National Journal of Physiology, Pharmacy and Pharmacology

RESEARCH ARTICLE

# Prevalence of premenstrual syndrome and premenstrual dysphoric disorder among medical students and its impact on their academic and social performance

**Geeta Shamnani[1], Vani Gupta[2], Rekha Jiwane[1], Shraddha Singh[2], Sunita Tiwari[2], Shekhawat Singh Bhartiy[3]**

[1]Department of Physiology, RKDF Medical College Hospital and Research Centre, Bhopal, Madhya Pradesh, India, [2]Department of Physiology, King George's Medical University, Lucknow, Uttar Pradesh, India, [3]Surveillance Medical Officer, World Health Organization, Gwalior, Madhya Pradesh, India

**Correspondence to:** Rekha Jiwane, E-mail: piyurekha@gmail.com

**Received:** April 06, 2018; **Accepted:** April 28, 2018

## ABSTRACT

**Background:** Premenstrual syndrome (PMS) is a disorder affecting large number of population in terms of their physical and psychological well-being. A large number of college drop outs are because of PMS. **Aims and Objectives:** The objective of this study was to assess the prevalence of presence of different symptoms of PMS and premenstrual dysphoric disorder (PMDD) among medical college girls and its effect on their social and academic life. **Materials and Methods:** This study was conducted in a medical college in 1st, 2nd, and 3rd year MBBS student girls by providing them a questionnaire regarding the presence of different symptoms of PMS and PMDD and its impact on their academic and social performance. **Results:** The prevalence of PMS was reported to be 65% in the present study. The most common somatic symptom was body pain (52%) and the most common affective symptom was irritability (50%). In spite of this, only 12% of individuals with PMS become absent in class and 32% avoid joining social functions. The prevalence of PMDD among the study population was 12%. **Conclusion:** It is concluded from the present study that PMS and PMDD are very common problems among medical students affecting their educational and social activities.

**KEY WORDS:** Premenstrual Syndrome; Premenstrual Dysphoric Disorder; Medical Students; Academic and Social Performance

## INTRODUCTION

### PMS

According to American College of Obstetrician and Gynecology, PMS is defined as a clinical condition in which there is cyclical presence of physical and emotional symptoms in the absence of any organic disease which may appear 5 days before menses and disappear within 4 days of start of menstrual cycle in three consecutive cycles.[1] PMS has been defined in many ways.[2] According to "clinical gynecologic endocrinology and infertile," PMS is defined as cyclical phenomenon of somatic and affective symptoms occurring few days before menses interfering with work and lifestyle followed by symptom-free period.[3]

Somatic symptoms which are included in PMS are fatigue, abdominal bloating, breast tenderness, headache, and swelling in the extremities. Affective symptoms include irritability, angry outbursts, irritability, depression, confusion, anxiety, and social withdrawal. PMS can be diagnosed if the subject complaints about at least one of the somatic or at least one of

| Access this article online | |
|---|---|
| **Website:** www.njppp.com | Quick Response code |
| **DOI:** 10.5455/njppp.2018.8.0415728042018 | |

the affective symptoms and these symptoms must be in the absence of any hormone ingestion, pharmacologic therapy, or drug/alcohol abuse.[1]

### PMDD

It is more severe form of PMS which occurs in small number of females and results in significant disability and loss of function. There is an estimation that about 2–6% of females experience PMDD in their life span.[4] Females with PMDD complaint of breast tenderness, severe lower abdomen pain, bloating, joint and muscle pain, weight gain, sleep disturbances, irritability, anger, tension, low concentration, mood instability, and marked depression. The presence of these symptoms adversely affects their academic, social, and personal performance.[4]

In addition, American Psychiatric Association has also established criteria for diagnosis of PMDD according to which a woman is diagnosed to have PMDD when her life is significantly affected by moderate to severe symptoms of PMS.[5]

### Etiologies of PMS

It has been reported that etiology of PMS is multifactorial. Several factors are suggested to be associated with PMS including social factors (ethnicity and culture), socioeconomic status, dietary habits, stress, exercise, smoking, alcohol consumption, and menstrual factors (age at menarche, duration since menarche, and menstrual patterns).[6-9] One of the common etiologies which are suggested about PMS is endocrinal cause.[10] An abnormal function at any level of hypothalamo-pituitary-adrenal axis may lead to PMS. Environmental factors, defective nutrition, and defective adrenal hormone secretion lead to the development of PMS.[11] Stress has an important role in pathophysiology of PMS. Prolong stress exposure can lead to malfunctions of neuroendocrine system and could flare PMS.[12]

Several factors including genetic, environmental, psychological, biological, and social factors are documented to play a role in occurrence of PMS. Few literatures suggest that young woman, black woman, and woman with longer cycles are more prone to develop PMS.[13] Genetics plays an important role. Women with a history of PMS in mothers are more likely to report PMS (70%) in comparison to women with negative family history (37%). Moreover, reporting of PMS in monozygotic twins is 93% while in dizygotic twins is 44%.[14] Literatures have shown that women experiencing domestic violence or abusive relationships are more likely to report PMS.[15]

This study was planned to evaluate the prevalence of different symptoms of PMS and PMDD among medical student girls and its impact on their educational, personal, and social performance.

## MATERIALS AND METHODS

This study was conducted in tertiary health center of north India. Student girls of MBBS 1st, 2nd, and 3rd years between age 18 and 25 years were enrolled in the study after ethical approval and informed written consent.

### Sample Size

Authors recruited 242 students who were provided the pro forma, out of which two students did not fill the questionnaire. Sample size was 240.

A pro forma containing 20 questions was framed and provided to the participants. In the questionnaire, authors inquired about different symptoms of PMS and PMDD with their severity. Authors also inquired about impact of these symptoms on their academic, social activities, and overall quality of life.

