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Research Article

Prevalence of Premenstrual Syndrome and its Impact on Quality of Life Among Female Students: A Cross-Sectional Study from Budgam

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Background: Premenstrual syndrome (PMS) includes a combination of physical, emotional, and behavioural symptoms that occur cyclically during the menstrual period primarily due to hormonal fluctuations and may impair daily functioning with reduced quality of life. The study was conducted to determine the prevalence of PMS and its impact on quality of life among female students aged 18-30 years. **Methods:** A cross-sectional study conducted between March and May 2026 among 380 female students from selected institutions in Budgam district. Data was collected using a structured self-administered online questionnaire that included information on sociodemographic characteristics, menstrual history, lifestyle factors, and dietary habits. Premenstrual symptoms were assessed using the Shortened Premenstrual Assessment Form (SPAF), while quality of life was measured using the Short Form-36 Health Survey (SF-36). Chi-square tests were used to examine the association, and independent sample t-tests were performed to compare the quality of life between the participant groups. All the statistical analyses were performed using STATA. **Results:** The prevalence of PMS was found to be 58.4% among the participants. The most common reported symptoms included backache, joint and muscle aches, and abdominal heaviness. Significant associations were observed between PMS and dysmenorrhoea, family history of PMS, physical inactivity, caffeine intake, high salt consumption, beverage intake, and junk food consumption. Students with PMS reported significantly lower quality-of-life scores across all SF-36 domains compared with those without PMS. **Conclusion:** A substantial proportion of medical students experienced distressing symptoms in the premenstrual phase, which adversely impacted their quality of life.

Keywords: Budgam, Female, Impact, Prevalence, Premenstrual syndrome, Quality of life.

INTRODUCTION

Premenstrual Syndrome (PMS) is a combination of physical, emotional, and behavioural symptoms that occur during the luteal phase of the menstrual cycle and the last few days after menstruation, first described by Frank and Horney in 1931 [1]. Premenstrual Dysphoric Disorder (PMDD) is a severe form of PMS. The common symptoms of PMS and PMDD include breast tenderness, body aches, headache, sleep disturbances, appetite change, poor concentration, mood swings, anxiety, depression, and social withdrawal [2]. While many women experience mild symptoms, a considerable proportion report moderate to severe premenstrual syndrome that interferes with academic, social, and emotional functioning. The World Health Organization recognizes premenstrual syndrome as an important contributor to poor mental health and reduced quality of life in women of reproductive age. The prevalence is reported to be around 30% to 40% among the females of reproductive age [3]. Different studies have reported different prevalence of PMS in various countries, with the lowest and highest in France (12%)

and Iran (98%) respectively [4,5]. The pathophysiology of PMS suggests that the disorder is related to progesterone production by the ovaries [6]. PMS is very common and it affects millions of young women [7]. Epidemiological data shows about 75% of women in reproductive age suffer from some PMS symptoms at some stage, while as 3% to 8% reported severe forms of PMS [8]. Women with PMS/PMDD face serious repercussions in terms of physical well-being, psychological well-being, and dysfunctions in occupational and social domains. Delara et al. assessed the quality of life among adolescent girls with and without PMS/PMDD, which reported physical score of girls with PMS/PMDD was 52 while it was 72 in girls without PMDD [9]. Despite growing global evidence, data on premenstrual syndrome among female medical students in India remain limited. This study aims to assess the prevalence of premenstrual syndrome and to assess its impact on their quality of life among female college students, aiming to inform institutional strategies for student well-being.

METHODS

Study design

This was a cross-sectional study conducted among female students at the selected institutions of district Budgam.

Study population

The study included female students aged between 18 and 30 years.

Study duration

This study was conducted between March 2026 and May 2026.

Inclusion criteria

Female students who gave consent were included.

Exclusion criteria

Females diagnosed with menstrual or gynaecological disorders, chronic medical illnesses, history of pregnancy, or current use of oral contraceptive pills for medical indications were excluded from the study.

Sample size and sampling technique

The sample size calculation was based on a previous estimate of 48% [10]. With a 95% confidence interval, and an error margin of 5%, the required sample size was 380. The participants were recruited using a purposive sampling method upon fulfilling inclusion criteria.

