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Research Article

Effects of Menstrual Symptoms on Social Appearance Anxiety in University Students

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Abstract

Aim: This study aims to determine the effect of menstrual symptoms on social appearance anxiety in university students.
Material and Method: This study was planned as a descriptive and cross-sectional study, and the sample consisted of 264 female students studying at a foundation university in Istanbul that provides education in the field of health sciences. Data were collected using an online survey method with a personal information form prepared by the literature, the Social Appearance Anxiety Scale (SAAS), and the Menstruation Symptom Scale (MSS). Participants evaluated the SAAS in two forms specific to the menstrual and non-menstrual periods.
Results: The mean age of the participants was 18.93±1.12, and the mean total MSS score was 71.47±18.28. It was determined that a significant portion of the participants (76.5%) reported that their social lives were affected during the menstrual period. The social appearance anxiety scores during the menstrual period (SAAS 34.56±17.14) were found to be higher than those during the non-menstrual period (SAAS 32.54±16.43) ($p<0.05$). A significant and positive correlation was found between MSS and SAAS scores during the menstrual period ($r=0.321$, $p<0.05$).
Conclusion: This study determined that menstrual symptoms negatively affect social appearance anxiety in university students. Menstrual symptoms may increase social appearance anxiety, leading to adverse effects on social life and mental well-being, which healthcare professionals should consider. In this regard, it is recommended that healthcare professionals adopt a supportive approach toward women and provide guidance on this issue.

Keywords: Menstruation, menstrual cycle, body image

INTRODUCTION

Women experience various physical and psychological symptoms during the premenstrual and postmenstrual periods (1,2). These symptoms vary from person to person and can manifest at physical, emotional, cognitive, and behavioral levels (2-4). However, these symptoms physiological, psychological, and social effects on women are not yet fully understood. Additionally, existing knowledge regarding what menstruation represents for women and its impact on body image remains insufficient.

Although the menstrual cycle is a natural process, it has been observed that women tend to develop more negative thoughts about their bodies during menstruation (5-7). Body image is defined as a concept shaped by the positive or negative emotions and thoughts an individual holds about their body (8). It has been suggested that fluctuations in estrogen and progesterone hormone levels during the menstrual period, along with the physical and psychological changes women experience, may negatively impact body image (9).

This process can lead women to feel intense anxiety about their bodies. In particular, negative thoughts concerning their bodies and how others perceive them are referred to as social appearance anxiety (7,10).

Nurses who frequently interact with women should consider the physical and psychological effects of menstrual symptoms and plan appropriate care interventions accordingly. Healthcare professionals who engage directly with women can assess general health and menstrual history to identify individuals at risk at an

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early stage. Therefore, routine gynecological follow-ups should consider physiological conditions and the impact of menstrual symptoms on body image and psychosocial well-being. Menstrual symptoms can affect quality of life and contribute to social appearance anxiety.

While existing studies have focused on body image and psychological issues during premenstrual and menstrual periods, research examining the impact of menstrual symptoms on social appearance anxiety remains limited. Given the established relationship between social appearance anxiety and negative body image, further research in this field is needed. This study aims to determine the impact of menstrual symptoms on social appearance anxiety among university students, thereby raising awareness in nursing practice and contributing to the field. Nurses must approach menstrual symptoms as a biological process affecting individuals' psychological and social well-being. Nurses should adopt a supportive approach to empower women by providing guidance, counseling, and education.

Research Questions

- Does social appearance anxiety among university students vary between the menstrual period and non-menstrual periods?
- Do sociodemographic characteristics, menstrual history, general health status, and psychosocial factors specific to this period influence social appearance anxiety during menstruation among university students?

MATERIAL AND METHOD

Research Design

This study was conducted using a descriptive and cross-sectional design to evaluate the relationship between menstrual symptoms and social appearance anxiety among university students.

