

Age-Wise Assessment Of Premenstrual Syndrome In Healthy Females: An Observational Survey Study

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Abstract

Background:

Premenstrual Syndrome (PMS) is a common condition affecting women of reproductive age and is characterized by a combination of psychological, behavioral, and somatic symptoms that occur during the luteal phase of the menstrual cycle and subside with the onset of menstruation. These symptoms may influence the physical and emotional well-being of women and affect daily functioning. The pattern and severity of PMS symptoms may vary across different reproductive age groups due to hormonal fluctuations, lifestyle factors, and psychosocial influences.

Objective:

To assess the prevalence and pattern of Premenstrual Syndrome symptoms among healthy females and to evaluate their distribution across different reproductive age groups.

Materials and Methods

A cross-sectional observational survey study was conducted among 90 healthy females aged 15–45 years residing in Chomu, Rajasthan. Participants were categorized into three age groups: 15–25 years, 25–35 years, and 35–45 years. Premenstrual symptoms were assessed using a standardized and validated Premenstrual Syndrome questionnaire developed in New York. The symptoms were classified into four domains: PMS-A (anxiety-related symptoms), PMS-C (craving-related symptoms), PMS-D (depression-related symptoms), and PMS-H (hyperhydration-related symptoms), along with other associated symptoms. The severity of symptoms was graded as mild, moderate, or severe. Descriptive statistical analysis was used to evaluate the prevalence and severity of symptoms in each age group.

Results:

PMS symptoms were observed across all age groups. Participants aged 15–25 years predominantly reported mild to moderate symptoms such as irritability, fatigue, and headache.

The 25–35 years age group demonstrated comparatively higher severity of psychological symptoms including anxiety, mood swings, nervous tension, depression, and insomnia. Women aged 35–45 years generally exhibited milder symptoms, although somatic manifestations such as abdominal bloating, fatigue, and musculoskeletal discomfort were frequently reported.

Conclusion:

Premenstrual Syndrome symptoms are prevalent among women of reproductive age and demonstrate variations in severity across different age groups. Psychological symptoms were more pronounced in the middle reproductive age group, whereas younger and older groups predominantly experienced mild manifestations.

Keywords:

Premenstrual syndrome; reproductive age; menstrual health; premenstrual symptoms; observational study.

Introduction

Menstruation is a natural physiological process that occurs during the reproductive years of women and reflects the normal functioning of the hypothalamic–pituitary–ovarian axis. Despite being a normal biological phenomenon, many women experience a variety of physical, emotional, and behavioral symptoms during the premenstrual phase of the menstrual cycle. Premenstrual Syndrome (PMS) is characterized by a constellation of psychological and somatic symptoms that occur during the luteal phase and resolve with the onset of menstruation. These symptoms may include anxiety, irritability, mood swings, fatigue, abdominal bloating, breast tenderness, headache, and sleep disturbances. The severity of these manifestations varies considerably among individuals and can affect daily functioning and quality of life.¹

Globally, PMS affects a significant proportion of women of reproductive age, with prevalence rates ranging from 20% to 80% depending on the diagnostic criteria and population studied.² Although the precise etiology of PMS remains uncertain, hormonal fluctuations, neurotransmitter imbalance, lifestyle factors, and psychosocial influences have been implicated in its pathogenesis.³

From an Ayurvedic perspective, individual susceptibility to diseases and variations in physiological responses are explained through the concept of *Prakriti*. *Deha Prakriti* refers to the inherent constitutional makeup of an individual determined at the time of conception by the relative predominance of the three fundamental biological principles—*Vata*, *Pitta*, and *Kapha*.⁴ These *doshas* regulate physiological and psychological functions and influence metabolism, structural characteristics, temperament, and disease predisposition.

Ayurvedic texts emphasize that disturbances in *dosha* equilibrium can lead to various gynecological disorders. In particular, *Vata dosha*, especially *Apana Vata*, plays a key role in reproductive physiology including menstruation, ovulation, and parturition. Imbalance of *Vata* may result in symptoms such as anxiety, irritability, pain, and irregular menstrual patterns.⁵ When associated with *Pitta* and *Kapha* vitiation, additional manifestations such as inflammation, fluid retention, and metabolic disturbances may occur.

