http://www.ijwhr.net

doi 10.15296/ijwhr.9266

Open Access Original Article

APMI Press
Aras Part Medical International Press
A scientific publishing imprint of PMC Pharmaceutique France

International Journal of Women's Health and Reproduction Sciences
Vol. 14, No. 3, July 2026, 133–140

ISSN 2330-4456

Premenstrual Symptoms, Pain, Body Image, and Self-esteem in Young Adult Women

Melis Bağkur[1*], **Tuba Yerlikaya**[1]

Abstract

Objectives: To evaluate the association of premenstrual symptom severity with pain, body image, and self-esteem in young adult women.

Materials and Methods: This cross-sectional analytical study was conducted in Northern Cyprus between January and June 2024. The final analysis included 218 young adult women aged 18-30 years with regular menstrual cycles. Data were collected using a sociodemographic and menstrual characteristics form, the Premenstrual Syndrome Scale (PMSS), the Body Image Scale, and the Rosenberg Self-Esteem Scale. Scale-based PMS positivity was defined as a PMSS total score greater than 110 and was not interpreted as a clinical diagnosis. Premenstrual pain was considered present when participants reported pain before menstruation or marked at least one pain location on the body diagram. Associations were analyzed using Spearman correlation analysis.

Results: The mean age of the participants was 22.58 ± 2.18 years, and the mean body mass index was 23.11 ± 4.51 kg/m². Scale-based PMS positivity was identified in 152 participants (69.7%), and premenstrual pain was reported by 204 participants (93.6%). Premenstrual symptom severity was positively associated with premenstrual pain intensity (ρ = 0.288, $P<0.001$). Significant associations were also found between premenstrual symptom severity and body satisfaction (ρ = -0.343, $P<0.001$), as well as self-esteem (ρ = -0.209, $P<0.002$).

Conclusions: Premenstrual symptom severity was significantly associated with pain, body image, and self-esteem. These findings suggest that the premenstrual experience should be evaluated as a multidimensional condition involving physical and psychosocial components.

Keywords: Premenstrual syndrome, Pain, Body image, Self-esteem, Young adult women

Introduction

Premenstrual syndrome (PMS) is a cyclical condition characterized by physical, emotional, cognitive, and behavioral symptoms that appear during the luteal phase of the menstrual cycle and decrease or disappear with the onset of menstruation (1,2). These symptoms may include somatic complaints such as breast tenderness, abdominal bloating, edema, headache, abdominal pain, and low back pain, as well as psychological and behavioral symptoms such as irritability, anxiety, depressed mood, difficulty concentrating, sleep disturbances, fatigue, and social withdrawal (3,4). Therefore, PMS should not be regarded simply as a temporary discomfort before menstruation. For many women, it represents a multidimensional health problem that is associated with daily life, social relationships, psychological well-being, and overall functioning. Current clinical approaches consider PMS and its more severe form, premenstrual dysphoric disorder (PMDD), within the spectrum of premenstrual disorders that may require clinical attention when symptoms are cyclical and functionally impairing (1,5).

The reported occurrence of PMS varies according to the assessment method used, diagnostic criteria, cultural context, and sample characteristics. Nevertheless, current evidence shows that premenstrual symptoms are common among women of reproductive age and are particularly relevant during young adulthood. Studies conducted among young women have reported that PMS symptoms are associated not only with biological factors, but also with stress, depressive symptoms, sleep problems, eating attitudes, physical activity, and broader lifestyle-related variables (6-8). Young adulthood is a period in which academic and social expectations increase, sleep and dietary patterns may change, stress levels may rise, and perceptions of the body, identity, and social relationships continue to develop. For this reason, premenstrual symptoms in young adult women should be examined not only as a reproductive health issue, but also as a condition closely linked to psychosocial functioning and everyday life.

Although the etiology of PMS has not been fully clarified, it is widely accepted that PMS has a multifactorial structure rather than a single underlying mechanism. Cyclical hormonal fluctuations after ovulation, changes in central nervous system sensitivity, serotonergic and GABAergic pathways, stress response, inflammatory processes,

Received 19 May 2026, **Accepted** 2 July 2026, **Available online** 30 July 2026

[1]Department of Physiotherapy and Rehabilitation, Near East University, Nicosia, Cyprus.
*Corresponding Author: Melis Bağkur, Email: melis.bagkur@neu.edu.tr

Key Messages

- Premenstrual pain was highly common and associated with PMSS severity.
- Lower body satisfaction and lower self-esteem were associated with greater premenstrual symptom severity.
- PMS assessment should include physical and psychosocial dimensions.

and lifestyle-related factors have all been proposed in relation to PMS symptoms (2-4). From a pain perspective, abdominal, low back, headache, musculoskeletal, or generalized body pain reported during the premenstrual period may be shaped not only by peripheral mechanisms but also by central sensitization and individual differences in pain perception. Therefore, when evaluating PMS, it is important to consider not only whether pain is present, but also its location, intensity, and relationship with the overall symptom burden.

