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Academic stress and premenstrual syndrome (PMS) severity: A cross sectional study among communication science students at Indonesia

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Abstract

Background: Premenstrual syndrome (PMS) is characterized by physical and psychological symptoms occurring before menstruation that may interfere with daily activities, social functioning, and academic performance. Academic stress is one psychological factor that may be associated with PMS symptoms among female students.

Purpose: To determine the relationship between academic stress and PMS symptom severity among female students in the Communication Studies Program.

Method: This quantitative study used a descriptive-correlational design with a cross-sectional approach. A total of 122 female students were selected using purposive sampling. Academic stress was assessed using the Perceived Sources of Academic Stress (PSAS) questionnaire, which demonstrated a validity value of 0.90 and Cronbach's alpha of 0.805. PMS symptoms were assessed using the Premenstrual Symptoms Screening Tool (PSST), with a validity value of 0.85 and Cronbach's alpha of 0.91. Data were analysed using univariate analysis and the Spearman rank correlation test.

Results: Most respondents experienced moderate academic stress (109; 89.3%), followed by low (8; 6.6%) and high (5; 4.1%) stress levels. Regarding PMS symptoms, 74 respondents (60.7%) experienced moderate symptoms, followed by mild (43; 35.2%) and severe symptoms (5; 4.1%). Spearman rank analysis showed a significant positive relationship between academic stress and PMS symptom severity ($p = 0.018$; $r = 0.214$), indicating a weak positive correlation.

Conclusion: Academic stress was significantly and positively associated with PMS symptom severity among female students, although the strength of the relationship was weak. Stress management and menstrual health education may be considered as part of student support initiatives.

Keywords: Academic Stress; Female Students; Premenstrual Syndrome.

INTRODUCTION

Premenstrual syndrome (PMS) is a group of physical, emotional, and behavioural symptoms that occur during the luteal phase of the menstrual cycle and resolve after the onset of menstruation. Common symptoms include abdominal pain, fatigue, mood changes, sleep disturbances, and alterations in appetite, with varying severity among individuals (Gatari, 2020). In some women, PMS symptoms can interfere with daily activities, social interactions, academic performance, and overall well-being (Damayanti & Samaria, 2021). Therefore, PMS is

recognized not only as a reproductive health issue but also as a condition that may affect psychological and social functioning. The severity of PMS symptoms is influenced by multiple factors, including biological, psychological, lifestyle, and environmental factors (Trivedi, Patel, & Jain, 2024). Among these factors, psychological stress has been identified as an important contributor to the occurrence and exacerbation of PMS symptoms (Afriyanti & Lestiawati, 2021; Nuvitasari, Susilaningsih, & Kristiana, 2020). Stress may affect hormonal balance

and physiological responses, thereby increasing the intensity of premenstrual symptoms. In female students, academic demands such as examinations, assignments, achievement expectations, and intensive study schedules may become significant sources of stress (Ellis, 2021; Yunitasari, Kusuma, & Palupi, 2023). Persistent academic stress may negatively affect psychological well-being and potentially contribute to the development or worsening of PMS symptoms. Premenstrual syndrome (PMS) refers to a group of physical and psychological symptoms that occur during the luteal phase of the menstrual cycle and may interfere with daily activities, social relationships, and academic functioning. Common symptoms include fatigue, emotional sensitivity, irritability, and other physical and psychological complaints. Previous studies have reported that PMS is associated with several factors, including stress, physical activity, sleep patterns, nutritional status, and other individual characteristics (Astikasari & Kofi, 2022; Puji, Ismaya, Ratnaningtyas, Hasanah, & Fitriah, 2021; Reni, Handayani, & Citra, 2025).

