

TO INVESTIGATE THE ASSOCIATION BETWEEN PREMENSTRUAL SYNDROME (PMS) AND MENTAL HEALTH ISSUES IN WOMEN

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Abstract

Premenstrual Syndrome (PMS) is a prevalent gynecological condition marked by emotional, somatic, and behavioral disturbances emerge during the premenstrual or luteal phase of the menstrual cycle. Several investigations and studies have reported that women experiencing PMS are more vulnerable to mental health disturbances particularly including depression, anxiety, and elevated stress levels. The presence of these symptoms often exerts a detrimental effect on daily functioning, maintaining social relationships, educational performance, and overall health-related quality of life. The psychological burden of PMS among women in Pakistan is acknowledged as a significant public health issue which has not been adequately investigated while limited evidence is available regarding its mental health implications. The objective of this study aimed to explore the prevalence of PMS, assess severity of the symptoms and to investigate its relationship with depression anxiety, and stress among reproductive-aged women.

Introduction

Premenstrual syndrome is recognized as recurrent reproductive health disorder, characterized by physical and psychological disturbances that develop in the premenstrual phase and improve once menstruation begins (Yi et al., 2023).

PMS represents a multidimensional disorder affecting women in their childbearing years, and is characterized by diverse somatic, psychological, behavioral disturbances before the initiation of menstrual cycle during the luteal phase and improves with the onset of menstruation

(Gudipally & Sharma, 2023; Mohebbi et al., 2024).

These clinical features include emotional fluctuations, heightened irritability, anxiety, depressive states while somatic symptoms include exhaustion, disturbed sleeping patterns, abdominal bloating and breast sensitivity all of which can substantially interfere with daily activities and quality of life (Mann & Pradeep, 2023; Mohebbi et al., 2024; Yi et al., 2023).

Prevalence highlights that around 20-40% of menstruating women at a global scale experience

symptom of premenstrual syndrome, whereas its severe variant referred to as premenstrual dysphoric disorder (PMDD) affects approximately 3–8% women is identified as a major health issue (Gudipally & Sharma, 2023; Yonkers et al., 2008). Recent studies suggests that the severity and prevalence of premenstrual syndrome vary according to the fluctuations and variations across the regions where reproductive health shows lack of awareness, diagnostic guidelines, social and cultural taboos discussing menstrual health (Fuse-Nagase & Kono, 2024; Yi et al., 2023).

Cyclical changes in estrogen and progesterone levels are known to influence neurotransmitters like serotonin and gamma-aminobutyric acid (GABA), which are responsible for maintaining emotional balance and mood regulation (Houghton & Bertone-Johnson, 2015; Li et al., 2023; Li et al., 2025; Mohebbi et al., 2024).

PMS is closely linked with psychological disturbances, as hormonal and neurobiological changes. Neurobiological alterations such as depression, anxiety, stress, and irritability occurring during the premenstrual phase are contributing significantly in the development of the psychological symptoms (Islas-Preciado et al., 2025; Li et al., 2025; Nexha et al., 2024).

Evidence indicates that the psychological manifestations observed in women with premenstrual syndrome is associated with heightened emotional and stress-related responses, indicating a possible biological influence between PMS and psychological disturbances. Furthermore, disturbances in circadian rhythms and sleep physiology have been linked to reduced psychological stability and increased symptom severity (Fuse-Nagase & Kono, 2024; Mohebbi et al., 2024).

Current research findings indicate that women affected by PMS are more likely to report elevated psychological distress. It is also reported that women with PMS tend to demonstrate greater emotional distress and depressive symptoms as compared to those without premenstrual syndrome (Li et al., 2025; Yi et al., 2023).

According to Li et al. (2023) and Mann and Pradeep (2023), observed that women with severe forms of PMS are more vulnerable to psychological

difficulties in those women who experience moderate symptoms, supporting a strong link between PMS and mental health disorders.

Premenstrual syndrome is regarded as a significant reproductive and mental health disorder with recurrent symptoms that may worsen existing mental health problems often resulting in impaired interpersonal relationships, reduced educational and professional performance and overall well-being (Mohebbi et al., 2024; Yi et al., 2023).

Cultural stigma surrounding menstruation and mental health discourage women from openly discussing their symptoms resulting in underreporting and delayed health intervention increasing the risk of premenstrual syndrome as a burden in Pakistan which is due to lack of resources, restricted access to appropriate health services, and reproductive health awareness (Yi et al., 2023; Li et al., 2025).

