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Prevalence and Severity of Premenstrual Syndrome among Young Females in Chhattisgarh, India

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Abstract

Premenstrual syndrome (PMS), often known as premenstrual tension, is a set of physical, psychological, and emotional symptoms that women experience in the luteal phase of menstrual cycle (7–10 days before menstruation). The aim of the present study is to find out the prevalence of PMS in young females quantitative approach with descriptive research design was adopted and study samples was chosen by purposive research sampling. The data were collected from Pt. Ravishankar University through the fourth edition of Menstrual Distress questionnaire published in 2010 by Rudolf H. Moos. The collected data were analyzed by a descriptive statistical method. 500 girls were selected for the study. Who has reached menarche, their menarche were (12.29 ± 1.49) and is between the ages of 18 and 28 (22.81 ± 2.29). The result indicates that 13%, 13.60%, and 11.40% of girls are suffering from mild, moderate, and severe symptoms of PMS. The most affected symptoms were Behavioral changes (7.05 ± 4.57), arousal (7.08 ± 4.06), and negative effects (7.03 ± 4.88). Other symptoms were autonomic reaction (4.96 ± 2.89), water retention (4.88 ± 2.6), pain (5.5 ± 2.54), control (5.5 ± 3.59), and impaired concentration (6.48 ± 5.86). The overall mean was 47.91, with a standard deviation of 13.16, indicating that the majority of the girls experienced some form of menstrual discomfort. PMS has an impact on everyday activities and quality of life. It's also linked to social advancement and financial costs. Hence, there is a need for awareness of PMS and its management.

Keywords: College girls, Menstrual distress, Moos menstrual distress questionnaire, Premenstrual dysphoric disorder, Premenstrual syndrome

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Introduction

Premenstrual syndrome (PMS) is a group of emotional and physical symptoms as well as behavioral changes that occur during the luteal phase of the menstrual cycle (7–14 days before menstruation). These symptoms emerge and disappear in a cyclical rhythm, typically a few days following menstruation. PMS can have a negative impact on the daily activities of women of reproductive age.[1] Such hormonal changes influence their everyday lives and personal pleasures. PMS is also responsible for social turnaround and conservative costs.

PMS has been linked to some of the most common somatic symptoms, such as cramps in the abdomen, tiredness, bloating, tenderness of the breasts, acne, and gaining weight. Psychological symptoms include depression, irritation, tension, weeping, hypersensitivity, anger, and mood swings. Cravings for food, inability to concentrate, social retirement, oblivion, and reduced motivation are among the behavioral symptoms.[2] Such a serious number of symptoms could disturb their relationships with family and society, and can also result in poor working performance and lack of employment. The research study showed that about 28.3% reported missing frequent school classes, 9.8% missing tests, 8.1% of low-grade scores, and 1.7% reported withdrawal from the PMS training.[3] In addition, women with PMS have violent behavior towards their children, family members, as well as towards society. In this regard, PMS can have an impact not only on the woman suffering but also on her community and family.[4] These symptoms exacerbate women's quality of life.

Premenstrual dysphoric disorder (PMDD) is known in its severe form as PMS. Previous studies have shown that a prevalence of 58.1% of PMS has been established.[5] According to the DSM-IV, 14.7% of women had moderate-to-severe PMS, while 3.7% had PMDD.[6] Asia has 46%, Africa has 85%, Europe has 40%, and South America has 60%, according to reports from around the world. The same group of authors also reported that 10% of the patients had suicidal thoughts.[7] When it comes to the Indian situation, a study of the general population reported a frequency of 65% between the ages of 15 and 29. A severe symptom was found in 12% of the people, which is similar to PMDD.[8] Epidemiological research has shown that the intensity of PMS may vary but that it is no longer spontaneous. At their reproductive age, 80% of women suffered from PMS. However, previous research revealed that various lifestyle factors, including the lack of exercise, inadequate sleep, caffeine intake and intake of junk food, are the reason for PMS.[9] Progesterone may also have an effect on neurotransmitters such as serotonin, catecholamine, opioids, and GABA. Prolactin level increases, insulin resistance, endogenous hormone susceptibility, abnormal function of the hypothalamic-pituitary-adrenal axis, changes in glucose metabolism, nutritional deficiencies, all such factors are responsible for PMS.[10] Fluctuations are the concentration of opiate peptides that affect endorphin concentrations. Whether PMS is a misrepresentation of normal hormone fluency or if the hormone imbalances can lead to PMS is not clear. Women, whose regular cycle was blocked by the use