Several previous studies have reported a significant relationship between stress and PMS symptoms among adolescent girls and young women. Studies conducted in Indonesia have also demonstrated an association between stress levels and PMS symptoms among female students. However, existing studies vary in terms of respondent characteristics, study settings, and the dimensions of stress assessed. Most previous studies have examined general stress, whereas studies specifically focusing on academic stress in relation to PMS symptoms among female university students remain limited. In addition, evidence from students enrolled in specific academic disciplines is still scarce. Academic stress is a psychological condition that may arise when students perceive academic demands as exceeding their available resources or ability to cope. Academic assignments, academic performance expectations, time management, and concerns about achievement may contribute to students' perceived stress. Psychological factors are particularly relevant among university students because academic demands may interact with emotional and social pressures (Ayu, Sudarta, & Febrianti, 2026). Previous research has also demonstrated an association between academic stress and PMS among female students. Studies have examined the relationship between stress and

PMS in university students and other young women, indicating that stress may be related to the severity or occurrence of PMS symptoms (Arsy, Gama, Sakinah, Nurdin, & Alwi, 2025; Rangkuti, Ismail, Marcelina, & Desmawati, 2025).

Other studies have reported similar findings regarding the relationship between stress, academic stress, and PMS. Academic stress has been examined together with sleep quality and PMS among nursing students, while stress, dietary patterns, and nutritional status have also been investigated as factors associated with PMS (Rangkuti, Ismail, Marcelina, & Desmawati, 2025; Reni, Handayani, & Citra, 2025). These findings indicate that PMS among female students may involve multiple psychological, behavioral, and academic factors. However, research specifically examining the relationship between academic stress and PMS symptom severity among female students in the Communication Studies Program remains limited.

RESEARCH METHOD

This study used a quantitative descriptive-correlational design with a cross-sectional approach to examine the relationship between academic stress and premenstrual syndrome (PMS) symptom levels among female students. The study population consisted of 172 female students in the Communication Studies Program at Aisyiyah University Yogyakarta. The sample size was determined using the Slovin formula with a 5% margin of error, resulting in 120 respondents, and was increased by 10% to anticipate potential dropouts, resulting in a target of 132 respondents. Purposive sampling was used, with inclusion criteria of female Communication Studies students aged 18–25 years, of reproductive age, without chronic medical conditions, and not currently taking hormonal medication. Respondents who did not complete the questionnaire or withdrew from the study were excluded. A total of 122 respondents met the eligibility criteria and were included in the analysis.

Data were collected at Aisyiyah University Yogyakarta on July 30, 2026, using the Perceived Sources of Academic Stress (PSAS) and the Premenstrual Symptoms Screening Tool (PSST). The PSAS, adapted from Ilman Riski Ramadan's research, consisted of 18 items rated on a five-point Likert scale and categorized into low (18–42),

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moderate (43–66), and high (67–90) academic stress. The instrument demonstrated a validity value of 0.90 and Cronbach's alpha of 0.805. The PSST, consisted of 14 items assessing physical and emotional symptoms and 5 items assessing functional impairment, with a validity value of 0.85 and Cronbach's alpha of 0.91. Questionnaires were administered offline and online through Google Forms according to the respondent group. Before data collection, respondents received an explanation of the study and provided informed consent. Academic stress was the independent variable, while PMS symptom level was the dependent variable. Data were analysed using univariate analysis to describe respondent characteristics and variable distributions and the Spearman rank correlation test

to examine the relationship between academic stress and PMS symptoms. Statistical analysis was performed using SPSS with a significance level of $p < 0.05$. The study received ethical approval under approval number 2462. The research process adhered to ethical principles, including informed consent, anonymity, confidentiality, voluntary participation, and protection of respondents' privacy. The study received ethical approval from the Health Research Ethics Committee of Universitas Aisyiyah Yogyakarta under approval number No. 2462/KEP-UNISA/VI/2026. The research process adhered to ethical principles, including informed consent, anonymity, confidentiality, voluntary participation, and protection of respondents' privacy.

