

Severity of premenstrual syndrome: a comparative analysis between hosteller and day scholar medical students

Saima Kanwal ^{1,2}, Laiyla Shinwari ³, Rana Muhammad Saleem²

ABSTRACT

Objective: To compare the severity of premenstrual syndrome (PMS) between hosteller and day-scholar female students at Faisalabad Medical University, Pakistan.

Methods: This comparative cross-sectional study was conducted at Faisalabad Medical University, from September 2024 to March 2025. A total of 340 female students with PMS (170 hostellers and 170 day-scholars) were enrolled through convenience sampling. PMS was diagnosed according to American College of Obstetricians and Gynecologists criteria. Data were collected using a self-administered questionnaire incorporating the modified Premenstrual Syndrome Scale. PMS severity was categorized as mild, moderate, severe, or extremely severe. Data were analyzed using descriptive statistics, Chi-square test and logistic regression.

Results: Mean age of participants was 22.4 ± 1.0 years. Overall, 203 (59.7%) students reported mild, 101 (29.7%) moderate, and 36 (10.6%) severe PMS, while no participant had extremely severe PMS. Hosteller students experienced significantly greater symptom severity than day-scholars. Severe anxiety (49.4% vs. 24.7%), mood swings (55.9% vs. 30.0%), social withdrawal (56.5% vs. 39.4%), menstrual cramps (62.4% vs. 46.5%), and menstrual backache (63.5% vs. 45.2%) were more common among hostellers ($p < 0.05$). Menstrual backache (55.0%) and menstrual cramps (54.4%) were the most frequently reported severe symptoms overall. Logistic regression identified fatigue (OR=1.80, 95% CI: 1.16–2.79; $p=0.008$) and breast tenderness (OR=1.57, 95% CI: 1.02–2.40; $p=0.039$) as significant predictors of increased PMS severity.

Conclusion: PMS is highly prevalent among female medical students, with hosteller students experiencing significantly greater symptom severity than day scholars. Targeted support, health education and stress-management interventions may help reduce the burden of PMS among hostel residents.

Keywords: Premenstrual Syndrome (MeSH); Menstruation (MeSH); Students, Medical (MeSH); Premenstrual Syndrome Scale (MeSH); Menstruation Disturbances (MeSH); Hosteller (Non-MeSH); Hostel residents (Non-MeSH); Day scholars (Non-MeSH); Residence Characteristics (MeSH); Back Pain (MeSH).

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- 1: Department of Community Medicine, Faisalabad Medical University, Faisalabad, Pakistan
- 2: Department of Community Medicine and Public Health, The University of Lahore, Lahore
- 3: Department of Obstetrics and Gynecology, Kabir Medical College, Peshawar, Pakistan

Cell #: +92-333-9120587

Email ✉ : drilaiylakhan@yahoo.com

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and Gynecologists defines PMS as the occurrence of at least one somatic symptom (e.g., abdominal bloating, headache, breast tenderness, or limb swelling) and one affective symptom (e.g., anxiety, irritability, depression, anger, or social withdrawal) during the five days preceding menstruation in at least three consecutive cycles, with resolution within four days after the onset of menses.⁴ Although its pathophysiology remains incompletely understood, late-luteal fluctuations in estrogen and progesterone are considered important. Smoking, alcohol use, high-fat diets, caffeine intake, prolonged menstrual cycles, and age at menarche have also been associated with PMS risk.⁵ Symptom severity ranges from mild discomfort to substantial impairment in personal, academic, social, and occupational functioning.