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of gonadotropin-releasing hormone agonists, and exogenous hormones then given to those with PMS, had greater symptoms of disappointments, anxiety, irritation, and disability. PMS is caused by an irregular lifestyle, poor eating habits, caffeine, alcohol, and smoking.[11] Because of the subjectivity of many symptoms, the use of self-reports, and the interference of psychological components, as well as the lack of precise tests that establish its diagnosis, there is no consensus on the diagnostic criteria for PMS. As a result, it has been proposed that the standards of the American College of Obstetricians and Gynecologists be utilized for diagnosis.[12]

PMS is also linked to a slew of other issues, including breast cancer, Polycystic Ovarian Syndrome, uterine fibroids, infertility, and mental health issues.[13] Sadness, loss of confidence, low self-esteem, and low energy are more common among females during PMS, according to a study.[14] PMS affects women in a variety of ways, which include personal relationships, work productivity, and being absent from work, school, or college.[6] A research study showed that psychiatric co-morbidities such as anxiety disorder, major depressive disorder, substance abuse disorder, and suicidality were related to PMS.[15] PMS is significant for two reasons: first, because it's side effects are responsible for financial loss, and second, because of related legal and women's rights issues that have arisen in relation to individual responsibility during PMS.[16]

This research aimed to find the severity and prevalence of PMS among female students at a university in Chhattisgarh, India. Then they examined their knowledge and attitude regarding PMS and PMDD about premenstrual symptoms, physician consultation and treatment.

The Objective of the Study

1. To find out the prevalence of PMS in females with different domains.
2. Determining the severity and risk factors for PMS in university students.

Materials and Methods

After approval from the Institute's Committee on Ethics (Ref. No./2019/10) and authorization from the Women's Hostel Warden, a descriptive research study was conducted among students at PT. Ravishankar Shukla University. In addition, the subjects were asked to fill out informed consent forms. This study included 500 girls ranging in age from 18 to 28 years (20.6 ± 21.49). Whoever reached menarche had a menarche of (12.29 ± 1.49). The participants were chosen from Pandit Ravishankar Shukla University's women's hostel in Raipur, Chhattisgarh, India. The Moos Menstrual Distress questionnaire tool was used for data collection. Students that took part in the study filled out questionnaires. The surveys were delivered before to the theoretical session and after the students' written voluntary agreement was gained, and the students completed the questionnaires under the researchers' supervision. The participants who had high blood pressure, heart disease, hypothyroidism, diabetes, migraine, epilepsy, pelvic inflammatory diseases, endometriosis, amenorrhea, chronic sickness, present anxiety, depression, and any other psychiatric illnesses were excluded from the study.

Assessment

The Moos Menstrual Distress Questionnaire fourth edition was used to examine the severity and prevalence of menstrual distress among undergraduates. It is made up of symptoms or feelings that are related to menstruation. There were 46 different products in total. It's a five-point scale ranging from 0 to 4. There were five answers for each item: "No experience of symptoms," "present, mild," "present, moderate," "present, strong," and "present, severe." 4 marks for "present severe," 3 marks for "present, strong," 2 marks for "present, moderate," 1 marks for "present mild," and 0 marks for "No symptoms experience." There are eight subscales in the test: Pain, Water Retention, Autonomic Reactions, Negative Affect, Impaired Concentration, Behavior change, Arousal, Control.

The pain scale evaluates somatic symptoms that are commonly associated with PMS. Muscle tenseness, cramps, headaches, back pain, weariness, and general aches are some of the symptoms. Physical signs such as weight increase, skin disorders, uncomfortable breasts, and swelling are assessed using the water retention scale. Other linked physical symptoms assessed by the autonomic reaction scale include faintness, dizziness, cold sweats, nausea and vomiting, and hot flashes. The Negative Affect Scale measures changes in mood and behavior. Loneliness, anxiety, mood swings, sobbing, anger, tension, feeling sad, and restlessness are among the symptoms measured. Difficulty in sleep, forgetfulness, disorientation, poor decision-making, difficulties concentrating, distractibility, small accidents, and poor motor coordination are all assessed on the Impaired Concentration scale. Performing poorly at school or at work, napping, staying in bed, staying at home, avoiding social activities, and decreased efficiency are all on the behavior change scale. The arousal scale measures affection, orderliness, enthusiasm, happiness, bursts of energy, and activity. Suffocation, chest discomfort, ringing in the ears, heart pounding, numbness or tingling, blind patches, or hazy vision are among the symptoms on the control scale.