Population and Sample

In February 2021, the study population consisted of female students enrolled at a foundation university in Istanbul that provides education in the field of health sciences (N=412). Since the total number of individuals in the population was known, the sample size was calculated using the sample size determination formula. A study conducted in Türkiye reported a PMS prevalence rate of 70.2%, which was used to determine the event probability (p-value) (11). It was determined that a minimum of 181 students needed to be included in the study. The sample of this study consisted of 264 students.

Inclusion Criteria

Participants were required to meet the following inclusion criteria:

- Being a female student,
- Having the ability to speak and understand Turkish,
- Having access to online participation,
- Voluntarily agreeing to participate in the study.

Data Collection

The data were collected online using Google Forms between January and February 2021. The survey link was shared with students via institutional email and online student platforms, without any face-to-face interaction. Prior to participation, students were informed about the study's purpose and requirements. Online informed consent was obtained before accessing the questionnaire. Students used their unique institutional email addresses to prevent duplicate responses; multiple submissions from the same email were not allowed.

The data collection tools included the "Personal Information Form," the "Menstrual Symptom Scale (MSS)," and the "Social Appearance Anxiety Scale (SAAS)."

- **Personal Information Form:** This section consisted of 27 questions to assess participants' sociodemographic characteristics, gynecological history, and general health status.
- **MSS:** Chesney and Tasto (12) developed the MSS to assess menstrual pain and symptoms. Negriff et al. (13) re-evaluated the factor structure and usability of the scale in adolescents, while Güvenç et al. (14) conducted its Turkish validity and reliability study. The MSS is a 22-item, 5-point Likert-type scale in which participants rate the menstrual symptoms they experience on a scale ranging from 1 (never) to 5 (always). The scale comprises three subdimensions: Negative Effects/Somatic Complaints, Menstrual Pain Symptoms, and Coping Strategies. The minimum score that can be obtained from the scale is 22, while the maximum score is 110. The total score represents the severity of menstrual symptoms, and subdimension scores are calculated based on the average of the items within each category. Higher scores indicate increased severity of menstrual symptoms. The Cronbach's Alpha coefficient of the original scale was 0.86 (14). This study calculated the Cronbach's Alpha coefficient for the MSS as 0.912, indicating high internal consistency and reliability.
- **SAAS:** The SAAS is a five-point Likert-type scale comprising 16 items, assessing individuals' anxiety regarding their physical appearance. The total score ranges from 16 to 80, with higher scores indicating more significant social appearance anxiety. Permission to use the scale was obtained from the original authors. The Cronbach's Alpha coefficient of the original scale was 0.93 (10). In this study, the SAAS was administered twice separately: once for the menstrual period and once for the non-menstrual period. The Cronbach's Alpha coefficient for the menstrual period was calculated as 0.961 and for the non-menstrual period as 0.963, indicating high internal consistency and reliability.

Statistical Analysis

Statistical analyses were conducted using the Statistical Package for Social Sciences (SPSS) version 25.0.

Descriptive statistics, including frequency and percentage values, were used to summarize the data. The normality of data distribution was assessed using the Shapiro-Wilk test. Non-parametric tests were used for data that did not follow a normal distribution. Spearman's correlation analysis was applied to examine relationships between numerical variables, while the Wilcoxon test was used to compare data obtained at different time points from the same sample. A significance level of $p<0.05$ was considered statistically significant.

Ethical Approval

Ethical approval for the study was obtained from the İstanbul University-Cerrahpaşa Social and Human Sciences Research Ethics Committee on December 22, 2020, with decision number 88264. Institutional permission was also secured from the private university where the study was conducted.

Participants were provided with detailed information about the study, and it was emphasized that their personal data would be protected. Before proceeding with the questionnaire, they were required to read the informed consent statement and indicate their consent by selecting the "I agree to participate" option in the online form. This study complied with the principles of the Declaration of Helsinki.

