07±2.83 (Min 18; Max 26). 3.4% of the students were married, 38.5% did not have social security, 11.5% were employed. 18.9% of the students stated that they were smokers.

When the information sources about PMS were examined, it was determined that more than half of the students received information from their mothers and/or sisters, 6.5% from doctors and 4.7% from nurses (Table 1).

**Table 1. Distribution of Socio-demographic Characteristics of the Students (n=322)**

	Meant±SD	Min	Max
Yaş	21.07±2,83	18	26
		n	%
Grade	1	80	24,8
	2	66	20,5
	3	83	25,8
	4	93	28,9
Social security	Yes	198	61,5
	No	124	38,5
Marital Status	Married	11	3,4
	Single	311	96,6
Working status	Yes	37	11,5
	No	285	88,5
Income status	Income less than expenses	103	32,0
	Income equal to expenses	190	59,0
	Income more than expenses	29	9
Mother's education level	Primary school	182	56,5
	Secondary school	59	18,3
	High school	59	18,3
	Higher education	22	6,8
Father's education level	Primary school	133	41,3
	Secondary school	77	23,9
	High school	81	25,2
	Higher education	31	9,6
Smoking	Yes	61	18,9
	No	261	81,1
Source of Information	Mother/Older Sister	174	54
	Internet	86	26,7
	Friends	25	7,8
	Doctor	21	6,5
	Newspaper/tv	1	0,3

Table 2 shows the PMS total scale mean score and subscale mean score. The PMS total scale mean score was 142.36±40.74. While the mean score of depressive affect subscale was 24.29±7.94, the mean score of fatigue subscale was 21.33±6.77.

**Table 2. PMSS Total and Subscale Mean Scores of the Students**

PMSS	Mean±SD	Min	Max
PMSS Total Score	142.36±40.74	44	220
Depressive affect	24.29±7.94	7	35
Anxiety	18.11±7.64	7	35
Fatigue	21.33±6.77	6	30
Irritability	18.04±6.12	5	25
Depressive thoughts	20.64±8.50	7	35
Pain	9.98±3.38	3	15
Appetite changes	10.30±3.81	3	15
Sleep changes	9.04±3.85	3	15
Abdominal bloating	10.59±3.86	3	15

The mean age of menarche of the participants was 13.23 ±1.66 (Mean±SD). 74% of them had at least moderate level of PMS. When evaluating the distribution of their characteristics of the menstrual period; 26.7% of them stated that they had irregular menstruation and 38.5 stated that they could not cope with PMS. 48.1% of the participants were using

non-pharmacological methods to cope with PMS (Table 3).

When the PMS scale mean score and the characteristics of the menstrual period were compared in Table 2, the scale mean score of those who menstruated regularly was found to be significantly higher ( $p=0.018$ ). When the time between the two periods and the PMSS mean score were evaluated, a significant difference was found ( $p=0.026$ ). The difference was caused by the group whose time between the two periods was more than 35 days ( $p=0.014$ ). A significant correlation was found between the PMSS mean score and dysmenorrhea ( $p=0.002$ ) and coping with PMS ( $p=0.000$ ) ( $p>0.05$ ). There was a significant difference between the method used to cope with PMS and the PMSS mean score ( $p=0.013$ ) because any method was not employed ( $p=0.020$ ).

It was observed that among the methods of coping with PMS, the students used mostly sleep/rest (80.7%), which was followed by hot application (79.2%). Moreover, the students used the least (2.8%) aromatherapy method (Table 4).

**Table 3. Comparison of PMSS Mean Score and The Menstruation Period Characteristics of the Students**

		n	%	Mean±SD	p
Regular period cycle	Yes	236	73.3	140.27±2.67	0.018*
	No	86	26.7	148.10±4.25	
Duration between two periods	Less than 28 days	100	31.1	144.78±45.31	0.026**
	Between 28-35 days	176	54.7	137.75±39.31	
	More than 35 days	46	14.3	154.78±32.57	
Dysmenorrhea	Yes	243	75.5	146.71±2.46	0.002*
	No	79	24.5	128.98±5.05	
Medical examination for dysmenorrhea	Yes	79	24.5	160.59±3.46	0.000*
	No	243	75.5	136.44±2.68	
Coping with premenstrual syndrome	Yes	198	61.5	138.01±2.48	0.000*
	No	124	38.5	163.96±4.58	
	Non- pharmacological method	155	48.1	145.22±3.21	
The method used to cope with PMS	Pharmacological method	107	33.2	146.86±3.66	0.013**
	No method used	60	18.6	126.95±5.74	

\* Mann Whitney U \*\*Kruskal Wallis

**Table 4. Non-pharmacological Methods Used by The Students to Cope with PMS**

Methods of coping with PMS	n	%
Sleep/rest	260	80.7
Hot application	255	79.2
Taking a shower	150	46.6
Herbal products	132	41
Massage	123	38.2
Listening to music	109	33.9
Distraction	103	32
Eating	96	29.8
Yoga/relaxation exercises	47	14.6
Imagination	34	10.6
Meditation	23	7.1
Aromatherapy	9	2.8

*\*More than one method was selected.*

## DISCUSSION

PMS is a common health problem, women spend half of their lives with premenstrual problems and may experience a decrease in self-confidence, social isolation, decrease in academic achievement, increase in accident tendency and loss of workforce. It is important to determine the methods used in the management of this problem, which significantly affects the lives of women<sup>(14)</sup>. Therefore, In our study, in which we aimed to determine the prevalence of premenstrual syndrome and coping methods in nursing students, the income level, social security status and average age of the students were found to be similar to other studies<sup>(4,8,15)</sup>.