The overall score was interpreted into four categories: mild, moderate, severe, and PMDD. A score of 34 was considered mild, a score of 34–62 was considered moderate, a score of 62–84 was considered severe and >84 was PMDD.

Data Analysis

Data were analyzed using Statistical Package for the Social Sciences software version 25.0 (SPSS-25.0) (IBM Corporation., Armonk, N.Y., USA). Researchers have used parametric tests to determine the prevalence and severity of symptoms. The Chi-square test was used to find significant differences among various socio-demographic groups. $P < 0.01$ was considered statistically.

Results

500 female students have been selected for this study.

Sociodemograghic Characteristics of Participants

The finding showed that in the Hindu urban region, unmarried women, middle socioeconomic status, and postgraduate students are more affected by PMS. Figure 1 shows that the urban population's PMS score was significantly higher than the rural population's ($P < 0.01$, χ^2 –11.62, df- 6). The PMS severity was higher in Hindus than Muslims and others ($P < 0.01$, χ^2 - 33.84, df-4) in Figure 2. Unmarried women was higher than married women ($P < 0.01$, χ^2 - 80.28, df-6) in Figure 3. The score was higher in the high socioeconomic group than in the low and middle socioeconomic groups ($P < 0.01$, χ^2 - 17.22, df-4) in Figure 4. The