Premenstrual syndrome remains an important under recognized health concern that, is further burdened by sociocultural and healthcare system challenges, low awareness, insufficient reproductive health education, and restricted access to mental healthcare, resulting in under recognition and inadequate management in developing countries such as Pakistan (World Health Organization, 2022; Mann & Pradeep, 2023).

Current literature from Pakistan holds insufficient evidence regarding Premenstrual Syndrome and its relationship with psychological wellbeing among women of reproductive age. The cultural beliefs often hinder the severity of the disorder and usually consider as a part of menstrual cycle. This study will evaluate the association between premenstrual Syndrome and its psychological impact on women wellbeing. This study will provide a clear understanding to increase awareness among women and to promote interventions for strengthening healthcare reforms and culturally diverse society to improve the overall quality of life and wellbeing.

Background of the Study

Globally, it is observed that 8% of the women experience severe PMDD, while approximately 20-

40 % of the menstruating women suffers from Premenstrual syndrome which is recognized as a reproductive health condition (Milewicz A et al., 2006) (Gudipally PR et al., 2020).

Premenstrual Syndrome and its association with mental health complications are underreported and underdiagnosed in low-income countries, where reproductive health awareness is much likely ignored (Halbreich, U., 2003.)

In Pakistan, women are hesitant to openly discuss Premenstrual syndrome and its psychological effects due to lack of awareness, socio-cultural stigma and barriers. As a result PMs related mental health issues remains underreported and insufficiently addressed.

The present research aims to explore the relationship between Premenstrual Syndrome and psychological well-being in women.

Problem Statement

PMS and its psychological impact in Pakistan are underestimated despite its prevalence. It is also noted that emotional symptoms are frequently overlooked as normal menstrual fluctuations. Sociocultural barriers and restricted mental healthcare access prevent many women from receiving appropriate care PMS and its psychological consequences

Due to constrained health care access and limited reproductive health care education in South Asia, especially in Pakistan, women often lead to PMS with many symptoms attributed to sociocultural stressors or general fatigue (Greene R et al., 1953) (O'Brien et al., 2011).

There is a need for this study as limited research investigating PMS and mental health among Pakistani women, which highlights the need for this study.

Objectives of the Study

General Objective

To investigate the association between Premenstrual Syndrome and mental health issues among Pakistani women.

Specific Objectives

1. To investigate the mental health issues related to Premenstrual syndrome.

2. To analyze the association between PMS and key mental health outcomes such as anxiety, depression, and stress.

3. To evaluate the impact of PMS how it affects everyday activities and emotional health.

Research Questions

1. What mental health symptoms are associated with premenstrual syndrome are commonly experienced during the premenstrual phase?

2. What is the correlation between premenstrual syndrome and psychological symptoms such as stress, depression and anxiety?

Significance of the Study

This study aims to highlight to examine the emotional and psychological consequences of Premenstrual Syndrome among women.

Its findings may support health care providers and policy makers in formulating policies, raise awareness and strengthening psychological support for women and encourage women to seek medical attention.

Literature Review

Premenstrual Syndrome, as reported in current research spanning 2020–2025, is not limited to a reproductive health issue but is strongly associated with neuroendocrine dysregulation and psychological vulnerability.

Mental health complications related to PMS and PMDD is increasingly recognized as a major factor affecting reproductive-age women worldwide.

PMS and Psychological Symptoms

PMS is increasingly recognized as being associated with anxiety, depression, and stress, with symptoms driven by hormonal, neurochemical, circadian, and psychosocial mechanisms, as demonstrated in contemporary research (Castro et al., 2021; Nexha et al., 2024; Yamak et al., 2025).

PMS/PMDD is associated with disrupted biological rhythms, according to a 2024 systematic review, disturbances in biological rhythms, characterized by changes in sleep patterns, nighttime body temperature, and melatonin

secretion, that may worsen fatigue and psychological symptoms (Nexha et al., 2024).

Neuroendocrine and Biological Mechanisms

PMS has been increasingly associated with neuroendocrine variations in the hypothalamic-pituitary-ovarian (HPO) axis, leading to fluctuations in estrogen and progesterone levels are believed to affect neurotransmitter activity, particularly serotonin and GABA neurotransmission and contribute to mood-related disturbances.