RESULTS

A total of 264 individuals participated in the study. Most participants were 19 years old (47%) or 18 years old (35.6%). All participants studied in health-related programs such as medicine, nursing, pharmacy, and dentistry. Nearly all participants were single (99.2%), and most reported a moderate income level (85.6%). Regarding health-related factors, 72.3% of participants had a normal BMI, while nearly all reported not consuming alcohol (93.6%) and not smoking (88.6%). Additionally, 92.4% had no chronic health conditions (Table 1). Menarche occurred between ages 11–14 in 89.4% of participants. The most common menstrual symptoms were tension/irritability (82.6%), menstrual cramps (78.4%), and acne (69.7%). Additionally, 76.5% of participants reported that menstruation affected their social life (Table 2). The mean MSS score was 71.47±18.28 (Table 3). A statistically significant difference was found in SAAS scores between the menstrual and non-menstrual periods ($p<0.05$) (Table 4). A strong positive correlation was observed between SAAS scores in both periods ($r=0.893$, $p<0.05$) (Table 5).

Table 1. Participant characteristics (N=264)

Demographics		N=264	%
Age ($\overline{X}$±SD, 18.93±1.12)	21 and above	12	4.5
	20	34	12.9
	19	124	47.0
	18 and below	94	35.6
Marital status	Married	2	0.8
	Single	262	99.2
Income level	Good	31	11.7
	Average	226	85.6
	Poor	7	2.7
General health			
Body mass index (BMI)	Obese	4	1.5
	Overweight	25	9.5
	Normal	191	72.3
	Underweight	44	16.7
Smoking habits	No	234	88.6
	Yes	30	11.4
Alcohol consumption	No	247	93.6
	Yes	17	6.4
Regular exercise habit	No	164	62.1
	Yes	100	37.9
Presence of chronic illness	No	244	92.4
	Yes	20	7.6
Total		264	100.0

Table 2. Menstrual history			
		N=264	%
Age at menarche ($\overline{X}$±SD, 12.99±1.13)	15 and older	25	9.5
	11-14	236	89.4
	10 and younger	3	1.1
Pain during menstruation	Sometimes	88	33.3
	No	7	2.7
	Yes	169	64.0
Menstrual regularity (between 21-35 days)	Irregular	67	25.4
	Regular	197	74.6
Menstrual symptoms	Bloating	150	56.8
	Acne	184	69.7
	Edema	90	34.1
	Weight gain	76	28.8
	Cramps	207	78.4
	Increased emotional sensitivity (e.g., crying)	157	59.5
	Tension, irritability	218	82.6
	Sensitivity to unpleasant odors	78	29.5
Does menstrual symptoms affect social life?	No	62	23.5
	Yes	202	76.5
Frequency of menstrual symptoms' impact on social life	Always	18	6.8
	Often	53	20.1
	Sometimes	161	61.0
	Never	32	12.1
Effect of menstrual symptoms on body image	No effect	79	29.9
	Sensitivity to unpleasant odors	43	16.3
	Feeling less attractive	53	20.1
	Feeling heavier	89	33.7
Impact of menstrual symptoms on mental health	Always	51	19.3
	Often	66	25.0
	Sometimes	147	55.7
Impact of menstrual symptoms on self-esteem	Always	108	40.9
	Often	32	12.1
	Sometimes	124	47.0
Total		**264**	**100.0**

Table 3. MSS and subscale scores			
	Mean±SD	Min-Max	Median
MSS	71.47±18.28	22.00-107.00	71.00
Negative effects/somatic complaints	40.57±11.37	13.00-65.00	41.00
Menstrual pain symptoms	22.39±5.83	6.00-30.00	24.00
Coping strategies	8.50±3.77	3.00-15.00	8.00

Table 4. Comparison of SAAS scores according to menstrual period

	Mean±SD	Min-Max	Median	Test value	p
SAAS non-menstrual period	32.54±16.43	16.00-80.00	25.50	-5.921**	**0.000***
SAAS menstrual period	34.56±17.14	16.00-80.00	28.00		