RESEARCH RESULTS

Table 1. Distribution of Respondent Characteristics (N= 122)

Variable	Results
Age (n/%) (Mean$\pm$SD) (Range) (Year)	(20.2 $\pm$ 0.9) (19-22)
19	31/25.4
20	42/34.4
21	42/34.4
22	7/5.7
Class (n/%)	
Class of 2023	44/36.1
Class of 2024	47/38.5
Class of 2025	31/25.4
Academic stress levels	
Low	8/6.6
Moderate	109/89.3
High	5/4.1
Aspects of academic stress	
Decision-making	78/63.9
Academic performance	76/62.3
Missed assignments	72/59.0
Time management	70/57.4
Parents' expectations	69/56.6
PMS symptom levels	
Light	43/35.2
Moderate	74/60.7
Severe	5/4.1

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The respondents had a mean age of 20.2 ± 0.9 years, with an age range of 19–22 years. Of the 122 respondents, 31 (25.4%) were aged 19 years, 42 (34.4%) were aged 20 years, 42 (34.4%) were aged 21 years, and 7 (5.7%) were aged 22 years. Regarding class, 44 respondents (36.1%) were from the Class of 2023, 47 (38.5%) were from the Class of 2024, and 31 (25.4%) were from the Class of 2025. Academic stress levels were classified as low in 8 respondents (6.6%), moderate in 109 (89.3%), and high in 5 (4.1%). The reported aspects of academic stress included decision-making in 78 respondents (63.9%), academic performance in 76 (62.3%), missed assignments in 72 (59.0%), time management in 70 (57.4%), and parents' expectations in 69 (56.6%). PMS symptom levels were classified as light in 43 respondents (35.2%), moderate in 74 (60.7%), and severe in 5 (4.1%). Percentages were calculated based on the total sample of 122 respondents. The aspects of academic stress were not mutually exclusive; therefore, their frequencies and percentages do not sum to 122 or 100%.

Table 2. Distribution of PMS symptoms with the highest frequency by category (N=95)

PMS Category	PMS symptoms	Results
Light	Tired/lacking energy	42/97.7
Moderate	Crying easily, increased sensitivity to rejection	50/67.6
Severe	Anger/irritability	3/60.0

In the light PMS category, 42 of 43 participants (97.7%) reported tiredness/lack of energy. In the moderate PMS category, 50 of 74 participants (67.6%) reported crying easily and increased sensitivity to rejection. In the severe PMS category, 3 of 5 participants (60.0%) reported anger/irritability. Percentages were calculated using the total number of participants within each PMS category as the denominator.

Table 3. Cross-tabulation between academic stress and PMS symptom levels

Academic stress	Mild (n=43)	Moderate (n=74)	Severe (n=5)
Low	7/16.3	0/0.0	1/20.0
Moderate	35/81.4	70/94.6	1/20.0
High	1/2.3	4/5.4	3/60.0

The Spearman Rank test results showed a p-value of 0.018 (<0.05), indicating a significant relationship between academic stress and PMS symptom levels. The correlation coefficient of 0.214 indicates a positive relationship with weak strength.

DISCUSSION

The findings showed that academic stress among female students in the Communication Studies Program was predominantly moderate (89.3%), while low and high stress levels accounted for 6.6% and 4.1%, respectively. The predominance of moderate academic stress may indicate that students experienced academic demands while generally remaining able to adapt to these demands. Academic stress can arise when educational demands, including assignments, examinations, academic achievement expectations, and study obligations, are perceived as pressures that

challenge an individual's coping capacity (Gatari, 2020). Previous research has also examined academic stress as an important psychological condition among university students and its relationship with other psychological experiences (Ayu, Sudarta, & Febrianti, 2026).

Several aspects of academic stress were frequently reported, including academic decision-making, academic performance, missed assignments, time management, and parents' expectations. The predominance of neutral responses suggests that most respondents did not perceive substantial pressure from these aspects. Nevertheless, these domains remain relevant components of students' academic experiences. Academic stress may emerge when students perceive uncertainty regarding their ability to meet academic expectations or achieve desired outcomes (Anita, Asiah, & Muzakir, 2026). The moderate level

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of academic stress observed in this study may therefore reflect students' ability to manage routine academic demands while continuing to experience some degree of academic pressure.