Premenstrual syndrome, according to findings from a 2021 systematic review suggested that emotional symptoms experienced during the luteal phase in women with PMS are linked more closely to abnormal hormonal responsiveness than to absolute endocrine values (Castro et al., 2021). This biopsychosocial explanation provides insight into the substantial variability in symptom type and its severity among women despite similar endocrine patterns

Mental Health Comorbidities

PMS and PMDD have been consistently associated with psychiatric comorbidities, as women with moderate to severe symptoms particularly anxiety, depression, and impaired emotional regulation, during the luteal phase. Additionally, meta-analytic research has documented women with higher risks of mood disorders increased rates of suicidal thoughts (Prasad et al., 2021).

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Cultural and Psychosocial Influences

Premenstrual Syndrome is influenced by biological, psychosocial, and cultural determinants. In South Asian societies, including Pakistan, menstrual health remains a socially sensitive issue continues to be underreported due to cultural stigma, limited public awareness, and

insufficient understanding of mental health and reluctance to seek professional health attention (Nisar et al., 2008).

According to the biopsychosocial model, emphasizing the role of psychosocial stress, societal norms, and emotional inhibition, can intensify PMS-related distress significantly aggravate the psychological burden and perceived severity of PMS symptoms

The presence of sociocultural barriers and limited awareness, menstruation continues to be a sensitive and insufficiently discussed issue, in Pakistani society many women experiencing PMS-related psychological symptoms remain underreported and untreated (Mustafa & Zehra, 2021).

Impact on Quality of Life

PMS has been shown to negatively affect various aspects of daily functioning, including academic outcomes, professional performance, interpersonal relationships, and emotional stability, whereas severe forms commonly involve cognitive difficulties, disturbed sleep patterns and decreased participation in social activities during premenstrual phase.

Research has emphasized that PMS is closely linked with psychosocial and cultural influences, where menstrual stigma significantly affects symptom reporting, in shaping women's healthcare-seeking behavior and willingness to disclose symptoms. PMS symptoms, often leading to underreporting, delayed medical consultation among women experiencing premenstrual difficulties (Hennegan et al., 2020).

Funnell et al. (2025) reported that women experiencing premenstrual symptoms face significant barriers to seeking professional healthcare, including stigma, normalization of symptoms, and insufficient awareness among healthcare providers.

Treatment and Clinical Management

According to Reilly et al. (2023), women diagnosed with PMS and PMDD, showed significantly reduced emotional distress and mood-related symptoms following intermittent selective serotonin reuptake inhibitors (SSRIs) treatment.

However, in Pakistan, ongoing cultural stigma and limited awareness significantly hinder the identification, reporting, and management of PMS-related psychological symptoms.

PMS is increasingly recognized as being associated with anxiety, depression, and stress, with symptoms driven by hormonal, neurochemical, circadian, and psychosocial mechanisms, as demonstrated in current evidence

Methodology

Study Design

The present quantitative cross-sectional study investigated the relationship between Premenstrual Syndrome (PMS) and psychological well-being among female patients Jinnah Postgraduate Medical college gynae ward 9(JPMC). This research was conducted in a duration of Six months from 07th November 2024 10th May 2025, following the consent of the research by the College of Physicians and Surgeons Pakistan (CPSP). The study evaluated PMS prevalence and severity and analyzed their associations with symptoms of depression, anxiety, and stress.

Study Setting

The study was conducted Jinnah Postgraduate Medical college gynae ward 9(JPMC) in Pakistan among female patients. The hospital serves a diverse population from urban and rural areas and provides a wide range of healthcare services. Participants were assessed in a confidential setting to promote and facilitate precise reporting of PMS symptoms and psychological outcomes including anxiety, depression, and stress.

Study Population

The study involved women aged 18–45 years, attending the hospital for regular medical consultations and fulfilled the predefined eligibility criteria.

Inclusion Criteria

Women were included in the study if they:

- Were patients of age 18-45 years
- Regular menstrual patterns
- Consented to study participation

Exclusion Criteria

Women were excluded from the study if they:

- Were pregnant or breastfeeding.
- Had reached menopause.
- Had a known history of severe psychiatric illness.

Sample Size

The study was conducted on 200 women who satisfied the predefined eligibility requirements and successfully completed all research questionnaires.

Sampling Technique

Participants were enrolled through convenience sampling method, in which eligible female patients attending the hospital during the study period were included consecutively until the required sample size was achieved.