PMS is a common condition affecting women of reproductive age worldwide. Epidemiological studies suggest that up to 75% of women experience at least one PMS symptom, while 3-8% report severe symptoms that substantially impair daily functioning.^{2,6} The prevalence of PMS varies considerably across various countries, ranging from 32.5% in Nigeria to over 90% in Jordan and Malaysia.^{1-4,6,7} In Pakistan, the reported prevalence of PMS is 69.6%.⁴ Such geographical variation may be attributed to differences in genetic,

INTRODUCTION

Premenstrual syndrome (PMS) is a complex condition characterized by physical, emotional, and behavioral symptoms that occur during the late luteal phase of the menstrual cycle.¹ These symptoms are associated with cyclical fluctuations in estrogen and progesterone levels and typically appear in the week preceding menstruation. PMS symptoms are not restricted to initial reproductive years but can occur

at any age of reproductive life.^{2,3} PMS can affect females throughout their reproductive years and may substantially impair daily functioning and quality of life, particularly among students.¹ Approximately 5-8% of women experience severe PMS, with common manifestations including depressed mood, irritability, mood swings, tension, headache, menstrual backache, breast tenderness and generalized body and joint pains.³

The American College of Obstetricians

dietary, lifestyle, cultural, and environmental factors influencing menstrual health.

In developing countries such as Pakistan, cultural taboos surrounding menstruation often discourage open discussion of menstrual health issues, resulting in inadequate awareness and delayed recognition of PMS. Consequently, many women experience physical and psychological distress that may adversely affect their daily activities, academic performance, interpersonal relationships, and overall well-being. Female students, particularly those residing in hostels (hostellers), may experience more severe PMS symptoms due to academic stress, adjustment to hostel life, and disruptions in daily routines.⁸ Additional contributing factors include irregular physical activity, inadequate sleep, dietary changes, and limited control over lifestyle habits, all of which may influence hormonal regulation and exacerbate PMS symptoms.

Although several studies have examined menstruation, menstrual hygiene, and the prevalence and impact of PMS on quality of life, limited evidence is available regarding the severity of PMS, particularly among Pakistani female students. Furthermore, only one local study, conducted nearly a decade ago, compared PMS symptoms between hostellers and day scholars.⁹ Given the scarcity of recent data, especially among hostel-residing students, further research is warranted. Therefore, the present study aimed to compare the severity of PMS between hostellers and day scholar female students at Faisalabad Medical University, Pakistan. The findings may facilitate early recognition of PMS, inform targeted educational and support interventions, and provide baseline evidence for future research and policy development aimed at improving menstrual health among female students.

METHODS

This cross-sectional study was performed at Faisalabad Medical University (FMU), Faisalabad, from September 2024 to March 2025. Ethical approval for the study was obtained from the Institutional Research and

Ethics Committee of the University of Lahore (Ref. No: REC-UOL-364/08/24, dated: August 12, 2024).

The target sample size was calculated to be 339 female students; the value has been revised to 340 to divide it into two equal groups. This calculation was based on Cochran's formula, which is appropriate for estimating sample sizes in health-related research: Cochran's Formula: $n = (Z^2 \times P \times (1-P)) / E^2$, Where Z=corresponds to the desired degree of confidence (e.g., 95% confidence level = 1.96), n is the sample size, P=expected prevalence or frequency of PMS symptoms (i.e 64.9%), E = desired margin of error (as a decimal) = 5% = 0.05.^{1,10}

Inserting the values in the formula:

$$n = (Z^2 \times P \times (1-P)) / E^2,$$

$$n = (1.96^2 \times 0.649 \times (1-0.649)) / (0.05^2)$$

$$n = (3.8416 \times 0.649 \times 0.351) / (0.0025)$$

$$n = 338.45$$

$$n = 339$$

A total of 340 females; 170 hostellers and 170-day scholars with regular menstrual cycles and PMS symptoms were enrolled in the study through convenient sampling.

The minimum required sample size was therefore 339 participants. This was rounded to 340 to allow equal allocation of hostel-based and day scholar students (170 participants in each group).

Students with a history of polycystic ovaries, endometriosis, and chronic medical conditions (e.g., diabetes, hyperthyroidism, hypothyroidism) were excluded. Similarly, students taking hormonal contraceptives or who had undergone gynecological surgeries were not included in the study. A speech inviting them to take part in the study was given to point out the purpose of the research and the method was carried out in every classroom among the available students. Female students who consented and had symptoms of PMS were asked to come to a designated room for evaluation and diagnosis of the premenstrual syndrome by a gynecologist. Diagnosis of PMS in

this study was made if the participant reported symptoms five days before the menstrual cycle in the last three menstrual cycles. These symptoms must have been relieved within 4 days of the onset of menses and did not recur till the 12th day of menses as per diagnostic standards of ACOG.⁴ Participants joined the study on a voluntary basis, with no financial or other incentives provided.