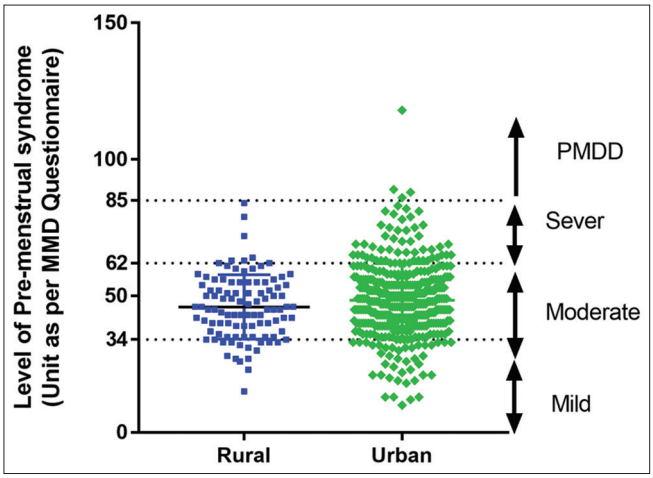

Figure 1: Category as per residence

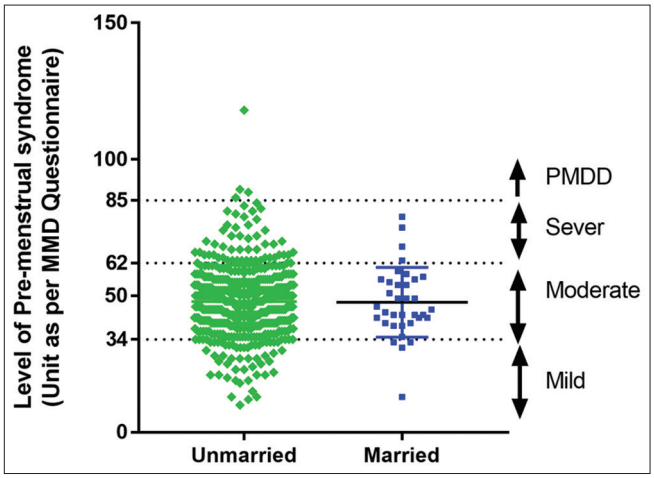

Figure 3: Category as per marietal status

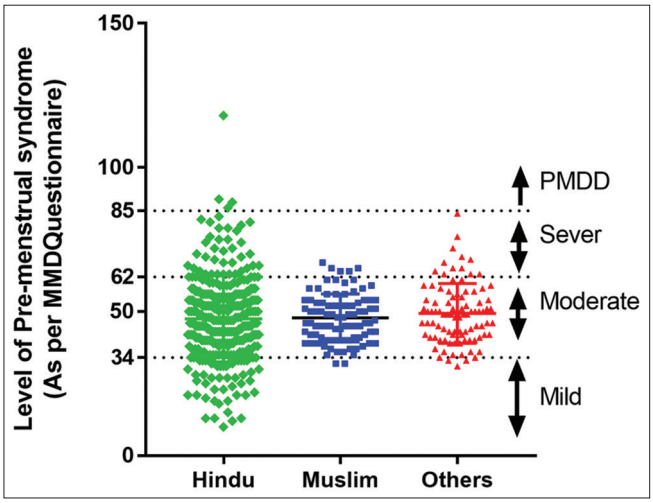

Figure 2: Category as per religion

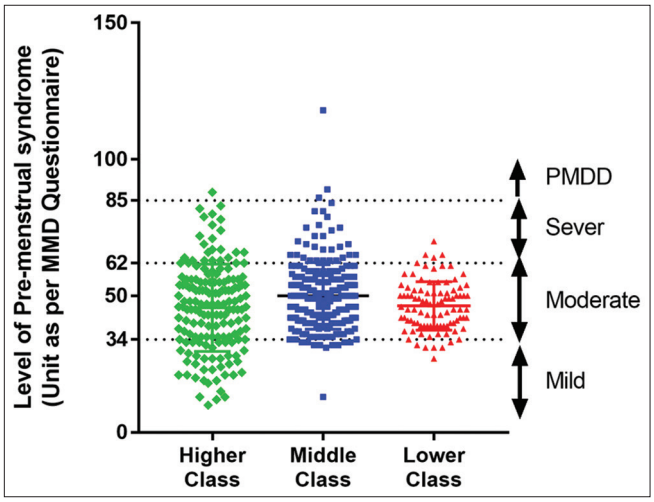

Figure 4: Category as per socio-economic status

score of PMS was higher in post-graduation students compare to graduation and research students ($P < 0.01$, χ^2 - 76.01, df-4) Figure 5. A similar research study reported that the severity of PMS was higher in unmarried women and those with a family history of dysmenorrheal.[17] Another study has also found that PMS is more severe in urban areas than in rural areas. Age, parity, educational status, and socioeconomic status all had a direct relationship with the severity of PMS.[18]

Menstrual Characteristics of Participants

Table 1 showed menstrual characteristics of the participants. The mean menstrual cycle length was 28.7 ± 2.1 with mean 4.3 ± 1.4 days of bleeding. Their menarche were 19% in <10 years, 18% in 10–12 years, 41% in 13 years, and 22% in >13 years. In Table 1 showed 19% of women had menarche below 10 years, 18% of women had a menarche between the ages of 10 and 12, 41% of women had a menarche of 13 years, and 22% of women had a menarche >13. The results found that 24% of women have a cycle length <28 days, 59% of women had a cycle length of 28 days, and 17% of women had a cycle length of 28 days. Their menstrual flow type was 18% in mild, 54% in moderate, 20% in heavy flow, and 8% in extremely heavy flow. Many women have psychological or

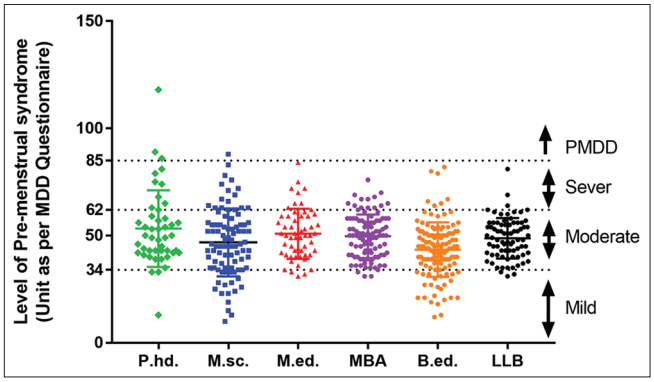

Figure 5: Category as per education

physical cyclic, premenstrual symptoms that sometimes limit the functionality of the women.