Ethical approval

Ethical approval was obtained to conduct the study. Permission from the college authorities was obtained for the conduct of the study.

Data collection method

Data were collected using an online structured questionnaire comprised of three sections and distributed through the Google Forms link. The first section included the information on demographic characteristics, menstrual history, dietary practices, and lifestyle factors. The second part consisted of a Shortened Premenstrual Assessment Form (SPAF) which is a 10-item tool validated for the evaluation of premenstrual syndrome [11]. The third part consisted of a quality-of-life assessment by using the Short Form 36 Health Survey (SF-36) [12].

Statistical analysis

The collected data was entered in a Microsoft Excel sheet and analyzed using STATA software. Descriptive statistics were used to summarize participant characteristics and symptom frequencies. Chi-square tests were used to examine the association between PMS and explanatory variables. Independent sample t-tests were performed to compare the quality of life between the participants with PMS and those without PMS. A p-value of less than 0.05 was considered statistically significant.

RESULTS

A total of 380 female students participated in the study. The prevalence of PMS was found to be 58.4%.

Sociodemographic and Lifestyle factors associated with PMS

Table 1 summarizes the sociodemographic and lifestyle characteristics of the participants. The prevalence of PMS was comparable across different age groups with average age of menarche was 14 years. A significant association was found between PMS and dysmenorrhoea, with a higher proportion of participants reporting PMS among those experiencing dysmenorrhoea compared to those without dysmenorrhoea (62.3% vs 52.6%; p=0.047). PMS was also found to be significantly associated with family history of PMS (p<0.001). Lifestyle-related factors showed significant associations with PMS. Students who did not engage in regular physical activity reported a higher prevalence of PMS than those who were physically active (62.5% vs. 48.7%; p=0.012). Similarly, caffeine consumption was significantly associated with PMS (p=0.037). Higher prevalence of PMS was observed among participants reporting high salt intake (62.3%; p=0.016), consumption of beverages (59.8%; p=0.024), and junk food consumption (60.4%; p=0.040).

Table 1: Sociodemographic and lifestyle factors of the study participants

Characteristics	Total (n=380)	PMS Present (n=222) N (%)	PMS Absent (n=158) N (%)	P value
Age (years)				0.916
18–20	71 (18.7)	40 (56.3)	31 (43.7)	
21–25	164 (43.2)	96 (58.5)	68 (41.5)	
26-30	145 (38.2)	86 (59.3)	59 (40.7)	
Age at menarche (years)				0.981
<12	17 (4.5)	10 (58.8)	7 (41.2)	
12–15	314 (82.6)	184 (58.6)	130 (41.4)	
>15	49 (12.9)	28 (57.1)	21 (42.9)	
Dysmenorrhoea				0.047
Yes	228 (60.0)	142 (62.3)	86 (37.7)	
No	152 (40.0)	80 (52.6)	72 (47.4)	
Family history of PMS				<0.001
Yes	272 (71.6)	165 (60.7)	107 (39.3)	
No	108 (28.4)	57 (52.8)	51 (47.2)	
Physical activity				0.012
Yes	113 (29.7)	55 (48.7)	58 (51.3)	
No	267 (70.3)	167 (62.5)	100 (37.5)	
Duration of sleep (hours)				0.464
<5	163 (42.9)	92 (56.4)	71 (43.6)	
6–7	151 (39.7)	87 (57.6)	64 (42.4)	
>8	66 (17.4)	43 (65.2)	23 (34.8)	
Caffeine consumption				0.037
Yes	282 (74.2)	171 (60.6)	111 (39.4)	
No	98 (25.8)	51 (52.0)	47 (48.0)	
Salt consumption				0.016
High	106 (27.9)	66 (62.3)	40 (37.7)	
Low	274 (72.1)	156 (56.9)	118 (43.1)	
Consumption of beverages				0.024
Yes	328 (86.3)	196 (59.8)	132 (40.2)	
No	52 (13.7)	26 (50.0)	26 (50.0)	
Consumption of junk food				0.040
Yes	331 (87.1)	200 (60.4)	131 (39.6)	
No	49 (12.9)	22 (44.9)	27 (55.1)	