Data were collected using a self-administered questionnaire completed by participants diagnosed with PMS. A pilot study involving 20 participants was conducted to assess the clarity, validity, and reliability of the instrument. The questionnaire comprised two sections: socio-demographic characteristics and PMS symptoms. It contained 28 items rated on a four-point Likert scale and was completed anonymously within 30-35 minutes. Completed questionnaires were reviewed for completeness and consistency.

PMS severity was assessed using the modified Premenstrual Syndrome Scale (PMSS).¹ The scale scores ranged from 28 to 112 and were categorized as mild (1-28), moderate (29-56), severe (57-84), and extremely severe (85-112). The instrument demonstrated good internal consistency (Cronbach's alpha = 0.88). Written informed consent was obtained from all participants, and confidentiality and anonymity were maintained throughout the study.^{11,12}

The analysis of data corresponded to the objectives of the study, which applied descriptive and inferential statistics through SPSS version 22.0. Descriptive analysis was performed using frequencies and percentages. The Chi-square test was performed to compare the percentages of symptoms between hostellers and day scholars after categorizing the symptoms as mild, moderate and severe. A multivariable logistic regression was conducted to examine the relationship between the demographic factors (considered explanatory variables) and PMS (the outcome). All analyses were carried out at a 95% confidence level, with a p-value of 0.05 indicating significance.

RESULTS

A total of 340 participants: 170 hostellers and 170-day scholars, were enrolled in the study. Participants' mean age was 22.4 ± 1.0 years. The cultural and other living habits of almost all the participants were similar. The details of the demographic data of the students is given in Table I.

The logistic regression analysis indicates that the variable "Age" has a marginally significant association with the outcome. The "Residential Background" variable, however, shows a significant effect, suggesting that rural participants are less likely to experience the outcome.

Other variables such as marital status, course, academic year and socio-economic status do not demonstrate significant effects. The odds ratios for these variables range close to 1, indicating minimal impact on the outcome. The constant term also shows no significant effect. The details are given in Table II.

Overall, mild PMS was reported by 203 (59.7%) students, followed by moderate PMS in 101 (29.7%) and severe PMS in 36 (10.6%); no participant reported extremely severe PMS. PMS severity differed by residence status. Mild PMS was more common among day scholars than hostelites (67.8% vs. 52.1%), whereas moderate (33.3% vs. 26.5%) and severe PMS (14.6% vs. 5.7%) were more frequently reported by hostelites.

Menstrual backache was found to be the most common severe symptom of PMS, followed by menstrual cramps. Other frequent severe symptoms were social withdrawal, weakness and mood

swings. The least severe symptom was swollen extremities, followed by weight gain (Table III).

Tables IV(a) and IV(b) show the distribution and severity of psychological, behavioral, and physical PMS symptoms among hostellers and day scholar students. Overall, hostellers reported significantly greater symptom severity than day scholars for most PMS manifestations. Psychological and behavioral symptoms, including anxiety, irritability, mood swings, tension, depression, crying, forgetfulness, confusion, insomnia and social withdrawal, were significantly more severe among hosteller students ($p < 0.05$). Similarly, several physical symptoms, including abdominal bloating, oily skin, acne, constipation, diarrhea, hives, weakness, menstrual

cramps, and menstrual backache, were significantly more severe among hostellers than day scholars ($p < 0.05$). In contrast, fatigue, dizziness, weight gain, and breast tenderness did not differ significantly between the two groups ($p > 0.05$). Overall, hosteller students were more likely to fall within the moderate-to-severe symptom categories, whereas day scholars predominantly reported mild-to-moderate symptoms, indicating a comparatively lower PMS-related burden.