Severity and Prevalence of PMS in Participants

In Table 2 showed the prevalence of PMS was 100%. In 500 girls, thepercentage distribution of mild, moderate, severe PMS, and

PMDD was 65%, 368%, 57%, and 10%, respectively. PMDD is associated with a relatively young age group as compared to no/mild PMS. Research findings supported this Eighty-nine (51%) of the girls met the criteria for ICD-10 PMS recording, with 53(59.5%) having mild PMS, 26 (29.2%) having moderate PMS, and 10 (11.2%) having severe PMS. Ten (5.8%) girls were found to have premenstrual Dysphonic Disorder according to DSM-IV criteria.[19] Another study also found the prevalence of moderate to severe PMS was 14.3% and PMDD was 3.7% in college students.[20] A similar study found that 66.3% of Iranian adolescents had mild PMS, 31.4% had moderate PMS, 2.3% had severe PMS, and 59% had PMS. Backache, weariness, lethargy, and anxiety were the most common symptoms.[2]

According to Table 3, it shows that behavioral changes (7.05 ± 4.57) and arousal (7.08 ± 4.06) were more in PMS girls. Another study also supported this finding. They reported irritability, anger, outbursts, depression, stress, breast tenderness, and gastrointestinal problems. PMS disturbed their normal routine. Another study finding also defined abdominal bloating, cramps, irritability, and mood swings as the more common symptoms experienced by women.[21]

Table 1: Level of premenstrual syndrome among University girls

Category	*Frequency*	*Percentage*
Mild	65	13
Moderate	368	73.60
Severe	57	11.40
PMDD	10	10

PMDD: Premenstrual dysphoric disorder

Table 2: Menstrual characteristics of participants

Characteristics	*n (%)*
Menarche	
<10	95 (19)
10–12	90 (18)
13	205 (41)
>13	110 (22)
Cycle length	
<28	120 (24)
28	295 (59)
>28	85 (17)
Number of days bleeding one cycle	
1–3	115 (23)
4–5	275 (55)
6–8	65 (13)
>8	45 (9)
Menstrual flow type	
Mild	90 (18)
Moderate	270 (54)
Heavy	100 (20)
Extremely heavy	40 (8)

Table 3: Mean and standard deviation of participants with PMS

S. No.	*Domains*	*Mean±Standard Deviation*
1.	Pain	5.05±2.54
2.	Water retention	4.88±2.6
3.	Autonomic reactions	4.98±2.89
4.	Negative effect	7.03±4.88
5.	Impaired concentration	6.48±5.86
6.	Behavior change	7.05±4.57
7.	Arousal	7.08±4.06
8.	Control	5.51±3.59
	Overall mean	47.91±13.16

PMS: Premenstrual syndrome

The girls had more negative symptoms (7.03 ± 4.88) such as loneliness, anxiety, mood swings, crying, irritability, tension, feeling sad or blue, and restlessness before 4 days of menstruation. Whereas they had mild autonomic reactions (4.96 ± 2.89) and water retention (4.88 ± 2.6). The commonest symptoms in the college girls without PMS and premenstrual dysphoric syndrome were fatigue/lack of energy sadness, and abdominal bloating in the studies from Saudi Arabia and Turkey, respectively.[22]

The mean pain symptoms were 5.5, control (mean 5.5) and impaired concentration symptoms were 6.48.[16] Females have also felt irritability, breast tenderness, breast pain, gastric pain, lethargic, backache, and muscle pain.[14] Research study reported that the effects of PMS on functional impairment and quality of life. These all things also effects on their social interactions, interpersonal relationship, social interactions, work performance, and emotional well-being.[22] Despite differences in symptomatology patterns between studies, functional impairment is the most common symptom in both the PMS and PMDD groups. This study, as well as several others, found interfering with college productivity.[23]

The overall mean for monthly difficulty was 47.91, with a standard deviation of 13.16, indicating that the majority of the girls experienced some form of menstrual discomfort. Another study also reported that the prevalence of PMS was 83.1%. The most frequent somatic and psychological symptoms were headache or breast tenderness and felt irritable. Many women have experienced the impairment in work or school at least once per month because of premenstrual symptoms.[24]