Understanding the relationship between constitutional types and disease manifestations is an important aspect of personalized medicine in Ayurveda. Modern research has increasingly focused on integrating traditional constitutional assessment with clinical symptom evaluation to understand disease susceptibility patterns.

Therefore, the present observational survey study was undertaken to assess the prevalence of

Premenstrual Syndrome among healthy females and to explore its association with different types of *Deha Prakriti*. Identifying constitutional predispositions may contribute to better preventive and individualized management strategies based on Ayurvedic principles.

Materials & Methods

Study Design

The present study was conducted as a cross-sectional observational survey to evaluate the prevalence of Premenstrual Syndrome (PMS) among healthy females and to assess its association with different types of *Deha Prakriti*.

Study Setting

The study was carried out in Chomu, Rajasthan, India, among females residing in the community and educational settings where eligible participants were available during the study period.

Study Population

A total of 90 healthy females within the reproductive age group of 15–45 years were included in the study.

For analytical purposes, the participants were categorized into three age groups:

- **Group I:** 15–25 years
- **Group II:** 26–35 years
- **Group III:** 36–45 years

This classification facilitated the assessment of PMS prevalence and symptom severity across different reproductive age groups.

Inclusion Criteria

Participants fulfilling the following criteria were included in the study:

- Healthy females aged 15–45 years
- Having regular menstrual cycles
- Willing to participate voluntarily in the study
- Able to understand and respond to the questionnaire

Exclusion Criteria

Participants were excluded if they had:

- Known gynecological disorders
- Systemic illnesses affecting menstrual health
- History of psychiatric disorders
- Use of hormonal therapy or medications influencing menstrual cycles
- Pregnancy or lactation

Assessment of Premenstrual Syndrome

Premenstrual symptoms were assessed using a standardized and validated Abraham's classification of Premenstrual Syndrome in the google form

The questionnaire evaluates a wide range of psychological and somatic symptoms occurring during the premenstrual phase and classifies them into the following domains:

Table 1: Classification of Premenstrual Syndrome Symptoms and Severity Grading

PMS Domain	Symptoms Included
PMS-A (Anxiety Domain)	Anxiety, Irritability, Mood swings, Nervous tension
PMS-C (Craving Domain)	Increased appetite, Headache, Fatigue, Dizziness,

	Palpitation
PMS-D (Depression Domain)	Depression, Crying spells, Forgetfulness, Confusion, Insomnia
PMS-H (Hyperhydration Domain)	Fluid retention, Weight gain, Swollen extremities, Breast tenderness, Abdominal bloating

Severity Grading of Symptoms

1 = mild, 2 = moderate, and 3 = severe.

Data Collection Procedure

Participants who met the inclusion criteria were informed about the objectives and procedure of the study. After obtaining voluntary consent, demographic details such as age and general health status were recorded.

Participants completed the validated questionnaire the Abraham's classification of Premenstrual Syndrome, to document the presence and severity of premenstrual symptoms experienced during their menstrual cycles through google form.

The collected data were compiled systematically for further analysis.

Outcome Measures

The primary outcomes evaluated in the present study were:

1. Prevalence of Premenstrual Syndrome symptoms among healthy females.
2. Association between PMS symptoms and different Age groups.

Statistical Analysis

The collected data were compiled and analyzed using descriptive statistical methods. Frequencies and percentages were calculated to determine the prevalence and severity of PMS symptoms across different age groups. The results were presented in tabular and graphical form to facilitate interpretation.

Ethical Considerations

Ethical approval for the present study was obtained from the Research and Innovation (RI) Cell and Ethical Development Committee (EDC) of Mahatma Jyotiba Fule Ayurveda Mahavidyalaya vide Dispatch No. 5367 dated 15.11.2023. Written informed consent was obtained from all participants prior to enrolment, and confidentiality of the collected data was maintained throughout the study. The collected data were used solely for academic and research purposes.

Results

Age-wise distribution of Premenstrual Syndrome symptoms

The prevalence and severity of Premenstrual Syndrome (PMS) symptoms were evaluated across three age groups: 15–25 years (Group I), 25–35 years (Group II), and 35–45 years (Group III). Psychological, somatic, and behavioral symptoms were recorded and graded as mild, moderate, and severe.

Overall, mild symptoms were most frequently observed in Group I, while severe symptoms were more pronounced in Group II for several domains. In Group III, most symptoms were present predominantly in mild form with relatively lower severe manifestations.