Frequency of Premenstrual Symptoms

Table 2 summarizes the premenstrual symptoms assessed using SPAF. Among physical symptoms, the most common reported premenstrual symptoms were

backaches, joint and muscle aches (66%), abdominal heaviness (61%), while breast tenderness was reported by 29% of participants. Among affective symptoms, feeling sad was the most frequently reported symptom (51.5%), followed by feeling unable to cope (50.5%), feeling under stress (47.1%), and irritability (42.6%). Among weight-related symptoms, bloating was reported in 42.3%, followed by weight gain (35.8%), and edema (25.8%).

Table 2: Frequency of premenstrual symptoms (defined by a cut-off of more than 4 on each item)

Symptom	Number (%)
Affective	
Feeling unable to cope	192 (50.5)
Feeling under stress	179 (47.1)
Irritability or bad temper	162 (42.6)
Feeling sad or blue	196 (51.5)
Pain	
Breast tenderness	110 (29)
Backaches, joint and muscle aches	251 (66)
Abdominal heaviness/discomfort	232 (61)
Weight-related	
Weight gain	136 (35.8)
Oedema/swelling	98 (25.8)
Feeling bloated	161 (42.3)

Impact of PMS on Quality of Life

Quality of life was assessed using the SF-36 Health Survey (Table 3). Independent sample t-tests were performed to compare SF-36 domain scores between participants with PMS and without PMS. Participants presented with premenstrual syndrome demonstrated significantly poorer quality of life compared to those without premenstrual syndrome across all domains, including physical functioning, emotional well-being, energy levels, social functioning, bodily pain, and general health ($p<0.05$ for all domains). The largest differences were observed in Bodily Pain, General Health, and Vitality, indicating that PMS had a significant adverse effect on pain perception, overall health, and energy levels. These results highlight the substantial negative impact of premenstrual syndrome on both physical and psychological aspects of daily life.

Table 3: Quality of life among participants with and without premenstrual syndrome (PMS)

Domain	With PMS (n=222) Mean ± SD	Without PMS (n=158) Mean ± SD	P value
Physical functioning	42.73 ± 2.82	57.75 ± 7.77	<0.001
Role barriers due to physical health	47.52 ± 1.70	52.57 ± 4.69	<0.001
Role barriers due to emotional problems	50.45 ± 3.16	60.22 ± 3.01	<0.001
Energy/fatigue	36.88 ± 2.48	54.45 ± 4.57	<0.001
Emotional well being	46.44 ± 4.01	48.40 ± 2.72	<0.001
Social Functioning	52.20 ± 3.80	55.73 ± 2.65	<0.001
Bodily Pain	31.23 ± 4.00	55.15 ± 3.21	<0.001
General Health	37.64 ± 7.98	57.71 ± 1.72	<0.001

DISCUSSION

The present study assessed the prevalence of Premenstrual Syndrome, associated sociodemographic factors, lifestyle factors, and its impact on quality of life among female students in district Budgam. The prevalence of PMS was found to be 58.4%. The prevalence of Postmenopausal dysmorphic disorder (PMDD) was 11% using the PMDD checklist. This estimate of PMS in our study