*p<0.05 ** Wilcoxon test

Table 5. Correlation between MSS and SAAS scores

		SAAS menstrual period	SAAS non-menstrual period
MSS score	**r**	0.321	0.220
	p	0.000*	0.000*

*r : Spearman Correlation, *p<0.05

When comparing SAAS scores during menstruation with participants' demographic characteristics, general health status, and menstrual history, only BMI and menstrual regularity had a statistically significant effect (p<0.05). No significant differences were found for other variables (p>0.05). A statistically significant difference was observed in SAAS scores between participants classified as obese and those with normal BMI during menstruation (p<0.05) (Table 6). Similarly, SAAS scores were significantly different between participants with irregular and regular menstrual cycles (p<0.05) (Table 7).

Tablo 6. Comparison of SAAS menstruation period scores based on participant characteristics (N=264)

Demographics		Mean±SD	Min-Max	Median	Test value	p
Age	**21 and above**	25.91±10.04	16.00-55.00	22.50	5.128**	0.163
	20	30.79±13.44	16.00-70.00	26.00		
	19	33.59±15.77	16.00-78.00	28.00		
	18 and below	38.31±19.89	16.00-80.00	31.50		
Income level	**Good**	30.61±15.03	16.00-76.00	26.00	3.285**	0.194
	Average	34.80±17.20	16.00-80.00	28.00		
	Poor	44.42±21.34	16.00-70.00	43.00		
General health						
Body mass index (BMI)	**Obese**	52.25±17.74	26.00-64.00	59.50	8.822***	**0.032***
	Overweight	40.84±21.20	18.00-80.00	37.00		
	Normal	32.68±16.02	16.00-80.00	26.00		
	Underweight	37.59±17.68	16.00-74.00	32.00		
Smoking habits	**No**	34.60±17.06	16.00-80.00	28.00	3334.000**	0.655
	Yes	34.26±18.10	16.00-78.00	24.00		
Alcohol consumption	**No**	34.81±17.27	16.00-80.00	28.00	1748.000**	0.248
	Yes	30.94±15.14	16.00-62.00	22.00		
Regular exercise habit	**No**	34.14±16.12	16.00-80.00	28.00	8036.500**	0.786
	Yes	35.27±18.76	16.00-80.00	26.00		
Presence of chronic illness	**No**	34.54±17.32	16.00-80.00	27.00	2248.000**	0.558
	Yes	34.90±15.15	18.00-70.00	30.00		

*p<0.05, **Mann Whitney U test, ***Kruskal Wallis test

Table 7. Comparison of SAAS menstruation period scores based on menstrual history

		Mean±SD	Min-Max	Median	Test Value	p
Age at menarche	**15 and older**	37.52±18.36	17.00-73.00	29.00	0.829***	0.661
	11-14	34.28±17.01	16.00-80.00	28.00		
	10 and younger	32.00±21.70	18.00-57.00	21.00		
Pain during menstruation	**Sometimes**	30.82±14.27	16.00-73.00	24.00	5.711***	0.058
	No	30.42±7.63	22.00-44.00	27.00		
	Yes	36.68±18.44	16.00-80.00	28.00		
Menstrual regularity (between 21-35 days)	**Irregular**	37.50±17.87	16.00-80.00	29.00	5500.000**	**0.042***
	Regular	33.56±16.82	16.00-80.00	27.00		
Does menstrual symptoms affect social life?	**No**	27.59±13.72	16.00-70.00	22.00	3873.500**	**0.000***
	Yes	36.70±17.54	16.00-80.00	30.00		
Frequency of menstrual symptoms' impact on social life	**Always**	42.16±19.45	18.00-71.00	41.00	18.445***	**0.000***
	Often	41.77±19.21	16.00-80.00	38.00		
	Sometimes	32.28±15.65	16.00-80.00	26.00		
	Never	29.84±15.15	17.00-70.00	22.00		
Effect of menstrual symptoms on body image	**No effect**	24.29±9.54	16.00-57.00	21.00	65.345***	**0.000***
	Sensitivity to unpleasant odors	35.00±13.25	17.00-70.00	33.00		
	Feeling less attractive	47.49±19.95	17.00-80.00	50.00		
	Feeling heavier	35.78±16.78	16.00-78.00	29.00		
Impact of menstrual symptoms on mental health	**Always**	35.72±17.52	16.00-71.00	28.00	21.902***	**0.000***
	Often	44.36±21.38	16.00-80.00	39.00		
	Sometimes	29.76±12.40	16.00-70.00	25.00		
Impact of menstrual symptoms on self-esteem	**Always**	26.41±12.92	16.00-71.00	22.00	78.035***	**0.000***
	Often	55.65±17.83	23.00-80.00	59.00		
	Sometimes	36.22±15.04	16.00-78.00	30.00		