Data Collection Instruments

Sociodemographic Questionnaire

Participant information was collected through a standardized questionnaire utilized to obtain demographic and clinical data from the participants including age, marital status, educational background, occupation, menstrual history and clinically relevant gynecological required for analysis.

Premenstrual Symptoms Screening Tool (PSST)

Premenstrual Symptoms Screening Tool (PSST) is the instrument used to examine the status of Premenstrual Syndrome and its severity among women participants, which includes PMS related symptoms and functional impairment section which is rated on a four-point Likert scale. This scale scores the symptoms from 0 to 3 (not at all to severe) and classified women participants in to groups of mild to severe PMS groups.

Depression Anxiety Stress Scale (DASS-21)

DASS-21 is the tool used to validate the mental health outcomes among participants and it has 21 items are organized in three separate classes which represents 7 questions in each class.

- Depression (7 questions)
- Anxiety (7 questions)

- Stress (7 questions)
- According to DASS-21 scoring guidelines, scores obtained from each subscale were totaled and multiplied by two, with higher scores reflecting increased psychological distress.

Data Collection Procedure

The data was collected by filling questionnaire in a private setting. The questionnaire holds three sections

1. Sociodemographic information.
2. Premenstrual Symptoms Screening Tool (PSST).
3. Depression Anxiety Stress Scale (DASS-21).

The objectives of the research findings were explained before the data collection and was assured that the data and the information of the participants would be strictly anonymous and confidential and will not be used for future studies.

Study Variables

Independent Variable

- Premenstrual Syndrome (PMS)

Dependent Variables

- Depression
- Anxiety
- Stress

Covariates

- Age
- Marital status
- Educational level
- Occupation
- Menstrual characteristics

Data Analysis

Statistical Package for the Social Sciences (SPSS), version 26.0 was used to analyze the data.

Descriptive Statistics

Participant characteristics and study variables were analyzed through descriptive statistical methods

including computation of means, standard deviations, frequencies, and percentages.

Inferential Statistics

The study utilized the following statistical methods to analyze the collected data for interpretation.

- The study employed the Chi-square test to examine associations between categorical data.
- Group comparisons for mean differences were evaluated using an independent sample t-test
- To examine differences in psychological scores among PMS severity categories were carried out using one-way ANOVA.
- Relationships between Premenstrual Syndrome scores and DASS-21, were analyzed using Pearson's correlation coefficient.
- To determine psychological predictors of depression, anxiety, and stress among participants multiple linear regression analysis was performed. Results were regarded as statistically significant at a p-value of less than 0.05.

Reliability of Instruments

Cronbach's alpha analysis was performed to evaluate scale reliability, where values greater than or equal to 0.70 were regarded as acceptable for the study.

Results

Participant Characteristics

The sample consisted of 200 women; the mean participant age was 28.09 years (SD = 6.14). The average age at menarche among participants was 12.71 years (SD = 1.17). The marital status distribution indicated that 62.0% of participants were single and 32.5% were married, only a limited number were divorced 3.0% or widowed 2.5%.

The findings of the study showed that 42.0% of participants that held Bachelor's degree while only few women had higher academics. In this study students constituted 40.5% of the proportion, employed women were 28.5% while only few unemployed participants were 6.0%. the largest proportion of participants in the distribution of monthly income demonstrated 32.5%.

Table 1
Demographic Characteristics of Participants (N = 200)

Variable	Category	n	%
Marital Status	Single	124	62.0
	Married	65	32.5
	Divorced	6	3.0
	Widowed	5	2.5
Education	Intermediate	44	22.0
	Bachelor's Degree	84	42.0
	Master's Degree	55	27.5
	MPhil/PhD	12	6.0
	Other	5	2.5
Occupation	Student	81	40.5
	Employed	57	28.5
	Housewife	50	25.0
	Unemployed	12	6.0
Monthly Family Income	<30,000 PKR	49	24.5
	30,000–60,000 PKR	65	32.5
	60,000–100,000 PKR	53	26.5
	>100,000 PKR	33	16.5

Age (Mean $\pm$ SD): 28.09 $\pm$ 6.14 years

Age at Menarche (Mean $\pm$ SD): 12.71 $\pm$ 1.17 years

Prevalence of Premenstrual Syndrome

The study finding showed that severe PMS/PMDD affected participants were 20.5%

which highlights the significantly correlated association where as 32% showed mild to moderate symptoms of PMS.