Pain is one of the most visible components of the premenstrual experience and is closely related to daily functioning. Lower abdominal pain, low back pain, headache, and generalized physical discomfort before or around menstruation may limit physical activity, concentration, productivity, and social participation. Recent studies support the importance of evaluating menstrual pain and PMS symptoms together. Yi et al (7) reported that menstrual pain severity was one of the factors associated with PMS levels. Similarly, Franco-Antonio et al (9) showed that dysmenorrhea and PMS may have a significant negative association with quality of life in young women. Examining the relationship between premenstrual symptom severity and pain is therefore important not only for describing physical symptoms, but also for understanding the broader functional context of PMS.

The effects of PMS are not limited to pain or physical discomfort. Premenstrual symptoms may also be related to how women perceive and relate to their bodies and themselves. Symptoms such as bloating, breast tenderness, appetite changes, perceived weight gain, fatigue, and reduced energy may be accompanied by temporary but distressing changes in body perception. Studies on premenstrual body dissatisfaction have shown that some women experience their bodies during this period as heavier, swollen, less controllable, or more negative, and that these experiences may be closely intertwined with self-criticism, shame, attempts to hide the body, and efforts to regain bodily control (10). Similarly, a recent systematic review examining the lived experience of premenstrual disorders reported that PMS and PMDD are not limited to physical symptoms, but may also be linked to self-perception, psychological resilience, social relationships, and a sense of control over life (11). These findings suggest that body image and self-esteem are important variables for understanding the psychosocial dimension of PMS.

However, PMS, pain, body image, and self-esteem have often been examined separately in the literature, and studies evaluating these variables together remain limited. To understand how premenstrual symptoms are experienced in young adult women, it is not enough to determine the presence or severity of symptoms alone. It is also necessary to examine how these symptoms are related to pain experience, body-related perceptions, and women's evaluations of themselves. Moreover, previous findings suggest that the direction and strength of these relationships may vary depending on the measurement tools used, the timing of assessment, cultural context, and sample characteristics. Therefore, this study aimed to examine the association of premenstrual symptom severity with pain, body image, and self-esteem in young adult women.

Materials and Methods

Participants and Sample Size

This cross-sectional analytical study was conducted in Northern Cyprus between January and June 2024. Potential participants were reached through announcements made via higher education institutions and through study invitations shared on social media platforms. The target population consisted of young adult women aged 18-30 years who were continuing their education in different fields and had regular menstrual cycles. Because recruitment was based on announcements and voluntary participation, a convenience sampling approach was used.

A total of 475 students were invited to participate. Of these, 313 students provided electronic informed consent and submitted responses, corresponding to an initial response rate of 65.9%. After eligibility screening, 95 records were excluded, and 218 participants were included in the final analysis. The final analytical sample corresponded to 45.9% of invited students and 69.6% of respondents. Reasons for non-participation could not be recorded because students who did not consent could not proceed to the questionnaire.

An a priori sample size calculation was conducted based on the primary analytical objective of examining the associations between premenstrual symptom severity and pain, body image, and self-esteem. The calculation was performed for a two-tailed correlation analysis. Assuming a small expected effect size of $r = 0.20$, a significance level of $\alpha = 0.05$, and a statistical power of 80%, the minimum required sample size was estimated to be 194 participants (12,13). The final sample size of 218 participants therefore exceeded the minimum required sample size for the planned correlation analyses.

Inclusion and Exclusion Criteria

Young adult women aged 18-30 years who reported having regular menstrual cycles of 21-35 days and agreed to participate voluntarily were included in the study.

Participants were excluded if they did not meet the age criterion, did not report regular menstrual cycles, had a history of surgery related to the uterus or vaginal region, reported a serious gynecological condition, used hormonal medication, were pregnant, or were breastfeeding. Participants were also excluded if they reported a serious condition affecting the pelvic region, a history of surgery involving the urogenital region, or persistent mood changes or psychiatric problems lasting three months or longer.

Data Collection Procedure

Data were collected using a structured self-report questionnaire. The questionnaire was administered online via Google Forms and in face-to-face settings. In the online form, the "limit to one response" option was enabled to reduce duplicate submissions. The first section of the form included the informed consent statement; participants could proceed to the eligibility and data collection questions only after confirming voluntary participation.

Sociodemographic data included age, body mass index, field of education, academic year, marital status, parental education, exercise habits, history of chronic disease, and regular medication use. Menstrual characteristics included age at menarche, cycle length, menstrual duration, bleeding amount, and the menstrual day on which pain was most severe. Pain related to the menstrual period was not included in the main association analyses with PMS; these data were used only to describe menstrual characteristics.