The regression analysis showed a significant association of fatigue with the outcome, with an odds ratio (Exp(B)) of 1.802 and a p-value of 0.008, indicating a higher likelihood of the symptom occurring. Mood swings showed the least association, with an odds ratio of 0.496 and a p-value of 0.002, suggesting

Table I: Sociodemographic characteristics of the study participants (n=340)

Variable	Category	Hostellers	Day Scholars
Age (years)	18-20	73 (42.9%)	69 (40.6%)
	21-23	85 (50%)	76 (44.7%)
	24-25	12 (7.1%)	25 (14.7%)
Marital Status	Single	168 (98.8%)	166 (97.6%)
	Married	2 (1.2%)	4 (2.4%)
Course	MBBS*	137 (80.6%)	139 (81.8%)
Year of Study	First year	35 (20.6%)	35 (20.6%)
	Second year	35 (20.6%)	39 (22.9%)
	Third year	37 (21.2%)	36 (21.2%)
	Fourth year	36 (21.2%)	31 (18.2%)
	Fifth year	27 (15.9%)	29 (17.1%)
Residential background	Urban	139 (81.8%)	159 (93.5%)
	Rural	31 (18.2%)	11 (6.5%)
Socio Economic Status	Upper	14 (8.2%)	17 (10%)
	Middle	144 (84.7%)	144 (84.7%)
	Lower	12 (7.1%)	9 (5.3%)

Bachelor of Medicine, Bachelor of Surgery

Table II: Logistic regression of demographic data of the participants (n=340)

Variable	B	S.E.	Wald	df	Sig.	Exp (B)	95% C.I. for EXP(B)	
							Lower	Upper
Age	0.384	0.210	3.330	1	0.068	1.468	0.972	2.217
Residential Background	-1.226	0.380	10.431	1	0.001	0.293	0.139	0.618
Marital Status	1.021	0.953	1.148	1	0.284	2.775	0.429	17.957
Course	0.052	0.295	0.031	1	0.860	1.053	0.591	1.878
Year of Study	-0.127	0.098	1.695	1	0.193	0.881	0.727	1.066
Socio Economic Status	-0.142	0.295	0.233	1	0.629	0.867	0.487	1.546
Constant	0.268	1.153	0.054	1	0.816	1.307	—	—

Table III: Overall, number and severity of PMS symptom among hostellers and day scholars based on PMSS (n=340)

Symptoms	Severity		
	Mild	Moderate	Severe
Anxiety	94 (27.6%)	120 (35.2%)	126 (37%)
Irritability	69 (20.2%)	136 (40%)	135 (39.7%)
Mood Swings	63 (18.5%)	131 (38.5%)	146 (42.9%)
Tension	119 (35%)	128 (37.6)	93 (27.3%)
Increase Appetite	151 (44.4%)	108 (31.7%)	81 (23.8%)
Headache	185 (54.4%)	84 (24.7%)	71 (20.8%)
Fatigue	76 (22.3%)	129 (37.9%)	135 (39.7%)
Dizziness	201 (59.1%)	77 (22.6%)	62 (18.2%)
Palpitations	197 (57.9%)	83 (24.4%)	53 (15.5%)
Depression	146 (42.9%)	114 (33.5%)	80 (23.5%)
Crying	148 (43.5%)	96 (28.2%)	96 (28.2%)
Abdominal Bloating	114 (33.5%)	140 (41.1%)	86 (25.2%)
Oily Skin	124 (36.4%)	125 (36.7%)	91 (26.7%)
Acne	143 (42%)	108 (31.7%)	89 (26.1%)
Constipation	172 (50.5%)	84 (24.7%)	84 (24.7%)
Diarrhea	196 (57.6%)	81 (23.8%)	63 (18.5%)
Hives	236 (69.4%)	40 (11.7%)	64 (18.8%)
Weakness	101 (29.7%)	93 (27.3%)	146 (42.9%)
Menstrual Cramps	51 (15%)	104 (30.5%)	185 (54.4%)
Menstrual Backache	51 (15%)	100 (29.4%)	187 (55%)
Forgetfulness	186 (54.7%)	87 (25.5%)	67 (19.7%)
Confusion	167 (49.1%)	114 (33.5%)	59 (17.3%)
Insomnia	187 (55%)	89 (26.1%)	64 (18.8%)
Fluid Retention	224 (65.8%)	73 (21.4%)	43 (12.6%)
Weight Gain	222 (65.2%)	75 (22%)	43 (12.6%)
Swollen Extremities	263 (77.3%)	46 (13.5%)	31 (9.1%)
Breast Tenderness	201 (59.1%)	77 (22.6%)	62 (18.2%)
Social withdrawal	76 (22.3%)	101 (29.7%)	163 (47.9%)