Table 2. Age-wise prevalence of PMS-A (Anxiety related symptoms)

Sympto	Group I	Group I	Grou	Grou	Group II	Grou	Grou	Group	Grou
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m	Mild (%)	Moderate (%)	p I Severe (%)	p II Mild (%)	Moderate (%)	p II Severe (%)	p III Mild (%)	III Moderate (%)	p III Severe (%)
Anxiety	66.6	26.6	6.6	3.3	3.3	93.3	100	0	0
Irritability	56.6	36.6	6.6	43.3	3.3	53.3	56.6	40	3.3
Mood swings	30	53.3	16.6	40	6.6	53.3	46.6	40	10
Nervous tension	76.6	13.3	10	13.3	0	86.6	96.6	3.3	0

Psychological symptoms such as anxiety, irritability, mood swings, and nervous tension were common across all age groups. Severe anxiety and nervous tension were notably higher in Group II, indicating greater psychological vulnerability in the middle reproductive age group.

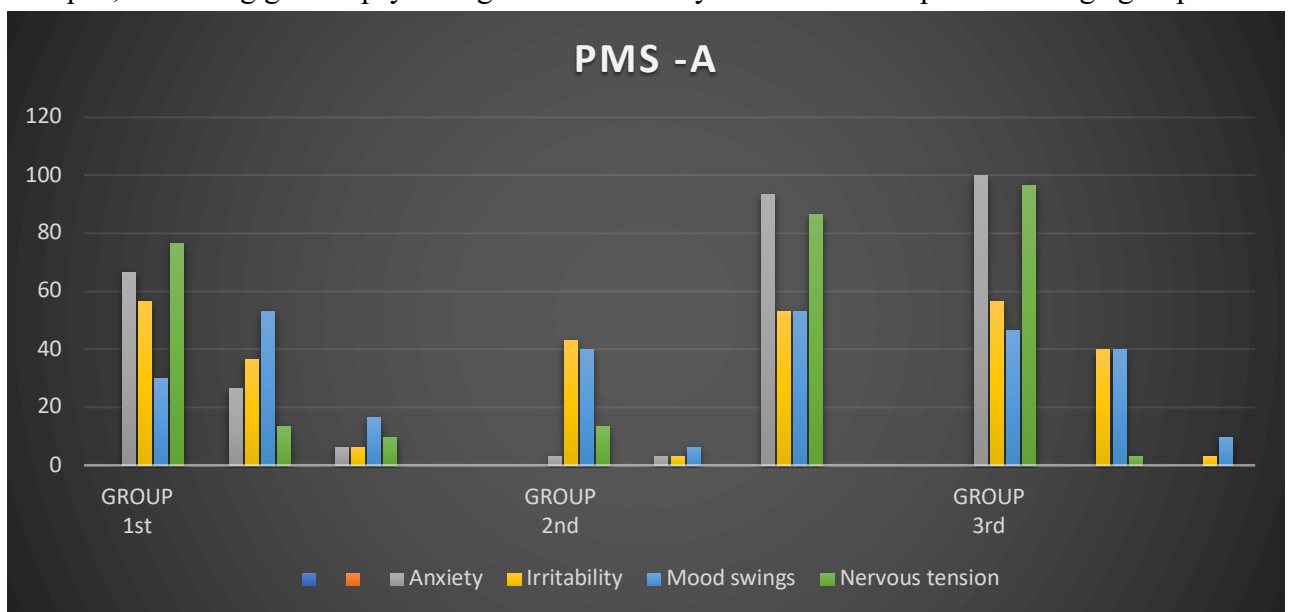


Figure -1

Table 3. Age-wise prevalence of PMS-C (Craving related symptoms)

Symptom	Group I Mild (%)	Group I Moderate (%)	Group I Severe (%)	Group II Mild (%)	Group II Moderate (%)	Group II Severe (%)	Group III Mild (%)	Group III Moderate (%)	Group III Severe (%)
Appetite increase	70	13.3	16.6	3.3	0	96.6	100	0	0
Headache	66.6	30	3.3	6.6	0	93.3	80	20	0
Fatigue	76.6	23.3	6.6	30	3.3	66.6	63.3	36.6	0
Dizziness	93.3	6.6	0	0	0	100	96.6	3.3	0
Palpitation	93.3	6.6	0	3.3	0	96.6	96.6	3.3	0

Among craving-related symptoms, increased appetite, fatigue, headache, dizziness, and

palpitation were reported frequently. Severe manifestations were more prominent in Group II, whereas mild symptoms were dominant in Groups I and III.