Premenstrual pain was considered present when a participant answered "yes" to the question asking whether she experienced pain before menstruation or marked at least one pain location on the body diagram. Participants reporting pain marked the pain location on a numbered body diagram. Premenstrual pain intensity was coded according to the regional severity classification shown on the diagram: mild pain = 1, moderate pain = 2, severe pain = 3, very severe pain = 4, and unbearable pain = 5. When participants reported more than one painful region, the highest reported regional severity was used in the analyses. Participants without premenstrual pain were assigned a value of 0 for this ordinal intensity variable.

This approach was selected because the study aimed to describe both pain localization and pain severity in the premenstrual period. The resulting pain variable was treated as an ordinal, study-specific indicator of premenstrual pain intensity rather than as a validated pain intensity scale such as a Visual Analog Scale or Numeric Rating Scale.

Data Collection Instruments

Sociodemographic and Menstrual Characteristics Form

The sociodemographic and menstrual characteristics form was developed by the researchers. It included questions on demographic characteristics, educational information, health status, exercise habits, menstrual cycle characteristics, premenstrual pain experience, pain location, pain intensity, premenstrual complaints, and pain-coping methods.

Premenstrual Syndrome Scale

Premenstrual symptom severity was assessed using the Premenstrual Syndrome Scale (PMSS), developed by Gençdoğan (14). The PMSS is a 44-item, five-point Likert-type self-report scale. Each item is rated as "never," "very little," "sometimes," "often," or "always." Total scores range from 44 to 220, with higher scores indicating greater premenstrual symptom severity (14). In this study, the PMSS total score was recalculated by summing all 44 items rather than using the pre-existing total score column in the dataset. The subscales were depressive affect, anxiety, fatigue, irritability, depressive thoughts, pain, appetite changes, sleep changes, and bloating. A PMSS total score greater than 110 was used to define scale-based PMS positivity; this classification was used for analytical grouping and was not considered equivalent to a clinical PMS diagnosis (14).

Body Image Scale

Body image was assessed using the Turkish version of the Body-Cathexis Scale, originally developed by Secord and Jourard (15,16). The scale is a 40-item, five-point Likert-type self-report measure that evaluates satisfaction with different body parts and bodily functions. In the version used in this study, response options ranged from 1 = "do not like at all" to 5 = "like very much"; therefore, higher total scores indicate greater satisfaction with body parts and bodily functions. Items were not reverse coded because all items were scored in the same positive direction. This scoring direction is consistent with the Turkish version used in the present study.

Participants were asked to answer the Body Image Scale items by considering how they perceived their bodies during the week before menstruation. This timing was chosen to match the premenstrual focus of the study, but it differs from the usual general administration of the scale and was considered when interpreting the findings.

Rosenberg Self-Esteem Scale

Self-esteem was assessed using the Rosenberg Self-Esteem Scale, developed by Rosenberg (17). The scale is a 10-item, four-point Likert-type self-report instrument designed to assess general self-evaluation. The Turkish adaptation was conducted by Çuhadaroğlu (18). Five items are positively worded and five are negatively worded; the negatively worded items were reverse coded in accordance with the scale scoring procedure. The total score was calculated within the range of 0-30, with higher scores indicating higher self-esteem (17,18).

Participants were asked to answer the items by

considering their self-evaluation during the week before menstruation. Therefore, Rosenberg Self-Esteem Scale scores were interpreted in this study as self-esteem evaluations related to the premenstrual period, rather than as a direct measure of stable global self-esteem.

Statistical Analysis

IBM SPSS Statistics version 22.0 (IBM Corp., Armonk, NY, USA) was used for analysis. Before the analyses, the dataset was checked for missing data, outliers, and coding errors. The PMSS, Body Image Scale, and Rosenberg Self-Esteem Scale had complete item-level data for all 218 participants included in the final analysis. No imputation was applied. For descriptive menstrual variables with non-codable or missing free-text responses, available-case summaries were used.

The internal consistency of the scales was assessed using Cronbach's alpha coefficient. The distribution of continuous variables was examined using histograms, Q-Q plots, and skewness-kurtosis values. Normally distributed continuous variables were presented as mean ± standard deviation, whereas non-normally distributed variables were presented as median and interquartile range. Categorical variables were reported as frequency and percentage. Scale-based PMS positivity was calculated based on a PMSS total score greater than 110 and was reported with a 95% confidence interval.