Table 2
PMS Severity Distribution Among Participants

PMS Severity Category	n	%
Mild PMS	64	32.0
Moderate PMS	95	47.5
Severe PMS / PMDD	41	20.5
Total	200	100

Descriptive Statistics and Reliability Analysis

The average depression, anxiety, and stress scores were 10.30 $\pm$ 4.83, 10.26 $\pm$ 4.76, and 10.13 $\pm$ 4.95, respectively. The study explore an alpha value of 0.870 for the PSST and the functional impairment scale yields with Cronbach's alpha coefficients of

0.947 exhibiting high reliability while the mean PMS severity total score and an average functional impairment score of 22.10 $\pm$ 9.80 and 7.91 $\pm$ 3.68. The DASS-21 demonstrated excellent overall reliability (α = 0.958), with all three subscales showing strong reliability, including Depression (α

= 0.898), Anxiety ($\alpha = 0.886$), and Stress ($\alpha = 0.908$). The study explores an alpha value of 0.870 for the PSST and the functional impairment scale

yields with Cronbach's alpha coefficients of 0.947 exhibiting high reliability.

Table 3
Descriptive Statistics of PMS and Mental Health Measures

Variable	Mean	SD	Minimum	Maximum
PMS Total Score	22.10	9.80	0	42
Functional Impairment	7.91	3.68	0	15
Depression	10.30	4.83	0	21
Anxiety	10.26	4.76	0	21
Stress	10.13	4.95	0	21

Table 4
Reliability Analysis of Study Instruments

Scale	No. of Items	Cronbach's Alpha
PSST	14	0.947
Functional Impairment	5	0.879
DASS-21 Total	21	0.958
Depression	7	0.898
Anxiety	7	0.886
Stress	7	0.908

Correlation Between PMS and Mental Health Variables

The PMS total score demonstrated strong positive correlations with depression ($r = .733$), anxiety ($r = .713$), and stress ($r = .761$). Functional impairment scores were significantly associated with depression ($r = .675$), anxiety ($r = .658$), and stress

($r = .709$) respectively. Additionally, strong intercorrelations were observed among the three psychological dimensions ($r = .820-.839$, all $p < .001$). Pearson's correlation analysis revealed that increasing PMS severity was significantly associated with higher levels of depression, anxiety, and stress.

Table 5
Pearson Correlation Matrix Between PMS Severity, Functional Impairment, and Mental Health Variables (N = 200)

Variable	1	2	3	4	5
1. PMS Total Score	—				
2. Functional Impairment	.861***	—			
3. Depression	.733***	.675***	—		
4. Anxiety	.713***	.658***	.820***	—	
5. Stress	.761***	.709***	.839***	.828***	—

Note. ** $p < .001$.

Comparison of Mental Health Outcomes Across PMS Severity Groups

Significant group differences were identified through one-way ANOVA, showed statistically significant differences in depression, anxiety, stress, and total DASS scores across PMS severity

groups. Severe PMS/PMDD Participants were reported the highest mean scores for depression (15.44 ± 3.07), anxiety (15.12 ± 3.21), stress (15.54 ± 3.38), and (46.10 ± 8.48) total DASS scores. . All differences were statistically significant ($p < .001$).

Table 6

Comparison of Depression, Anxiety, Stress, and Total Psychological Distress Across PMS Severity Groups

Outcome Variable	Mild PMS (n = 64) Mean $\pm$ SD	Moderate PMS (n = 95) Mean $\pm$ SD	Severe PMS/PMDD (n = 41) Mean $\pm$ SD	F(2,197)	p-value	η^2
Depression	5.94 $\pm$ 3.44	11.02 $\pm$ 3.52	15.44 $\pm$ 3.07	101.10	< .001	.507
Anxiety	5.95 $\pm$ 3.10	11.05 $\pm$ 3.68	15.12 $\pm$ 3.21	95.23	< .001	.492
Stress	5.56 $\pm$ 3.13	10.87 $\pm$ 3.60	15.54 $\pm$ 3.38	111.12	< .001	.530
DASS Total	17.45 $\pm$ 8.20	32.95 $\pm$ 9.40	46.10 $\pm$ 8.48	136.89	< .001	.582

Note: Values of .01, .06, and .14 represent small, medium, and large effect sizes, respectively.
 η^2 = Eta squared effect size.

Multiple Linear Regression Analysis

The study employed multiple linear regression analysis to assess predictors of total psychological distress was conducted using the total DASS score as the dependent variable.