Discussion

Menarche and menstruation attitudes are influenced by sociological, cultural, and family environmental factors. Research study reported that more rural girls than urban girls were embarrassed to talk to their mothers or consult their doctors about menstruation-related issues.[25] PMS and PMDD affect a large percentage of college girls, having a major detrimental impact on academic performance, emotional well-being, and behavior. PMS, PMDD, and general college students have diverse patterns of premenstrual symptomatology. Age, education, excessive menstrual flow, dysmenorrhea, and a family history of PMS are all predictors of PMS and PMDD. College students have limited awareness and health-seeking behavior when it comes to PMDD. For early detection and management of PMS and PMDD in college girls, strategies should be devised and executed.[26] Another research study has found that the prevalence of PMS was 61.5% of adolescent girls in West Bengal India. Psychological and behavioral symptoms such as irritability, anger, anxiety, confusion, and some somatic symptoms like breast pain, abdominal cramps, and limb swellings were reported in adolescent girls.[27] Similar study have also showed that PMS was much more common among students who drank alcohol, smoked, and ate a lot of fatty foods, in students who had very negative opinion of their economic status, and in students who had any chronic disease.[5] PMS was shown to be prevalent in 40% and 90% of women in the reproductive age group of 15–49 years in Turkey, according to various study studies.[28] PMS and PMDD were found to be prevalent in 43% of women and 8% of women respectively. PMS was shown to be more common in adolescence, accounting for 49.6% of the population.[8]

Despite the fact that many societies encourage physical activity for PMS control, multiple researches, including this one, has found no link. Physical activity and PMS are linked. Researchers

came to the conclusion that a suggestion on the efficacy of exercise needs more high-quality research.[7]

Family history of PMS had a substantial connection with the occurrence of PMS and among college girls in the current study and multiple other studies.[29] At menopause, PMS fully resolves. During the premenstrual period, eat between 4 and 6 smaller meals a day can help to reduce food craving and symptoms. Salt, caffeine, spirit, chocolate, or simple carbohydrates can reduce symptoms. Physical improvement and stress reduction include benefit of exercise.[30]

The decreased release of the follicles stimulation hormone and Luteinizing hormone from hypothesis leads to a reduction in estrogen and progesterone levels, such as gonadotropin hormone release. Ovulation suppressants Progesterone has been used in the luteal phase and is still well held today. PMS is one of the strategic measures. Recently more importance has become attached to select serotonergic reuptake inhibitors in PMS management.[31]

While the luteal phase is connected to PMS, the exact explanation is unknown, but various factors could be at play. Changes in hormone levels during the menstrual cycle appear to be a significant impact; some women are more affected than others. Girls who were using psychotropic medications were excluded from the study, resulting in an untreated sample. PMS does not appear to be caused by chemical changes in the brain, stress, or mental problems such as depression, but they may exacerbate it. Water retention and bloating can be exacerbated by high sodium, alcohol, or caffeine, a lack of vitamins and minerals. Magnesium and calcium deficiency are thought to be the cause of PMS, and studies demonstrate that supplementation improves physical and emotional symptoms.[32]

Menstrual disorders have gained attention, despite the fact that they are still surrounded by myths and taboos in our society. PMS is a psychoneuroendocrine disorder with an unknown cause. The luteal phase of the menstrual cycle, it is characterized by physical, emotional, and behavioral symptoms. Other research article also reported the prevalence of PMS was 18% in Egypt. Out of the female students diagnosed with PMS, 75% had stopped studying and class missing was reported by 40% of the students.[33]

It is wise for women during menstruation, menopause and pregnancy, to tap on the efficacy of Yoga exercise. Yoga actually helps to overcome the discomfort and pain associated with women's lives in their sensitive phases. Actually, the yogic exercise may be shown to have a relation with women's menstruation.

Conclusion

PMS has an impact on everyday activities and quality of life. It's also linked to social advancement and financial costs. Hence, there is a need for awareness of PMS and its management. The study did not look at the impact of PMS on sports and other social activities in college, and no physical examinations were performed on the students to identify the few students who may have PMS. PMS was found to be prevalent and severe in Chhattisgarh, India, according to the findings of this study. Young college students, on the other hand, appear to be hesitant to seek medical care for this issue. It will raise health-care provider awareness and help them to be more responsive to issues connected to PMS/menstrual discomfort management. It could spur more research into identifying and determining the risk factors for PMS. The findings of this study could help researchers better understand the epidemiology of PMS and its impact on public health.

Declarations

Ethics Approval and Consent to Participate

The study proposal was initially approved by University ethical committee. A formal letter of permission was obtained from the college and submitted to department. The information about the study was given to the participants. Verbal and then written informed consent was sought from each participant who agreed to participate in the study and full filled the inclusions criteria.

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