For comparisons between participants with and without scale-based PMS positivity, independent samples t tests or Mann-Whitney U tests were used for continuous variables according to distributional properties. Categorical variables were compared using the chi-square test, and Fisher's exact test was used when expected cell counts were insufficient. Associations between PMSS total and subscale scores and premenstrual pain intensity, Body Image Scale score, and Rosenberg Self-Esteem Scale score were examined using Spearman correlation analysis. Spearman correlation coefficients were interpreted as weak (0.10-0.29), moderate (0.30-0.49), or strong (≥0.50) (12). Statistical significance was set at $P < 0.05$ for all analyses. No multivariable adjustment was performed; therefore, the reported associations are unadjusted.

Results

Participant Flow

Of the 475 students invited to participate, 313 provided electronic consent and submitted responses. After eligibility screening, 95 records were excluded and 218 participants were included in the final analysis. The participant selection process is shown in Figure 1.

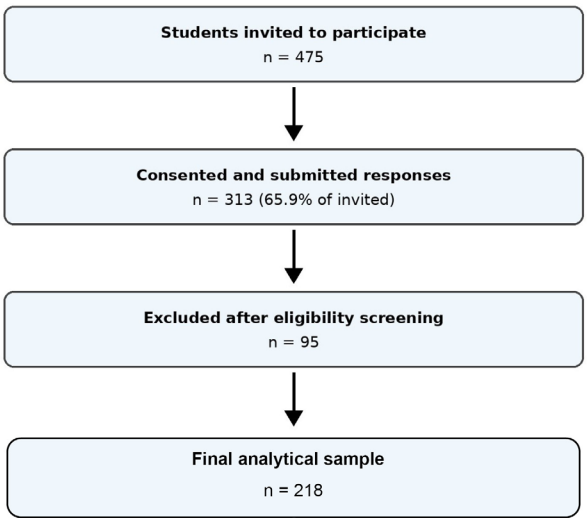

Figure 1. Participant flow diagram.

Demographic, Menstrual, and Premenstrual Clinical Characteristics

The sample was composed of young adult women with regular menstrual cycles and a generally healthy clinical profile. Premenstrual pain and scale-based PMS positivity were common, and the leading complaints were concentrated around pain-related and affective symptoms (Table 1).

Premenstrual Symptom Profile, Body Image, and Self-Esteem

The scale profile showed a high overall premenstrual symptom burden across both affective and somatic

Table 1. Demographic, Menstrual, and Premenstrual Clinical Characteristics of the Participants

Characteristic	Result
Demographic characteristics	
Age, years	22.58 ± 2.18
BMI, kg/m²	23.11 ± 4.51
Menstrual bleeding amount	
Light	10 (4.6)
Moderate	170 (78.0)
Heavy	38 (17.4)
Most common premenstrual complaints	
Lower abdominal pain	155 (71.1)
Low back pain	150 (68.8)
Bloating	123 (56.4)
Irritability	136 (62.4)
Mood fluctuations	131 (60.1)
Menstrual characteristics	
Age at menarche, years	13.82 ± 1.75
Cycle length, days	27.92 ± 3.24
Menstrual duration, days	5.56 ± 1.26
Premenstrual clinical characteristics	
Scale-based PMS positivity	152 (69.7)
Premenstrual pain	204 (93.6)
Premenstrual pain intensity, median (IQR)	2.00 (1.00-2.00)

BMI: body mass index; PMS: premenstrual syndrome.
Note. Values are presented as mean ± standard deviation, median (interquartile range), or n (%), as appropriate. Descriptive menstrual variables were summarized using available coded responses; no imputation was performed.

domains. Internal consistency was excellent for the PMSS and Body Image Scale and good for the Rosenberg Self-Esteem Scale, supporting the reliability of the main measures in this sample (Table 2).

Comparison According to Scale-Based PMS Positivity

Participants with scale-based PMS positivity had lower Body Image Scale scores than participants without scale-based PMS positivity, indicating lower body satisfaction because higher Body Image Scale scores represent greater body satisfaction. They also had lower Rosenberg Self-Esteem Scale scores. The categorical classification of low self-esteem did not differ significantly between groups (Table 3).

Correlation Findings

The correlation pattern showed that PMSS total and subscale scores were consistently associated with premenstrual pain intensity and body image. The negative correlations with Body Image Scale scores indicate that greater premenstrual symptom severity was related to lower body satisfaction. PMSS total score also showed a weak negative correlation with Rosenberg Self-Esteem Scale score, indicating that greater symptom severity was related to lower self-esteem. The strongest self-esteem-related correlations were observed for anxiety and depressive thoughts (Figure 2).