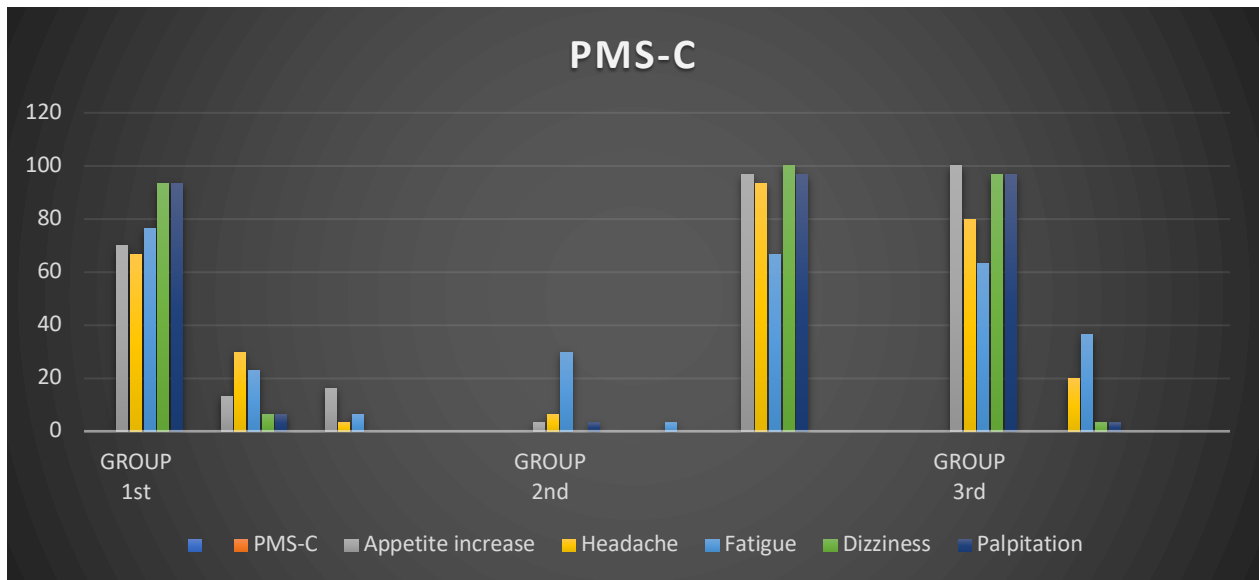


Figure -2

Table 4. Age-wise prevalence of PMS-D (Depression related symptoms)

Symptom	Group I Mild (%)	Group I Moderate (%)	Group I Severe (%)	Group II Mild (%)	Group II Moderate (%)	Group II Severe (%)	Group III Mild (%)	Group III Moderate (%)	Group III Severe (%)
Depression	66.6	33.3	0	20	0	80	96.6	3.3	0
Crying	36.6	46.6	16.6	30	0	70	96.6	3.3	0
Forgetfulness	93.3	6.6	0	0	0	100	96.6	3.3	0
Confusion	86.6	10	3.3	0	0	100	96.6	3.3	0
Insomnia	46.6	53.3	0	6.6	3.3	90	83.3	16.6	0

Depression-related symptoms were widely observed across the study population. Severe symptoms such as depression, crying, forgetfulness, and insomnia were more pronounced in Group II, while Groups I and III predominantly exhibited mild to moderate manifestations.