Regarding PMS, most respondents experienced moderate symptoms, comprising 74 students (60.7%), followed by mild symptoms in 43 students (35.2%) and severe symptoms in 5 students (4.1%). PMS involves a combination of physical and psychological symptoms occurring before menstruation, with symptom severity varying among individuals (Ariyantini, Sekarini, & Pratiwi, 2026). The predominance of moderate symptoms in this study suggests that most respondents experienced premenstrual complaints that were noticeable but were not classified as severe. Similar findings have been reported in previous studies examining PMS among female adolescents and university students (Asidah, Cahyani, Janurti, Rahma, Afriza, Janna, & Undaryati, 2025; Dewi, Puspitasari, & Daryanti, 2026).

The most frequently reported PMS symptoms differed across severity categories. Fatigue or lack of energy was the most frequently reported symptom among respondents with mild PMS, whereas easy crying and increased sensitivity to rejection were most frequently reported among those with moderate PMS. Anger or irritability was the most frequently reported symptom among respondents with severe PMS. These findings demonstrate that PMS may involve both physical and emotional symptoms, with different manifestations across severity levels. The occurrence and severity of PMS may be associated with multiple factors, including hormonal fluctuations, psychological conditions, lifestyle, stress, physical activity, and sleep patterns (Puji, Ismaya, Ratnaningtyas, Hasanah, & Fitriah, 2021). PMS symptoms may also interfere with concentration, academic activities, and daily functioning, emphasizing the relevance of appropriate stress management and healthy lifestyle practices among female students (Wahyuni & Dewi, 2021).

The Spearman rank correlation analysis demonstrated a statistically significant positive relationship between academic stress and PMS symptom levels ($p = 0.018$; $r = 0.214$). The weak positive correlation indicates that students with higher academic stress tended to report higher PMS symptom levels, although the magnitude of the association was relatively small. Because this study used a cross-sectional design, the finding should be

interpreted as an association rather than a causal relationship.

The present finding is consistent with previous research reporting an association between stress and PMS among young women and female students (Arsy, Gama, Sakinah, Nurdin, & Alwi, 2025; Dewi, Puspitasari, & Daryanti, 2026). Research among nursing students has also examined academic stress together with sleep quality in relation to PMS, indicating that academic and lifestyle factors may coexist with premenstrual symptoms (Rangkuti, Ismail, Marcelina, & Desmawati, 2025). Similarly, academic stress, dietary patterns, and nutritional status have been investigated as factors associated with PMS, supporting the view that PMS is influenced by multiple factors rather than by stress alone (Reni, Handayani, & Citra, 2025).

The relationship observed in this study may be understood through the interaction between psychological stress and physiological processes associated with the menstrual cycle. Academic demands, such as assignments, examinations, academic achievement expectations, and study obligations, may contribute to psychological stress, which may coexist with or be associated with increased physical and emotional symptoms before menstruation (Agustin & Zulala, 2023). However, the weak correlation observed in the present study indicates that academic stress represents only one of several factors potentially related to PMS symptom severity. Other factors, including sleep quality, physical activity, dietary patterns, nutritional status, and individual psychological characteristics, may also contribute to variations in PMS symptoms (Puji, Ismaya, Ratnaningtyas, Hasanah, & Fitriah, 2021; Rangkuti, Ismail, Marcelina, & Desmawati, 2025; Reni, Handayani, & Citra, 2025).

Overall, the findings indicate that academic stress was significantly and positively associated with PMS symptom severity among female students in the Communication Studies Program at Aisyiyah University Yogyakarta, although the strength of the association was weak. These findings highlight the relevance of considering academic stress as one of the psychosocial factors associated with PMS among university students. Further research using longitudinal or multivariable designs is needed to examine the temporal relationship between academic stress and PMS and to account for other potential contributing factors.

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CONCLUSION

Most female students in the Communication Studies Program experienced moderate academic stress (109; 89.3%) and moderate PMS symptoms (74; 60.7%). A significant positive but weak relationship was identified between academic stress and PMS symptom levels ($p = 0.018$; $r = 0.214$). These findings indicate that higher academic stress was associated with higher PMS symptom levels.

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