PMS: Premenstrual syndrome; PMSS: Premenstrual syndrome scale

a lower likelihood of the symptoms in the studied group. Breast tenderness showed a significant and positive association ($\text{Exp}(B)=1.566$, $p=0.039$). Symptoms like tension, palpitations, and depression were not statistically significant. The constant term was highly significant ($p=0.000$), with an odds ratio of 22.704 (Table V).

DISCUSSION

The present study compared the severity of premenstrual syndrome among hostellers and day scholar female medical students and found that PMS symptoms were significantly more severe among hostelites. Although most participants experienced mild PMS, hosteller students were more likely to

report moderate-to-severe symptoms, whereas day scholars predominantly experienced mild-to-moderate symptoms. Menstrual backache and menstrual cramps were the most frequently reported severe symptoms, followed by social withdrawal, weakness and mood swings. Furthermore, several psychological, physical, and behavioral symptoms, including anxiety, irritability, mood swings, depression, social withdrawal, abdominal bloating, acne, constipation, and menstrual pain, were significantly more severe among hostelites than day scholars. These findings suggest that living conditions and lifestyle factors associated with hostel residence may contribute to greater PMS symptom

burden among female students.

Abbasi S, et al., reported a high prevalence of PMS among hosteller medical students in Karachi.⁹ Similarly, in the present study, hostelites were more likely to report moderate-to-severe PMS, whereas day scholars predominantly experienced mild-to-moderate symptoms. Previous studies among medical students have also reported mild PMS as the most common category, followed by moderate and severe PMS.¹³⁻¹⁶ For example, Suboohi S, et al., reported mild, moderate and severe PMS in 79.3%, 17.2%, and 3.4% of students, respectively,¹³ while Nisar N, et al., reported corresponding proportions of 59.5%, 29.2%, and 11.2%.¹⁴ Although the overall pattern of PMS severity in our study is comparable with previous reports, most earlier studies did not separately assess symptom severity among hostel-based and day scholar students.

PMS is frequently associated with psychological symptoms, particularly depression and anxiety. In the present study, severe depression was reported by 32.9% of hostelites compared with 14.1% of day scholars. This finding is consistent with previous studies reporting a high burden of emotional symptoms among women with PMS.^{1,4-6,17-20} Al-Qazaz and Al-Dabbagh reported depressed mood in 50% of participants,¹⁹ while Parveen S, et al., found depressive symptoms in 97% of women with PMS.⁴ Other studies have similarly identified depression, anxiety and fatigue as common or severe PMS manifestations.^{1,5,6,17,18,20}

The greater prevalence of severe depressive symptoms among hostelites may be related to academic stress, adjustment to hostel life, and limited access to immediate familial and social support. Chronic stress may alter hypothalamic-pituitary-adrenal axis activity and affect neuroendocrine and hormonal regulation, thereby exacerbating PMS-related psychological symptoms.²¹

Al-Sabbah H, et al., also found the most prevalent PMS symptoms comprised angry feelings, and joint, muscle, and back pain.² These findings are consistent

Table IV (a): Comparison of the severity of psychological and behavioral premenstrual syndrome symptoms between hosteller and day scholar students (n=340)