*p<0,05, **Mann Whitney U test, ***Kruskal Wallis test

DISCUSSION

A literature review reveals that most studies on menstrual symptoms have been conducted predominantly with adolescents. In this study, late adolescents were specifically chosen as the sample group, considering that menstrual symptoms commonly appear in this age range and the likelihood of experiencing higher social appearance anxiety. A study conducted in Türkiye with nursing students, which examined factors associated with premenstrual syndrome and sleep quality, reported the participants' mean age as 21.03±1.35 (15). Another study investigating the relationship between premenstrual syndrome and cultural sensitivity reported the mean age as 20.8±1.6 (16). In this study, the mean age of participants was 18.93±1.12 (Table 1). This mean age is lower than in previous studies because the research was conducted at a newly established university with only first-year students.

The body mass index (BMI) values of the participants in this study were found to be consistent with the findings of other studies conducted with similar age groups in Türkiye and other countries (17-20). Likewise, participants' smoking rates showed parallels with other studies conducted on individuals of similar age groups (17,21-23). The fact that most studies on menstrual symptoms have been conducted on individuals from similar age groups may explain the consistency in these rates.

However, the regular exercise rates among participants differed from studies conducted with similar age groups in Türkiye and other countries (24-27). For example, in a study conducted in Spain examining coping strategies for dysmenorrhea, 72.8% of the 224 university students were found to exercise regularly (25). In another study conducted

in Athens, 53.9% of 637 nursing students reported exercising regularly (27). Conversely, a study conducted in Egypt to determine the epidemiology of dysmenorrhea reported that only 20.9% of 1,908 university students engaged in regular exercise (26). Different rates were also observed in studies conducted in Türkiye. For instance, in a study involving 207 secondary school students, 46.4% reported exercising regularly (24). In this study, the rate was found to be 37.9% (Table 1).

In Türkiye, women's regular exercise habits are influenced by various factors such as social norms, academic workload, and socioeconomic conditions. Among university students, low rates of physical activity may be attributed to intense academic schedules, limited access to sports facilities, and societal perceptions that discourage women from participating in sports.

In this study, 76.5% of participants reported that their social lives were affected during menstruation (Table 2). Similarly, a study conducted in Nigeria found that 55.7% of women reported disruption in daily tasks and difficulties continuing their education during menstruation (28). Another study in Türkiye reported that 92% of university students' social lives were negatively affected during their menstrual period (29). The difference in these rates could be associated with various factors, such as the severity of menstrual symptoms, perceived stress levels, and sociocultural differences. Moreover, the fact that this study's sample consisted solely of first-year students and had a lower mean age than other studies may also contribute to the discrepancy. As first-year students may still be adapting to their academic and social environments, their perceptions of how menstruation affects their social lives might differ. Additionally, the cultural taboo surrounding menstruation in Türkiye and women's difficulty in expressing their experiences may result in underrecognition of the social impact of menstruation. This situation could lead to the normalization of restrictions experienced during menstruation and reduced awareness of its social consequences.