Discussion

The main finding of this study was that premenstrual symptom severity was associated with premenstrual pain intensity, body satisfaction, and self-esteem in young adult women. The findings also showed that scale-based PMS positivity and premenstrual pain were common in this sample, supporting the relevance of premenstrual symptoms in young adulthood. Importantly, the association between symptom severity and pain indicates that PMS should not be interpreted only as an emotional or cyclical discomfort, but as a multidimensional condition with prominent somatic components. In addition, the

Table 2. Premenstrual Symptom Profile, Body Image, Self-Esteem, and Internal Consistency of the Scales

Variable	Mean ± SD	Median (IQR)	n (%)/Cronbach alpha
PMS status and total score			
PMSS total score	130.23 ± 38.94	132.50 (104.25-154.75)	α = 0.977
With scale-based PMS positivity			152 (69.7)
Without scale-based PMS positivity			66 (30.3)
Scale-based PMS positivity, 95% CI			63.3-75.4
PMSS subscale scores			
Depressive affect	22.32 ± 7.06	23.00 (19.00-27.00)	
Anxiety	16.41 ± 6.86	16.00 (11.00-20.75)	
Fatigue	19.65 ± 6.10	20.00 (16.00-24.00)	
Irritability	15.98 ± 5.43	16.00 (13.00-20.00)	
Depressive thoughts	18.35 ± 7.81	18.00 (12.00-23.00)	
Pain	9.61 ± 3.17	10.00 (7.00-12.00)	
Appetite changes	9.43 ± 3.38	9.00 (7.00-12.00)	
Sleep changes	8.59 ± 3.08	9.00 (6.00-11.00)	
Bloating	9.88 ± 3.47	10.00 (7.00-12.00)	
Body image and self-esteem			
Body Image Scale total score	141.27 ± 29.41	140.50 (122.25-159.75)	α = 0.966
Rosenberg Self-Esteem Scale total score	20.31 ± 5.19	20.00 (16.25-24.00)	α = 0.830
Low self-esteem			20 (9.2)

PMSS: Premenstrual Syndrome Scale; PMS: premenstrual syndrome; CI: confidence interval.
Note. Values are presented as mean ± standard deviation, median (interquartile range), n (%), or Cronbach's alpha, as appropriate. Higher Body Image Scale scores indicate greater body satisfaction; higher Rosenberg Self-Esteem Scale scores indicate higher self-esteem.

Table 3. Comparison of Body Image and Self-Esteem According to Scale-Based PMS Positivity

Variable	Without scale-based PMS positivity n = 66	With scale-based PMS positivity n = 152	Test statistic	*P* value
Body Image Scale total score, mean ± SD	156.77 ± 25.72	134.53 ± 28.42	U = 2922.0	<0.001
Body Image Scale total score, median (IQR)	154.50 (135.25-175.00)	136.00 (118.75-153.00)		
Rosenberg Self-Esteem Scale total score, mean ± SD	21.59 ± 5.02	19.76 ± 5.18	U = 4079.0	0.028
Rosenberg Self-Esteem Scale total score, median (IQR)	22.00 (18.00-25.00)	19.00 (16.00-23.00)		
Low self-esteem, n (%)	4 (6.1)	16 (10.5)	χ^2 = 1.101	0.294

PMS: Premenstrual Syndrome
Note. Continuous variables were compared using the Mann-Whitney U test, and categorical variables were compared using the chi-square test. Higher Body Image Scale scores indicate greater body satisfaction; higher Rosenberg Self-Esteem Scale scores indicate higher self-esteem.