The study was statistically significant, $F(4,195) = 88.12$, $p < .001$, explaining 64.4% of the variance in psychological distress ($R^2 = .644$).

The regression analysis revealed that higher PMS total scores significantly predicted greater psychological distress ($\beta = .632$, $p < .001$). In addition, age at menarche contributed significantly to the analysis ($\beta = .125$, $p = .004$), while functional impairment demonstrated borderline significance ($\beta = .166$, $p = .052$). Participant age was unrelated to distress outcomes.

Table 7

Multiple Linear Regression Analysis Predicting Overall Psychological Distress (DASS Total Score) (N = 200)

Predictor	B	SE	β	t	p-value
PMS Total Score	0.877	0.117	.632	7.49	< .001
Functional Impairment	0.613	0.313	.166	1.96	.052
Age	-0.014	0.095	-.006	-0.15	.883
Age at Menarche	1.448	0.502	.125	2.88	.004

Summary

Statistic	Value
R^2	.644
Adjusted R^2	.637
$F(4,195)$	88.12
p-value	< .001

Note: Unstandardized regression coefficient= B; Standard Error =SE; Standardized regression coefficient = β .

Logistic Regression Analysis

The study utilized binary logistic regression to determine factors associated with severe PMS/PMDD. The analysis showed that the study achieved statistical significance (Pseudo $R^2 = .407$, $p < .001$). Depression significantly increased the likelihood of severe PMS/PMDD (OR = 1.255,

95% CI: 1.036–1.520, $p = .020$). The regression analysis indicated that stress showed a marginally significant relationship with severe PMS/PMDD, while anxiety levels, participant age, and age at menarche failed to demonstrate statistically significant associations.

Table 8

Binary Logistic Regression Analysis Predicting Severe PMS/PMDD (N = 200)

Predictor	OR	95% CI Lower	95% CI Upper	Wald χ^2	p-value
Depression	1.255	1.036	1.520	5.42	.020
Anxiety	1.117	0.928	1.344	1.37	.242
Stress	1.210	1.000	1.465	3.84	.050
Age	0.995	0.923	1.072	0.02	.888
Age at Menarche	1.013	0.672	1.527	0.00	.950

Summary

Statistic	Value
Pseudo R^2 (Nagelkerke)	.407
Model χ^2	Significant
p-value	< .001

Note. OR = Odds Ratio; CI = Confidence Interval.

Table 9

Summary of Key Findings

Analysis	Result
PSST Reliability	$\alpha = .947$
Functional Impairment Reliability	$\alpha = .879$
DASS-21 Reliability	$\alpha = .958$
Depression Reliability	$\alpha = .898$
Anxiety Reliability	$\alpha = .886$
Stress Reliability	$\alpha = .908$
PMS Prevalence	68.0% Moderate-to-Severe PMS
Severe PMS/PMDD Prevalence	20.5%
PMS-Depression Correlation	$r = .733$, $p < .001$
PMS-Anxiety Correlation	$r = .713$, $p < .001$
PMS-Stress Correlation	$r = .761$, $p < .001$
Strongest PMS-Mental Health Association	Stress ($r = .761$, $p < .001$)
ANOVA Results	Significant differences across PMS severity groups (all $p < .001$)

Analysis	Result
Largest Effect Size	DASS Total ($\eta^2 = .582$)
Multiple Regression Model	$R^2 = .644$, $F(4,195) = 88.12$, $p < .001$
Strongest Predictor of Psychological Distress	PMS Total Score ($\beta = .632$, $p < .001$)
Logistic Regression Model	Pseudo $R^2 = .407$, $p < .001$
Significant Predictor of Severe PMS/PMDD	Depression (OR = 1.255, 95% CI: 1.036–1.520, $p = .020$)
Borderline Predictor of Severe PMS/PMDD	Stress (OR = 1.210, 95% CI: 1.000–1.465, $p = .050$)

Note: Cronbach's alpha= α ; Pearson correlation coefficient= r ; standardized regression coefficient= β ; Odds Ratio= OR; Confidence Interval= CI; eta squared effect size= η^2 .

Summary

The results demonstrated a considerable burden of PMS symptoms; the prevalence of moderate-to-severe PMS symptoms was notably high among the participants while 20.5% of participants were classified as having severe PMS/PMDD. Internal consistency for the tools PSST and DASS-21 used to access the premenstrual syndrome and its association with mental health outcomes with the help of reliability analysis reinforcing its validity and accuracy for the study findings. A strong positive association was observed between PMS severity and elevated depression, anxiety, and stress levels, reflecting poorer psychological well-being among affected women. Among all mental health outcomes, Stress was identified as the psychological factor most strongly associated with PMS severity. Moreover, PMS severity was the strongest determinant of overall psychological distress, while depression significantly contributed to the likelihood of severe PMS/PMDD.