Symptoms	Hostel-Based			Day Scholar			P-value
	Mild [n (%)]	Moderate [n (%)]	Severe [n (%)]	Mild [n (%)]	Moderate [n (%)]	Severe [n (%)]	
Anxiety	33 (19.4%)	53 (31.2%)	84 (49.4%)	61 (35.9%)	67 (39.4%)	42 (24.7%)	<0.001
Irritability	29 (17.1%)	54 (31.8%)	87 (51.2%)	40 (23.5%)	82 (48.2%)	48 (28.2%)	<0.001
Mood Swings	17 (10%)	58 (34.1%)	95 (55.9%)	46 (27.1%)	73 (42.9%)	51 (30%)	<0.001
Tension	50 (29.4%)	59 (34.7%)	61 (35.9%)	69 (40.6%)	69 (40.6%)	32 (18.8%)	0.002
Increase Appetite	61 (35.9%)	52 (30.6%)	57 (33.5%)	90 (52.9%)	56 (32.9%)	24 (14.1%)	<0.001
Headache	77 (45.3%)	39 (22.9%)	54 (31.8%)	108 (63.5%)	45 (26.5%)	17 (10%)	<0.001
Fatigue	38 (22.4%)	59 (34.7%)	73 (41.2%)	38 (22.4%)	70 (41.2%)	62 (36.5%)	0.4
Dizziness	95 (55.9%)	33 (19.4%)	42 (24.7%)	106 (62.4%)	44 (25.9%)	20 (11.8%)	0.07
Palpitations	85 (50.9%)	40 (24%)	42 (25.1%)	112 (67.5%)	43 (25.1%)	11 (6.6%)	<0.001
Depression	66 (38.8%)	48 (28.2%)	56 (32.9%)	80 (47.1%)	66 (38.8%)	24 (14.1%)	<0.001
Crying	63 (37.1%)	46 (27.1%)	61 (35.9%)	85 (50%)	50 (29.4%)	35 (20.6%)	0.005
Forgetfulness	80 (47.1%)	45 (26.5%)	45 (26.5%)	106 (62.4%)	42 (24.7%)	22 (12.9%)	0.003
Confusion	72 (42.4%)	53 (31.2%)	45 (26.5%)	95 (55.9%)	61 (35.9%)	14 (8.4%)	<0.001
Insomnia	83 (48.8%)	42 (24.7%)	45 (26.5%)	104 (61.2%)	47 (27.9%)	19 (11.2%)	0.001
Fluid Retention	98 (57.6%)	40 (23.5%)	32 (18.8%)	126 (74.1%)	33 (19.4%)	11 (6.5%)	0.001
Weight Gain	101 (59.4%)	38 (22.4%)	31 (18.2%)	121 (71.2%)	37 (21.8%)	12 (7.1%)	0.06
Swollen Extremities	114 (67.1%)	28 (16.5%)	28 (16.5%)	149 (87.6%)	18 (10.6%)	3 (1.8%)	<0.001
Breast Tenderness	92 (54.1%)	41 (24.1%)	37 (21.8%)	109 (64.1%)	36 (21.2%)	25 (14.7%)	0.13
Social withdrawal	31 (18.2%)	43 (25.3%)	96 (56.5%)	45 (26.5%)	58 (34.1%)	67 (39.4%)	0.007

Table IV (b): Comparison of the severity of physical and somatic premenstrual syndrome symptoms between hosteller and day scholar students (n=340)

Symptoms	Hostellers			Day Scholar			P-value
	Mild [n (%)]	Moderate [n (%)]	Severe [n (%)]	Mild [n (%)]	Moderate [n (%)]	Severe [n (%)]	
Abdominal Bloating	56 (32.9%)	59 (34.7%)	55 (32.4%)	58 (34.1%)	81 (47.6%)	31 (18.2%)	0.006
Oily Skin	57 (33.5%)	55 (32.4%)	58 (34.1%)	67 (39.4%)	70 (41.2%)	33 (19.4%)	0.009
Acne	57 (33.5%)	49 (28.8%)	64 (37.6%)	86 (50.6%)	59 (34.7%)	25 (14.7%)	<0.001
Constipation	76 (44.7%)	30 (17.6%)	64 (37.6%)	96 (56.5%)	54 (31.8%)	20 (11.8%)	<0.001
Diarrhea	85 (50%)	35 (20.6%)	50 (29.4%)	111 (65.3%)	46 (27.1%)	13 (7.6%)	<0.001
Hives	96 (56.5%)	21 (12.4%)	53 (31.2%)	140 (82.4%)	19 (11.2%)	11 (6.5%)	<0.001
Weakness	37 (21.8%)	45 (26.5%)	88 (51.8%)	64 (37.6%)	48 (28.2%)	58 (34.1%)	0.001
Menstrual Cramps	23 (13.5%)	41 (24.1%)	106 (62.4%)	28 (16.5%)	63 (37.1%)	79 (46.5%)	0.011
Menstrual Backache	24 (14.1%)	38 (22.4%)	108 (63.5%)	27 (15.9%)	62 (36.5%)	77 (45.2%)	0.007