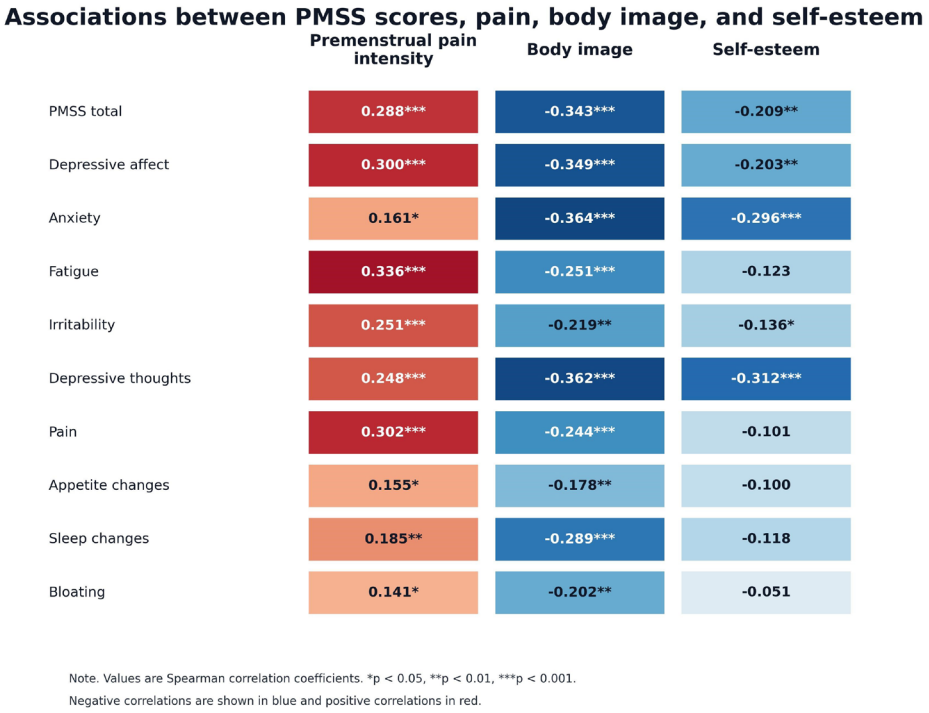

Figure 2. Correlation Heatmap Showing Associations Between PMSS Total and Subscale Scores, Premenstrual Pain Intensity, Body Image, and Self-Esteem. Higher Body Image Scale scores indicate greater body satisfaction; higher Rosenberg Self-Esteem Scale scores indicate higher self-esteem.

observed associations with body image and self-esteem suggest that the premenstrual experience may be related to how young women perceive their bodies and evaluate themselves.

The high scale-based PMS positivity observed in this study is consistent with recent literature showing that PMS is common in young and young adult female samples. Reported PMS prevalence varies according to the scale used, cut-off criteria, cultural context, and sample characteristics. Modzelewski et al (4) noted that PMS is highly prevalent worldwide, whereas severe premenstrual symptoms occur in a more limited subgroup. Mousavi et al (19) reported a PMS rate of 73.68% and a PMDD rate of 7.11% among young women. In this context, the scale-based PMS positivity observed in the present study supports the need to consider young adult women as a relevant group for PMS-related screening and support (4,6,19).

The high rate of scale-based PMS positivity may be partly related to the age profile of the sample and the characteristics of young adulthood. This period is often marked by increasing academic and social responsibilities, changes in sleep and eating patterns, stress exposure, and ongoing development of body-related and self-related perceptions. Previous studies have similarly shown that PMS symptoms in young women are associated with stress, depressive symptoms, sleep disturbance, eating attitudes, and physical activity (6-8). These findings support the view that PMS is linked not only to reproductive physiology but also to lifestyle and psychosocial context.

One important finding of this study was the relationship between premenstrual pain and PMS symptom severity. This supports the relevance of pain as a central component of the PMS experience rather than a separate or secondary complaint. Yi et al (7) reported that menstrual pain severity was among the factors associated with PMS levels, and Franco-Antonio et al (9) showed that dysmenorrhea and PMS may negatively affect quality of life in young women. The present findings are consistent with this literature and suggest that pain assessment should be included when evaluating PMS in young adult women (7,9).

The most frequently reported premenstrual complaints included both physical and affective symptoms, supporting the multidimensional nature of PMS. Current clinical approaches also consider PMS and PMDD within a spectrum of premenstrual disorders in which physical, emotional, and behavioral symptoms should be evaluated together. The ACOG guideline emphasizes the cyclical nature of symptoms, their effect on functioning, and their burden on quality of life when assessing premenstrual disorders (1).

The clinical interpretation of the present correlation findings should be cautious. Although the correlations between PMSS scores and pain, body image, and self-esteem were statistically significant, most coefficients were weak to moderate. These findings should therefore not be interpreted as indicating that any single variable can identify or predict PMS-related problems on its own. Rather, they suggest that pain, body satisfaction, and self-evaluation are relevant domains that may be considered

during screening, counseling, and student health education (12).

The body image findings became clearer after confirming the scoring direction of the Body Image Scale. In the scale version used in this study, higher scores indicate greater body satisfaction (15,16). Therefore, the lower Body Image Scale scores observed among participants with scale-based PMS positivity, together with the negative correlations between PMSS scores and Body Image Scale scores, indicate that greater premenstrual symptom severity was associated with lower body satisfaction. This pattern is in line with qualitative and review evidence suggesting that premenstrual symptoms may be accompanied by more negative bodily experiences, including feelings of heaviness, swelling, reduced bodily control, self-criticism, and body-related distress (10,11).

Nevertheless, body image should not be viewed as a simple or uniform construct in the context of PMS. The Body Image Scale evaluates general satisfaction with body parts and bodily functions, whereas premenstrual body experience may involve more cycle-specific sensations such as bloating, breast tenderness, perceived weight gain, or loss of bodily control. The premenstrual timing used in this study was consistent with the research question but differs from the usual general administration of the scale. This may have made the scores more reflective of premenstrual body satisfaction than stable body image (10,11,15,16).