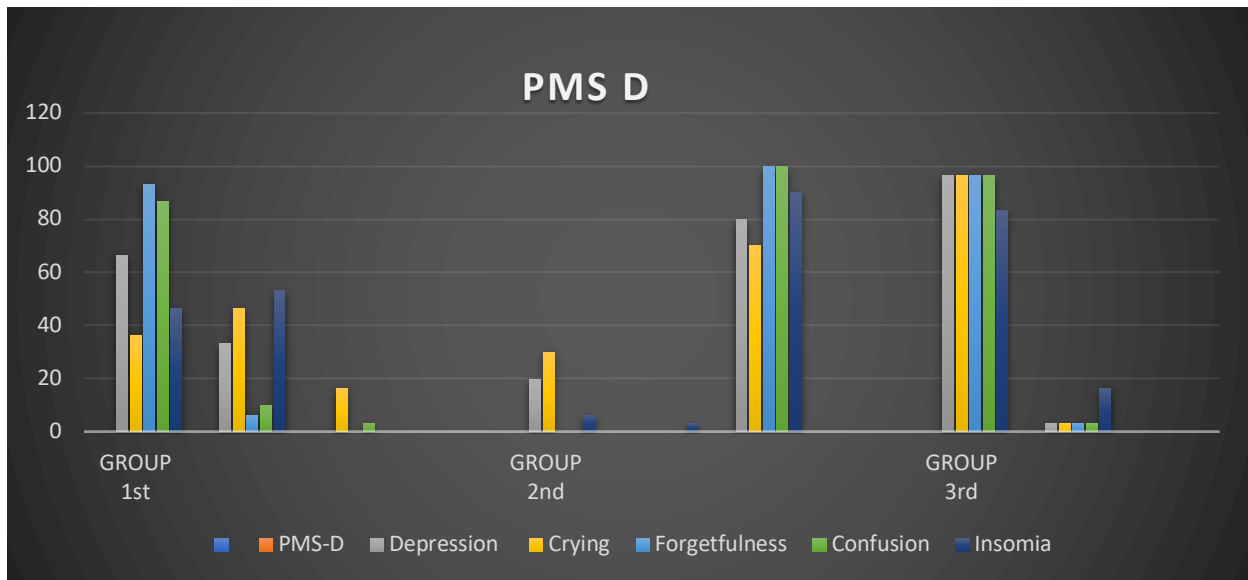
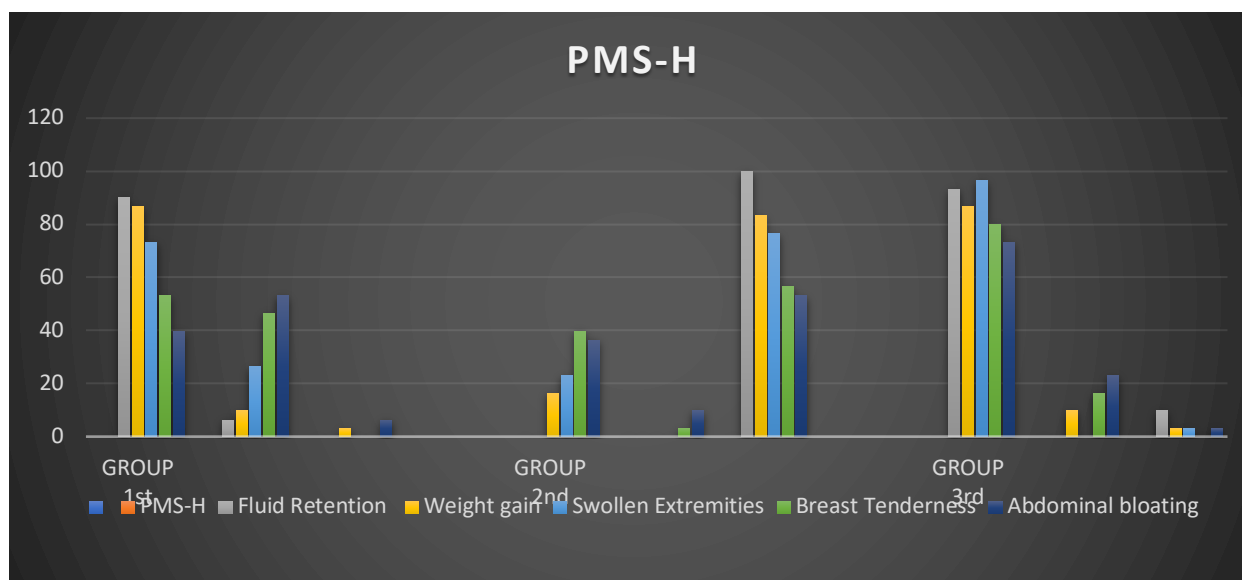


Figure -3

Table 5. Age-wise prevalence of PMS-H (Hyperhydration related symptoms)