with those reported by Hashim MS, et al.,²² and Saglam Hy, et al.¹⁷ Similarly, Chumpalova P, et al., reported irritability, increased appetite, depression and mood disturbances as the most common PMS symptoms, representing 87.8%, 79.6%, 8.6%, and 76.5%, respectively.²³ The same results were observed in our study. Loss of anger control in PMS is primarily attributed to hormonal fluctuations during the menstrual cycle, specifically the decline

in estrogen and progesterone levels before menstruation. These hormonal shifts can affect brain chemistry, particularly neurotransmitters like serotonin, which play a role in regulating mood.

Altamimi LA, et al., reported abdominal pain as the most common PMS symptom, followed by mood swings, whereas swollen extremities were the least frequently reported.¹⁸ A similar pattern was observed in the present

study, where severe abdominal bloating was reported by 32.4% of hostelites and 18.2% of day scholars. Previous studies have also reported a high frequency of abdominal bloating among women with PMS.¹⁸ PMS-related abdominal pain and cramps are thought to result from increased prostaglandin, particularly prostaglandin F_{2α}, production, which enhances uterine contractions and may cause pain in the lower abdomen and pelvic region.

Table V: Showing logistic regression analysis of severity of pre-menstrual syndrome symptoms of participants (n=340)

Variables	B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I for EXP(B)	
							Lower	Upper
Anxiety	-0.260	0.224	1.346	1	0.246	0.771	0.497	1.196
Irritability	0.128	0.237	0.292	1	0.589	1.137	0.714	1.809
Mood Swings	-0.702	0.227	9.526	1	0.002	0.496	0.317	0.774
Nervous Tension	0.172	0.217	0.629	1	0.428	1.188	0.776	1.817
Appetite Increase	-0.307	0.181	2.890	1	0.089	0.736	0.516	1.048
Headache	-0.324	0.202	2.565	1	0.109	0.723	0.487	1.075
Fatigue	0.589	0.223	6.980	1	0.008	1.802	1.164	2.790
Dizziness And Fainting	0.165	0.220	0.561	1	0.454	1.179	0.766	1.817
Palpitations	-0.443	0.229	3.745	1	0.053	0.642	0.410	1.006
Depression	0.200	0.234	0.729	1	0.393	1.221	0.772	1.932
Crying	-0.278	0.200	1.932	1	0.165	0.757	0.511	1.121
Forgetfulness	0.046	0.208	0.049	1	0.825	1.047	0.697	1.573
Confusion	-0.183	0.239	0.586	1	0.444	0.833	0.522	1.330
Insomnia	-0.080	0.200	0.160	1	0.689	0.923	0.624	1.366
Fluid Retention	-0.042	0.257	0.027	1	0.870	0.959	0.580	1.585
Weight Gain	0.206	0.265	0.604	1	0.437	1.228	0.731	2.065
Swollen Extremities	-0.558	0.325	2.958	1	0.085	0.572	0.303	1.081
Breast Tenderness	0.448	0.217	4.271	1	0.039	1.566	1.023	2.395
Abdominal Bloating	0.147	0.228	0.416	1	0.519	1.158	0.741	1.810
Oily Skin	-0.074	0.218	0.116	1	0.734	0.929	0.606	1.424
Acne	-0.199	0.222	0.798	1	0.372	0.820	0.530	1.268
Constipation	-0.120	0.212	0.320	1	0.572	0.887	0.586	1.344
Diarrhea	-0.119	0.211	0.319	1	0.572	0.888	0.588	1.342
Backache	-0.402	0.219	3.379	1	0.066	0.669	0.436	1.027
Hives	-0.231	0.240	0.928	1	0.335	0.794	0.496	1.270
Weakness And Radiation Down thighs	-0.098	0.196	0.252	1	0.616	0.906	0.618	1.330
Menstrual Cramps	0.182	0.259	0.492	1	0.483	1.199	0.722	1.994
Menstrual Backache	0.215	0.261	0.679	1	0.410	1.240	0.743	2.069
Constant	3.123	0.630	24.549	1	0.000	22.704	—	—