The self-esteem findings were also rechecked after the reviewer's comment. Negatively worded Rosenberg items were reverse coded before total score calculation, and higher total scores indicate higher self-esteem. After recalculation, participants with scale-based PMS positivity had lower Rosenberg Self-Esteem Scale scores than those without scale-based PMS positivity, and PMSS total score showed a weak negative association with self-esteem. This direction is more consistent with literature suggesting that more severe premenstrual experiences may be accompanied by poorer self-perception and psychological well-being (6,11,17,18).

However, the clinical meaning of this self-esteem finding should still be interpreted cautiously. The correlation was weak, and the categorical classification of low self-esteem did not differ significantly between groups. In addition, because the Rosenberg scale was completed with reference to the week before menstruation, the scores may reflect premenstrual self-evaluation rather than stable global self-esteem. Cultural response patterns, social desirability, sample characteristics, and the lack of adjustment for potential confounders such as stress, sleep quality, depressive symptoms, and social support may also have influenced the observed association (6-8,11).

Participants most commonly used rest, heat-related approaches, and analgesics to cope with premenstrual pain. This pattern suggests that many young women manage PMS and premenstrual pain mainly through self-directed strategies. Current guidance supports multimodal management approaches that may include psychoeducation, exercise, nutritional strategies, psychological support, and appropriate pharmacological treatment when needed (1). The relatively limited use of physical activity as a coping strategy in this sample also suggests a need for education and lifestyle-oriented awareness programs (1,8).

Limitations of the Study

This study has several limitations. First, its cross-sectional design prevents causal interpretation of the associations between PMSS scores, pain, body image, and self-esteem. Second, convenience sampling and recruitment through universities and social media may have introduced selection bias. Students who were more interested in menstrual health or who experienced stronger symptoms may have been more likely to participate, which could have increased the observed frequency of scale-based PMS positivity. In addition, the sample consisted of young adult women from a specific educational setting in Northern Cyprus; therefore, the findings may not be generalizable to all women, to non-student populations, or to women with irregular cycles. Third, all variables were assessed using self-report measures, which may be affected by recall bias, social desirability, and individual differences in symptom perception. Scale-based PMS positivity was determined using the PMSS cut-off score and should not be interpreted as a clinical PMS diagnosis. Clinical assessment of premenstrual disorders requires prospective symptom tracking, evaluation of cyclical symptom patterns, functional impairment, and differential diagnoses (1). Fourth, premenstrual pain intensity was based on an ordinal body-diagram classification rather than a validated instrument such as a Visual Analog Scale or Numeric Rating Scale. This enabled simultaneous assessment of pain location and regional severity, but may limit the precision and comparability of pain intensity findings. Fifth, the Body Image Scale and Rosenberg Self-Esteem Scale were completed with reference to the week before menstruation. This was appropriate for the study objective, but it differs from the original general administration of these instruments and may have influenced the meaning of the scores. Sixth, the analyses were unadjusted for potential confounders such as stress, sleep quality, mental health status, socioeconomic factors, and social support. Finally, no imputation was performed; scale data were complete, but descriptive variables with missing or non-codable responses were summarized using available data (15-18).

Clinical and Practical Implications

The findings suggest that PMS and premenstrual pain are relevant issues among young adult women. Health and counseling services that reach this population may benefit from awareness-raising education, early screening, and

counseling programs that include simple and safe coping strategies. The frequent use of rest, heat application, and analgesics also indicates a need for structured guidance on self-management.

PMS should not be considered only as a gynecological complaint. It should be evaluated as a multidimensional condition associated with pain, body satisfaction, self-esteem, stress, sleep, and lifestyle habits. Programs that support physical activity, sleep hygiene, and stress management may contribute to PMS management in young adult women. Current clinical approaches also emphasize the importance of multimodal management for premenstrual disorders (1,8).

Conclusions

This study showed that scale-based PMS positivity and premenstrual pain were common among young adult women. The positive association between PMSS total score and premenstrual pain intensity indicates that pain has an important place in the PMS experience. Higher PMSS scores were also associated with lower body satisfaction and lower self-esteem; however, the self-esteem association was weak and the categorical low self-esteem comparison was not significant.

Overall, PMS should not be viewed simply as a set of temporary premenstrual symptoms in young adult women. It should be addressed as a holistic health issue related to pain, body satisfaction, self-evaluation, and psychosocial functioning. Screening, education, pain management, physical activity, sleep regulation, and psychological support may contribute to more comprehensive PMS management in this population.

Authors' Contribution

Conceptualization: Melis Bağkur, Tuba Yerlikaya.
Data curation: Melis Bağkur
Formal analysis: Tuba Yerlikaya.
Investigation: Melis Bağkur
Methodology: Melis Bağkur, Tuba Yerlikaya.
Supervision: Tuba Yerlikaya.
Writing–original draft: Melis Bağkur
Writing–review & editing: Tuba Yerlikaya.