Symptom	Group I Mild (%)	Group I Moderate (%)	Group I Severe (%)	Group II Mild (%)	Group II Moderate (%)	Group II Severe (%)	Group III Mild (%)	Group III Moderate (%)	Group III Severe (%)
Fluid retention	90	6.6	0	0	0	100	93.3	0	10
Weight gain	86.6	10	3.3	16.6	0	83.3	86.6	10	3.3
Swollen extremities	73.3	26.6	0	23.3	0	76.6	96.6	0	3.3
Breast tenderness	53.3	46.6	0	40	3.3	56.6	80	16.6	0
Abdominal bloating	40	53.3	6.6	36.6	10	53.3	73.3	23.3	3.3

Hyperhydration-related symptoms including fluid retention, weight gain, and abdominal bloating were commonly reported. Severe symptoms were relatively higher in Group II, while Groups I and III showed predominance of mild symptoms.



Discussion

Premenstrual Syndrome (PMS) is a multifactorial condition characterized by a range of emotional, behavioral, and somatic symptoms that occur during the luteal phase of the menstrual cycle and resolve shortly after the onset of menstruation. The present observational survey evaluated the prevalence and severity of PMS symptoms among females in three different reproductive age groups (15–25 years, 25–35 years, and 35–45 years). The results indicate that PMS symptoms were present across all age groups, although their severity and pattern varied.

Group-1 (Age group 15–25 years)

In the present study, participants in the 15–25 years age group predominantly reported mild to moderate PMS symptoms. Psychological manifestations such as anxiety, irritability, mood swings, and nervous tension were common, though severe symptoms were relatively less frequent compared with the middle age group.

The occurrence of PMS symptoms in this age group may be attributed to hormonal adjustments that occur during early reproductive years. During adolescence and early adulthood, the hypothalamic–pituitary–ovarian axis undergoes gradual maturation, leading to fluctuations in estrogen and progesterone levels during the menstrual cycle. These hormonal variations influence neurotransmitter pathways, particularly serotonin, which plays an important role in mood regulation and emotional stability.⁵

Additionally, lifestyle factors such as academic stress, irregular sleep patterns, and dietary habits may also contribute to the occurrence of PMS symptoms in young women. Studies have demonstrated that stress and sleep disturbances can exacerbate emotional symptoms associated with PMS, including anxiety and irritability.⁶

Somatic symptoms such as fatigue, headache, and increased appetite were also observed in this age group, though they were mostly mild. These symptoms are commonly reported during the premenstrual phase and are believed to result from hormonal changes affecting metabolic and neurological functions.⁷

Group-1(Age group 25–35 years)

Participants in the 25–35 years age group demonstrated higher severity of PMS symptoms, particularly psychological manifestations such as anxiety, irritability, mood swings, nervous

tension, depression, and insomnia. This finding suggests that PMS symptoms may become more pronounced during the middle reproductive years.

One possible explanation for this observation is the increased exposure to psychosocial stressors during this period of life. Women in this age group often experience multiple responsibilities related to career, family, and social roles, which may increase psychological stress. Research has shown that stress can amplify premenstrual symptoms by altering neuroendocrine responses and increasing cortisol levels.⁸

Hormonal fluctuations may also play a significant role in the severity of symptoms observed in this group. Variations in estrogen and progesterone levels during the menstrual cycle can influence neurotransmitter systems involved in mood regulation. Reduced serotonergic activity during the luteal phase has been associated with symptoms such as depression, irritability, and emotional instability.⁹

In addition to psychological manifestations, somatic symptoms including fatigue, dizziness, palpitation, abdominal bloating, and breast tenderness were also reported with greater severity in this age group. These symptoms may be related to fluid retention, metabolic changes, and altered autonomic nervous system activity during the premenstrual phase.¹⁰

The increased prevalence of sleep disturbances such as insomnia in this group may further exacerbate PMS symptoms. Sleep deprivation has been shown to influence hormonal regulation and emotional stability, thereby intensifying the severity of premenstrual symptoms.¹¹

Group-1(Age group 35–45 years)

Participants in the 35–45 years age group generally exhibited milder PMS symptoms compared with the middle age group, although certain somatic symptoms such as fatigue, abdominal bloating, and musculoskeletal discomfort were still observed.