When the information sources of the students were assessed in the present study, it was found that the participants received information mostly from their mothers, followed by the internet. The rate of participants getting information from doctors and nurses was low. In a previous study, it was found that students mostly consulted their friends or their parents to solve the problem related to PMS symptoms<sup>(18,19)</sup>. Other studies have reported that the rate of consulting healthcare professionals in coping with PMS was low<sup>(20,21)</sup>.

In our study, it was determined that 74% of the participants experienced PMS symptoms at least moderately, and 33.5% experienced severe. In a study conducted in Turkey, the prevalence of PMS was found to be 71.3%<sup>(22)</sup>. In a study conducted in Iran, the prevalence of PMS was found to be 73.6%<sup>(23)</sup>. In this study, the PMS mean score of the students was found to be 142.36±40.74. In their study, Aba et al. determined that PMSS total mean score of the participants was 122.14±32.60<sup>(24)</sup>. Topatan and Kahraman found total mean score of Premenstrual Syndrome Scale as 118.4±32.4<sup>(15)</sup>. In another study, found the PMSS total score mean as 121.94±31.27<sup>(24)</sup>. The results of that study revealed that the moderate PMS was experienced at most, which is similar to the result of the present study.

When the PMS subscale mean scores were assessed, it was found that all subscales mean scores were moderate and higher. In a different study conducted in Turkey, subscale mean scores were found to be 21.28±6.41 for depressive affect subscale, 16.61±5.96 for anxiety subscale, and 16.28±5.15 for irritability subscale, respectively, similar to the results of the present study<sup>(8)</sup>. In their study, Topatan and Kahraman examined coping methods for PMS symptoms and found that 57% of university students experienced mood changes and 27.2% could not cope with this symptom<sup>(15)</sup>. In a study conducted in Thailand, it was determined that a great majority of students in the premenstrual period experienced mood problems such as anger outbursts, irritability and depression at different levels<sup>(18)</sup>.

In our study, the fatigue subscale score was found to be high level. When the results of other studies were evaluated, it was seen that the fatigue level of the students in our sample group was higher<sup>(25)</sup>. It was determined that the sleep change score averages of the students were at a similar level with the results of other studies<sup>(24,26)</sup>. A study assessing the effects of PMS on daily life reported that sleeplessness symptom was more common in students<sup>(27)</sup>.

When the symptoms of the students' appetite changes were analyzed in the present study, the mean score was found to be high. A study conducted in Bulgaria reported an appetite increase of 58.5% for the participants<sup>(28)</sup>. In studies assessing the correlation between PMS syndrome and body mass index, it was found to be affected by PMS<sup>(29,30)</sup>. The studies have revealed that PMS causes appetite changes.



In the present study, the pain subscale scores of the students were found to be at a similar level with other studies <sup>(8,15)</sup>. In a study examining the effects of PMS symptoms on the quality of life in Turkey, it was determined that the pain subscale mean score of the students was similar to our study and that the pain symptom affected the quality of life significantly <sup>(15)</sup>. In another study evaluating two groups with and without PMS, pain was found to be the most common symptom in both groups <sup>(18)</sup>. When the results of different studies are examined, it is seen that pain is a common symptom <sup>(22,31)</sup>.

When we evaluated the effect of the menstrual period-related characteristics of the students on the PMSS score, we found that the PMSS mean scores of the students whose period between two periods was more than 35 days and menstrual cycle was irregular were higher. In a study conducted in Turkey found that the menstrual cycle affected the PMSS score <sup>(32)</sup>. Another study revealed that the duration between the two periods had no significant correlation with the PMSS score <sup>(33)</sup>. We found that the PMS scale scores of the students who suffered from dysmenorrhea, went to the doctor for dysmenorrhea, and stated that they had difficulty in coping with PMS increased significantly. Likewise, numerous studies have found that dysmenorrhea increases the PMSS score <sup>(33,34)</sup>. In addition, it was determined that the PMSS scores of those who did not use any method to cope with PMS were lower than those who used any method. It is considered that this is caused by the fact that the symptoms are not severe enough to require the use of a method.

It was determined that 48.1% of the students used non-drug methods and 33.2% used pharmacological methods in coping with PMS symptoms. It was determined that the most frequently used nonpharmacological methods among students using non-pharmacological methods were sleep/rest, heat application and showering. The least used methods were aromatherapy and meditation. Similar to our study, it was found that students commonly used the hot application method in coping with symptoms <sup>(15,32)</sup>. In another study, the top two methods used to cope with PMS symptoms were found to be hot application and taking a hot shower <sup>(22)</sup>.

#### **Limitation**

The study was applied to a single nursing faculty of a university. The generalizability of the results is limited to this sample group.

## **CONCLUSION AND RECOMMENDATIONS**

It was determined that the students experienced PMS symptoms, and the rate of using non-pharmacological methods to cope with the symptoms was higher than the rate of pharmacological methods. However, it was determined that the rate of using different coping methods was low, and the rate of the participants getting information from healthcare professionals in coping with PMS symptoms was low. The PMSS mean score and the duration of menstruation, the presence of dysmenorrhea and the method of coping with PMS were statistically correlated.

In the light of results of the present study, it is recommended to train students on different coping methods and to direct them to the proper sources of information. It is recommended that future studies be planned to include nursing students from more than one university and work with larger groups. In addition, it is recommended to conduct randomized controlled and experimental studies on non-pharmacological methods that may be effective in coping with premenstrual symptoms.

#### **Author contribution**

Study conception and design: ST; data collection: ST, DSG; analysis and interpretation of results: ST, DSG; draft manuscript preparation: ST, DSG; All authors reviewed the results and approved the final version of the manuscript.

#### **Ethical approval**

The study was approved by the Near East University Scientific Research Ethics Committee (Protocol no. 2020/85/1206/26.11.2020).

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#### **Conflict of interest**

The authors declare that there is no conflict of interest.

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