Conflict of Interests

Authors declare that they have no conflict of interests.

Data Availability Statement

The dataset is not publicly available because of participant confidentiality. It may be requested from the corresponding author upon reasonable request and within the limits of ethical approval and confidentiality principles.

Ethical Issues

Ethical approval for the study was obtained from the Ethics Committee of Near East University with the approval number YDU/2024/121-1822. Participants were informed about the purpose and scope of the study and that participation was entirely voluntary. Candidates who did not provide informed consent were not included in the study.

Financial Support

No financial support was received from any institution or organization for this study.

References

1. American College of Obstetricians and Gynecologists. Management of premenstrual disorders: ACOG Clinical Practice Guideline No. 7. Obstet Gynecol. 2023;142(6):1516-1533. doi:10.1097/AOG.0000000000005426
2. Rapkin AJ, Akopians AL. Pathophysiology of premenstrual syndrome and premenstrual dysphoric disorder. Menopause Int. 2012;18(2):52-59. doi:10.1258/mi.2012.012014
3. Tiranini L, Nappi RE. Recent advances in understanding/management of premenstrual dysphoric disorder/premenstrual syndrome. Fac Rev. 2022;11:11. doi:10.12703/r/11-11
4. Modzelewski S, Oracz A, Żukow X, Iłendo K, Śledzikowska Z, Waszkiewicz N. Premenstrual syndrome: New insights into etiology and review of treatment methods. Front Psychiatry. 2024;15:1363875. doi:10.3389/fpsyt.2024.1363875
5. Cary E, Simpson P. Premenstrual disorders and PMDD: A review. Best Pract Res Clin Endocrinol Metab. 2024;38(1):101858. doi:10.1016/j.beem.2023.101858
6. Abu Alwafa R, Badrasawi M, Haj Hamad R. Prevalence of premenstrual syndrome and its association with psychosocial and lifestyle variables: A cross-sectional study from Palestine. BMC Womens Health. 2021;21:233. doi:10.1186/s12905-021-01374-6
7. Yi SJ, Kim M, Park I. Investigating influencing factors on premenstrual syndrome among female college students. BMC Womens Health. 2023;23:592. doi:10.1186/s12905-023-02752-y
8. Yang H, Ma Y, Wang Y, Fu C, Liu W, Li W. Association between physical activity and risk of premenstrual syndrome among female college students: A systematic review and meta-analysis. BMC Womens Health. 2024;24:307. doi:10.1186/s12905-024-03147-3
9. Franco-Antonio C, Santano-Mogena E, Cordovilla-Guardia S. Dysmenorrhea, premenstrual syndrome, and lifestyle habits in young university students in Spain: A cross-sectional study. J Nurs Res. 2025;33(1):e374. doi:10.1097/jnr.0000000000000657
10. Ryan S, Ussher JM, Hawkey A. Mapping the abject: Women's embodied experiences of premenstrual body dissatisfaction through body-mapping. Fem Psychol. 2022;32(2):199-223. doi:10.1177/09593535211069290
11. Brown D, Smith DM, Osborn E, Wittkowski A. The experiences and psychological impact of living with premenstrual disorders: A systematic review and thematic synthesis. Front Psychiatry. 2024;15:1440690. doi:10.3389/fpsyt.2024.1440690
12. Cohen J. Statistical power analysis for the behavioral sciences. 2nd ed. Lawrence Erlbaum Associates; 1988.
13. Faul F, Erdfelder E, Buchner A, Lang A-G. Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. Behav Res Methods. 2009;41(4):1149-1160. doi:10.3758/BRM.41.4.1149
14. Gençdoğan B. Premenstruel sendrom için yeni bir ölçek [A new scale for premenstrual syndrome]. Türkiye'de Psikiyatri. 2006;8(2):81-87.
15. Secord PF, Jourard SM. The appraisal of body-cathexis: Body-cathexis and the self. J Consult Psychol. 1953;17(5):343-347. doi:10.1037/h0060689
16. Hovardaoğlu S. Vücut Algısı Ölçeği [Body Perception Scale]. Psikiyatri Psikoloji Psikofarmakoloji Dergisi. 1993;1(Suppl 2):26-27.
17. Rosenberg M. Society and the adolescent self-image. Princeton University Press; 1965.
18. Çuhadaroğlu F. Adölesanlarda benlik saygısı [Self-esteem in adolescents]. Hacettepe University Faculty of Medicine, Department of Psychiatry; 1986.
19. Mousavi SF, Goudarz S, Latifi A, et al. Prevalence of premenstrual syndrome among students and the association of social media addiction with its severity in Hamadan: A cross-sectional study. BMC Psychiatry. 2025;25:627. doi:10.1186/s12888-025-07116-4

© 2026 The Author(s); This is an open-access article distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.