Women in this age group may experience gradual hormonal transitions associated with the late reproductive stage. Although menstrual cycles are still regular, subtle changes in ovarian hormone production may influence the intensity of PMS symptoms. However, some women develop better physiological and psychological adaptation to menstrual cycle changes with increasing age, which may explain the relatively lower severity of symptoms observed in this group.¹²

Somatic symptoms such as abdominal bloating, breast tenderness, and backache were commonly reported. These symptoms may be related to fluid retention, prostaglandin activity, and changes in smooth muscle contractility during the premenstrual phase. Prostaglandins released from the endometrium are known to influence uterine contractions and may contribute to symptoms such as pelvic discomfort and back pain.¹³

Gastrointestinal symptoms including constipation and diarrhea were also noted among participants. These manifestations may result from hormonal influences on gastrointestinal motility. Fluctuations in progesterone levels during the luteal phase can alter smooth muscle activity in the gastrointestinal tract, leading to variations in bowel habits.¹⁴

Overall pattern of PMS symptoms

Across all age groups, PMS symptoms encompassed psychological, neurological, gastrointestinal, dermatological, and musculoskeletal manifestations. Emotional symptoms such as anxiety, irritability, and mood swings were widely reported, highlighting the significant impact of PMS on psychological well-being.

Somatic symptoms including fatigue, headache, fluid retention, abdominal bloating, and breast tenderness were also frequently observed. These symptoms reflect the systemic influence of hormonal fluctuations during the menstrual cycle, which affect multiple physiological systems including the nervous, endocrine, and gastrointestinal systems.

The findings of the present study are consistent with previous epidemiological studies that have reported high prevalence of PMS symptoms among women of reproductive age. Although the intensity of symptoms varies among individuals, hormonal fluctuations and psychosocial factors appear to play a central role in the development of PMS manifestations.

Conclusion

The present observational survey study evaluated the prevalence and pattern of Premenstrual Syndrome (PMS) symptoms among females belonging to different reproductive age groups. The findings indicate that PMS symptoms are widely prevalent among women and involve a broad spectrum of psychological and somatic manifestations.

Psychological symptoms such as anxiety, irritability, mood swings, nervous tension, and depressive features were commonly observed across all age groups. However, their severity appeared to be comparatively higher among women in the 25–35 years age group, suggesting that PMS manifestations may become more pronounced during the middle reproductive years. This may be related to increased hormonal fluctuations, psychosocial stress, and lifestyle factors that influence neuroendocrine regulation.

Somatic symptoms including fatigue, headache, dizziness, abdominal bloating, breast tenderness, and fluid retention were also frequently reported. These symptoms reflect the systemic influence of cyclical hormonal changes during the menstrual cycle, which affect multiple physiological systems including the nervous, endocrine, gastrointestinal, and musculoskeletal systems.

The findings of this study highlight the importance of increasing awareness regarding PMS and its impact on women's physical and emotional well-being. Early recognition and appropriate lifestyle modifications, including stress management, balanced nutrition, regular physical activity, and adequate sleep, may help in reducing the severity of premenstrual symptoms and improving overall quality of life.

Further large-scale epidemiological studies involving diverse populations are required to better understand the determinants and clinical patterns of PMS across different age groups.

Strengths of the Study

The present study provides useful insights into the pattern and severity of PMS symptoms among different reproductive age groups. One of the strengths of the study is the use of a standardized and validated Premenstrual Syndrome assessment questionnaire, which allowed systematic evaluation of both psychological and somatic symptoms.

Another strength is the inclusion of participants from different age groups within the reproductive period, which enabled comparative analysis of symptom distribution across early, middle, and late reproductive stages. This approach helped in identifying age-related variations in the prevalence and severity of PMS symptoms.

Limitations of the Study

Despite its contributions, the study has certain limitations. The sample size was relatively small, which may limit the generalizability of the findings to the broader population. Additionally, the study was conducted in a specific geographical area, and therefore the results may not fully

represent populations from different cultural or socio-economic backgrounds.

The cross-sectional design of the study also restricts the ability to establish causal relationships between age and severity of PMS symptoms. Furthermore, the assessment of symptoms was based on self-reported questionnaires, which may be influenced by individual perception and recall bias.

Future research involving larger sample sizes, multicentric populations, and longitudinal study designs would be valuable in providing more comprehensive insights into the epidemiology and clinical characteristics of PMS.

Acknowledgement

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Conflict of Interest

The authors declare that there is no conflict of interest related to this study.

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