The overall result findings demonstrate that severe Premenstrual syndrome and psychological distress are strongly and significantly correlated to each other and highlights the significant impact on emotional wellbeing among women of the reproductive age.

Discussion

The research evaluated the association of premenstrual Syndrome and psychological wellbeing among women. The result showed significantly correlated findings in moderate to severe PMS related symptoms, while severe PMS/PMDD was 20.5% and fulfilled the research criteria.

The principal findings of the study highlighted that women experiencing PMS related symptoms have higher levels of psychological distress such as anxiety, depression, and stress. Women with moderate to severe PMS experience emotional impairment compared to those with mild symptoms. It is also observed that the fluctuation in the estrogen and progesterone levels may modulate neurotransmitter activity which is responsible for mood regulation elevating emotional distress.

The study was validated through PSST and DASS-21 with excellent reliability analysis. Regression analysis and ANOVA demonstrated severe PMS/PMDD.

Overall, the findings identify close association between PMS severity and poor mental health condition. The need for early evaluation of mental health and intervention strategies in reproductive health settings for women experiencing PMS related symptoms is recommended.

Conclusion

The study results showed significantly correlated association between Premenstrual Syndrome and mental health outcomes among women of reproductive age. The findings highlighted that moderate to severe PMS related symptoms showed prevalence which further emphasized the importance of the condition clinically. The findings also revealed that severe PMS related symptoms show elevated levels of depression anxiety and stress.

The study highlights that women affected by severe PMS related symptoms experience psychological distress and stressing psychological burden of the

condition. These findings indicate that Premenstrual syndrome should be considered as a complex health condition rather than physical or reproductive symptoms. It shows both aspects of physiological and psychological proportions of the symptoms among women of the reproductive age. The study explains that the necessity of incorporating regular physiological and psychological assessment within women's healthcare programs is needed for women who experience PMS-related symptoms. Early identification, assessment, and intervention strategies help in reducing the symptoms, and strengthening stress-related coping mechanisms to improve overall wellbeing.

The study recommends future research for better understanding of the association of Premenstrual syndrome and mental health issues.

Recommendation

The study findings highlighted that the association between Premenstrual Syndrome and mental health issues are significantly correlated. A progressive approach is recommended for early identification and management of Premenstrual Syndrome and its relationship with psychological

wellbeing among women of reproductive age. It is necessary to incorporate routine screening for Premenstrual Syndrome and mental health issues such as depression, anxiety, and stress. Health care providers should adopt an inclusive health care program that follows counselling for mental health evaluation, mental health awareness, and management of stress for women experiencing moderate to severe premenstrual syndrome symptoms. Awareness programs and campaigns that promote menstrual health literacy should be incorporated in workplaces and educational institutions to provide a supportive environment for PMS-related psychological distress among women. It is also recommended that life style modification strategies that include regular activity, well-balanced diet, adequate sleep, and effective strategies to cope with stress may reduce PMS symptoms. Public health authorities and policy makers should prioritize PMS-related psychological distress and to strengthen women's health care programs.

Moreover, future studies should employ more women population to explore the association of Premenstrual syndrome and mental health issues.

List of Abbreviations

Abbreviation	
PMS	Premenstrual Syndrome
PMDD	Premenstrual Dysphoric Disorder
PSST	Premenstrual Symptoms Screening Tool
DASS-21	Depression Anxiety Stress Scale-21
JPMC	Jinnah Postgraduate Medical Centre
SPSS	Statistical Package for the Social Sciences
WHO	World Health Organization
HPO	Hypothalamic-Pituitary-Ovarian
GABA	Gamma-Aminobutyric Acid
SSRIs	Selective Serotonin Reuptake Inhibitors
SD	Standard Deviation
ANOVA	Analysis of Variance
CI	Confidence Interval
OR	Odds Ratio

Abbreviation	
β	Standardized Regression Coefficient
α	Cronbach's Alpha
r	Pearson Correlation Coefficient
η^2	Eta Squared
SE	Standard Error
R^2	Coefficient of Determination
PKR	Pakistani Rupee

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