Participants reported experiencing symptoms such as tension, irritability, acne, pain, tearfulness, sensitivity, and bloating most frequently before or during menstruation (Table 2). These findings are consistent with those of other studies in the literature (18,24). Furthermore, the MSS scores obtained in this study align with those reported in previous studies conducted with individuals of similar age groups (Table 3) (30-32). This case may be explained by the fact that the sample group, composed of young individuals, is more sensitive to menstrual symptoms.

A significant and positive correlation was found between SAAS scores during menstruation and MSS scores (Table 5). It was observed that as the frequency of menstrual symptoms increased, social appearance anxiety also increased. There are no existing studies in the current literature directly examining the relationship between menstrual symptoms and social appearance anxiety. Social appearance anxiety is defined as a socially based form of anxiety shaped by negative thoughts regarding one's body and how it is perceived by others (10). The literature primarily focuses on the relationship between menstruation and body image within this context.

One study reported that women felt more attractive during ovulation, while perceptions of attractiveness significantly declined during the late luteal phase. In the premenstrual period, women described feeling "fat and unclean" and expressed increased body dissatisfaction (33). A positive correlation was also found between the menstrual cycle phase and body image concerns, with body dissatisfaction being more pronounced in the premenstrual phase (34). Such negative body image may lead to concerns about physical appearance in social settings, suggesting that the physical and emotional changes experienced during menstruation may increase social appearance anxiety.

However, some studies report different findings. For instance, one study found that women with a positive attitude toward premenstrual syndrome were more satisfied with their body image and felt healthier and more physically comfortable (35). Each woman's experience of menstruation and its psychosocial effects may vary individually. Numerous factors may influence body image during menstruation, such as general anxiety levels, body satisfaction, cultural background, attitudes towards menstruation, and severity of PMS symptoms. Therefore, it may not be sufficient to explain social appearance anxiety based on a single variable.

This study found a statistically significant relationship between body mass index (BMI), menstrual regularity, and social appearance anxiety. Participants within the obesity range had significantly higher SAAS scores during menstruation compared to those in the normal BMI range (Table 6). Similarly, participants with irregular menstrual cycles had higher SAAS scores during menstruation than those with regular cycles (Table 7). Previous literature has reported that increased BMI is associated with more severe premenstrual syndrome (PMS) symptoms and that there is a significant relationship between body composition and PMS severity (36). Additionally, it has been emphasized that academic stress and BMI are associated with the prevalence of PMS (37). Irregular menstruation has also been linked to hormonal imbalances and increased PMS severity (38).

The findings of this study show that increased severity of menstrual symptoms is associated with higher levels of social appearance anxiety (Table 5). Previous studies have indicated that menstrual symptoms may affect body image (33,34). Accordingly, it can be suggested that high BMI and irregular menstruation may increase the severity of menstrual symptoms, which in turn may contribute to heightened social appearance anxiety.

CONCLUSION

Menstrual symptoms are believed to contribute to social appearance anxiety in women. This study supports previous research and aligns with existing literature.

Although menstruation is a natural function of the female body, studies on its relationship with body image remain limited. These findings may help develop interventions to reduce social appearance anxiety in women.

This study was conducted with first-year university students in health-related programs. As the university had recently admitted its first cohort of students, all participants were in their first year. Therefore, the results cannot be generalized to a broader population. Future studies should include participants from different age groups and academic backgrounds to improve validity and applicability. Women's health nurses and midwives are key in addressing the physical and psychological effects of menstrual symptoms. Considering their potential link to social appearance anxiety, nursing care should include individualized psychosocial counseling and support. Training programs should be developed to enhance the skills of healthcare professionals in menstrual health literacy, psychosocial counseling, and body image concerns. Interactive workshops, simulation-based training, and case discussions can help professionals provide better support. Future research should explore sociocultural factors influencing menstrual experiences and their psychological effects, using more extensive and diverse samples.

This study is derived from a master's thesis.

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