is very similar to that in a study conducted among medical undergraduate and postgraduate female students in central India in which the prevalence was 56% [13]. Another study documented a prevalence of 60% among female medical students which is similar to our findings [14]. Similar prevalence estimate has also been reported in other study conducted among medical students in a South India [15]. However, the observed prevalence in the present study is higher than the global prevalence of 47.8% reported in the systematic review and meta-analysis [4]. The estimate of PMDD in our study is less than that in the study conducted among female students in Iran in which the prevalence of PMDD was 37% [9]. The study found a significant association between dysmenorrhoea and PMS. Among participants with dysmenorrhoea, 62.3% experienced PMS compared to 52.6% among those without dysmenorrhoea (p=0.047). This finding is consistent with the study that identified menstrual pain as a significant predictor of PMS [16]. The coexistence of PMS and dysmenorrhoea has also been highlighted in the study from Kashmir which reported a high prevalence of multiple menstrual disorders among women [10]. Family history showed a statistically significant association with PMS (p<0.001), indicating a possible genetic or familial predisposition. Similar observations were reported in the study conducted in Saudi Arabia where a positive family history was significantly associated with PMS [17]. Lifestyle-related factors emerged as important determinants of PMS in the present study. Physically inactive participants had a significantly higher prevalence of PMS than physically active participants (62.5% vs. 48.7%; p=0.012). This finding supports the results of the study from Palestine which reported that reduced physical activity was associated with greater PMS severity [16]. Dietary habits were also significantly associated with PMS. Participants consuming caffeine had a higher prevalence of PMS compared to non-consumers (60.6% vs. 52.0%; p=0.037). Similarly, high salt intake (62.3% vs. 56.9%; p=0.016), beverage consumption (59.8% vs. 50.0%; p=0.024), and junk food consumption (60.4% vs. 44.9%; p=0.040) were significantly associated with PMS. These findings are consistent with the studies, both of which identified unhealthy dietary practices as important risk factors of PMS [16,17]. Musculoskeletal symptoms were the most common physical manifestations reported by participants. Backaches and joint aches were reported by 66% of participants, followed by abdominal heaviness (61%). Breast tenderness was reported by 29% of participants. Similar symptom patterns were observed in the study which identified pain-related symptoms as among the most frequently reported PMS manifestations [15]. A major finding of the present study was the significant reduction in quality of life among participants with PMS. Students with PMS reported significantly lower scores across all SF-36 domains compared with those without PMS (p<0.001). Similar results were reported in the study which reported significantly lower physical and mental health scores among adolescents with PMS [9]. Comparable findings were observed in the other studies, both of which documented significant impairment in academic, social, and emotional functioning among students experiencing PMS [18,19].

LIMITATIONS

The study has certain limitations. Firstly, the study was conducted in selected institutions of district Budgam, which may limit the generalizability of the findings to other settings or student populations. Secondly, data were collected through a self-administered online questionnaire, which is subject to recall bias and social desirability bias. The family history of PMS signs and symptoms was self-reported by the participants and this is liable to bias or error. We have not used any stringent methods to measure high salt intake, physical activity and other lifestyle factors such as consumption of sweets or junk food and these are primarily based on self- reports of the participants.

Author Contributions

Dr. Sameer Ul Haq conceptualized the manuscript and study design. All the authors were involved in concept, design, data collection, and drafting of manuscript. Dr. Sameer Ul Haq played a pivotal role in performing the data and statistical analysis. Dr. Sameer Ul Haq will act as the guarantor of the manuscript.

Data availability Statement

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

Declaration on use of AI

The authors declare that no Artificial Intelligence tools were used in writing, editing or analysis of this manuscript. The work and all the aspects of the research are entirely original.

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Conflict of Interest

The authors declare no conflict of interest either financial or non-financial.

CONCLUSION

In this cross-sectional study, it was observed that a substantial proportion of female students experienced premenstrual syndrome (58.4%). The predominant premenstrual symptoms included back aches, joint and muscle aches followed by abdominal discomfort, and the most common psycho-behavioural symptom was decreased interest in daily activities. Severe premenstrual syndrome symptoms can negatively impact the student's academic and social performance, leading to frequent class absences, missed examinations, poor academic grades, and in some cases academic withdrawal. These effects not only influence the lives of the affected individuals but can also have broader implications for the country. Participants with PMS had a poorer quality of life than those without PMS. These findings underscore the need for enhancing menstrual health education, encouraging healthy lifestyle habits, and setting up counselling and support services that are accessible to students within educational institutions. Such steps could potentially alleviate the impact of PMS and enhance the well-being and quality of life for young women.

RECOMMENDATIONS

Educational institutions should promote awareness about premenstrual syndrome. Incorporating practices like yoga and mental relaxation methods could be beneficial to enhance the quality of life for young females dealing with PMS. Counselling support must be made available for affected students.

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