These symptoms are usually transient and typically resolve with the onset of menstruation.

A cross-sectional study conducted at Foundation University Medical College reported breast tenderness as the most common physical symptom (60%) and depression as the most frequent psychological symptom (36%) of PMS.²⁴ In the present study, severe breast tenderness was reported by 21.8% of hostelites and 14.7% of day scholars. However, Mishra A, et al., reported breast tenderness as the least frequent PMS symptom among Indian students.²⁰ Breast tenderness during PMS is thought to result from cyclical fluctuations in estrogen and progesterone levels, which may cause breast tissue swelling

and increased sensitivity during the premenstrual phase.

The observed differences in PMS severity between hostelites and day scholars are likely multifactorial. Hormonal fluctuations, psychological stress, sleep disturbances and dietary habits have all been implicated in the development and severity of PMS. Alterations in estrogen, progesterone, and serotonin levels may contribute to both physical and psychological symptoms.¹⁸ Hostelites may experience greater academic and social stress, an established risk factor for PMS.²¹ In addition, irregular sleep patterns, dietary deficiencies, and inconsistent meal schedules may further exacerbate symptoms. Healthy lifestyle practices,

including adequate sleep and a balanced nutrient-rich diet, may help reduce PMS severity.²

This study has certain limitations. Its cross-sectional design precludes establishing temporal or causal relationships between residence status and PMS severity. In addition, the study was conducted at a single institution and used convenience sampling, which may limit the representativeness and generalizability of the findings. PMS severity was assessed using self-reported responses, which may be subject to recall and reporting bias. Larger multicenter studies using probability sampling and longitudinal designs are needed to confirm these findings and identify modifiable factors

associated with PMS severity.

CONCLUSION

The present study concluded that the severity of premenstrual syndrome was significantly higher in hostellers than in day scholars. The most frequent symptom based on PMS severity was menstrual backache in hostelites and menstrual cramps in day scholars. The regression analysis showed a positive association of fatigue and breast tenderness with PMS. The government, both at the local and national levels, should initiate health awareness programs. To this end, the paucity of local data proves a setback, and thus additional studies are needed in the area.

Recommendations

Large-scale, multicenter studies are recommended to assess the prevalence, severity and impact of PMS on quality of life among women in the general community and high-risk groups, including medical students. Universities should implement menstrual health education programs addressing modifiable factors such as nutrition, physical activity, sleep, stress management and lifestyle practices. Students should also be provided with information on symptom recognition, self-care measures, available treatment options, and appropriate pathways for seeking medical advice when PMS symptoms interfere with daily functioning or academic performance.

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AUTHORS' CONTRIBUTION

The following authors have made substantial contributions to the manuscript as under:

SK: Conception and study design, acquisition, analysis and interpretation of data, drafting the manuscript, critical review, approval of the final version to be published

LS: Analysis and interpretation of data, drafting the manuscript, critical review, approval of the final version to be published

RMS: Conception and study design, critical review, approval of the final version to be published

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

CONFLICT OF INTEREST

Authors declared no conflict of interest, whether financial or otherwise, that could influence the integrity, objectivity, or validity of their research work.

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DISCLAIMER

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DATA SHARING STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.



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KMUJ web address: www.kmu.edu.pk
Email address: kmu@kmu.edu.pk