### Exclusion Criteria

Students with medical or psychological problems that can mimic the PMS were excluded from the study. Students with medical history of endocrinal disorders, metabolic disorders, autoimmune diseases, chronic infective diseases, unrelated psychiatric disorders, and gynecological problems such as pelvic inflammatory diseases or endometriosis were excluded from the study.

## RESULTS

Diagnosis of PMS in the present study was made according to diagnosis criteria proposed by American College of Obstetrician and Gynecology. The prevalence of PMS was reported to be 65% in the present study. 65% of the participants reported at least one symptom of PMS. The most frequent somatic symptom in this study was body pain (52%) and affective symptom was irritability (50%). Other symptoms such as fatigue (42%), breast tenderness (21%), abdominal bloating (20%), headache (28%), swelling in the extremities (31%), angry outbursts (32%), depression (12%), anxiety (32%), confusion (9%), and social withdrawal (31%) were also present in significant number of participants. In spite of this, only 12% become absent in educational activities during these days and 32% avoid joining social activities. The prevalence of PMDD among the study population was 12%. Among the study population, 45% of symptomatic participants consulted to their mothers, 28% to their friends, 21% others, and only 6% consulted to physician.

## DISCUSSION

The prevalence of PMS was reported to be 65% in the present study population. 65% of the participants reported

at least one symptom of PMS. The most frequent somatic symptom in this study was body pain (52%) and affective symptom was irritability (50%). Although fatigue (42%), swelling in the extremities (31%), headache (28%), breast tenderness (21%), abdominal bloating (20%), angry out bursts (32%), depression (12%), anxiety (32%), confusion (9%) and social withdrawal (31%) like symptoms were also present in significant number of medical students. In spite of this, only 12% escape their academic activities during these days and 32% avoid participating social activities. The prevalence of PMDD among study participants reported to be 12%.

Several other similar studies done in different areas of world reported high prevalence of PMS. In some of these literatures, the most common somatic symptom reported was breast tenderness and the most common affective symptoms reported were angry outbursts, anxiety, and irritability.[16-19] While another study done by Berek. found that most common physical symptoms associated with PMS were fatigue, bloating, breast tenderness, pain and acne. On the other hand, anger, irritability, anxiety, tension, depression, over sensitivity, exaggerated mood swings, sleep disturbances, and appetite changes were common affective changes.[20] Pain was most commonly reported symptom in Chinese women according to a study done in Hong Kong.[21]

The prevalence of PMS is one of the studies done in Iran reported to be 85.6% and of PMDD it was 36.3%. Among all participants, majority reported fatigue, lethargy, and abdominal pain (72.6%, 62.7%, and 54.2%, respectively).[22] Similar study conducted in Thailand involving 399 adolescent girls of high school reported 29.8% (95% CI 24.5%–35.4%) prevalence of PMS. Of which the most common physical and psychological symptoms were breast tenderness (74.4%) and angry outbursts (97.7%).[23] In West Bengal, India, similar study was performed among adolescent girls of rural school reported the prevalence of PMS to be 61.5%. Of the affective symptoms, irritability was highest (84.8%) followed by anger (70.5%) and depression (62.7%).[24] In a meta-analysis study, it was shown that highest and lowest prevalence of PMS was reported in France 12% (95% CI 11–13) and Iran 98% (95% CI 97–100).[25]

There was some ethnic variance in symptoms. Food craving was more prevalent in black women in comparison with white women.[26] On the other hand, white women more likely reported mood swings and weight gain than black woman.[27] Regarding awareness about PMS, a study performed in Malaysia concluded that 80% participants consulted their mothers and about 40% consulted their friends about the problem of PMS.[28] Similar study done in Indian adolescents reported that very few (4%) participants consult their physician for evaluation and management of PMS.[29]

**Limitation of Study**

Symptoms of PMS could not be distinguished from other mood disorders occurring at same time. There is no laboratory test which can certainly distinguish that the symptom is due to PMS only.

## CONCLUSION

In the present study, the prevalence of PMS among medical students was found to be 65%. The most frequent somatic symptom was body pain (52%) and affective symptom was irritability (50%). The prevalence of PMDD among the study population was 12%. PMS was found to have negative association with educational and social activities

## ACKNOWLEDGMENT

Authors are thankful to all the subjects who participated in the study.

## REFERENCES

1. ACOG Practice Bulletin. Premenstrual syndrome. Clinical management guidelines for obstetrician-gynecologists. J Obstet Gynecol 2001;73:183-91.
2. Frank RT. The hormonal causes of premenstrual tension. Arch Neurol Psychiatr 1931;26:1052-7.
3. Speroff L, Fritz MA. Menstrual disorder. Clinical Gynecologic Endocrinology and Infertile. 8th ed. Philadelphia, PA: Lippincott Williams and Wilkins; 2011. p. 568-78.
4. Freeman E. Premenstrual syndrome and premenstrual dysphoric disorder: Definitions and diagnosis. Psychoneuroendocrinology 2008;28:25-37.
5. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders. 5th ed. Washington, DC: APA Press; 2012. p. 465-75.
6. Bakhshani NM, Mousavi MN, Khodabandeh G. Prevalence and severity of premenstrual symptoms among iranian female university students. J Pak Med Assoc 2009;59:205-8.
7. Steiner M, Born L. Diagnosis and treatment of premenstrual dysphoric disorder: An update. Int Clin Psychopharmacol 2000;15 Suppl 3:S5-17.
8. Rowland AS, Baird DD, Long S, Wegienka G, Harlow SD, Alavanja M, *et al*. Influence of medical conditions and lifestyle factors on the menstrual cycle. Epidemiology 2002;13:668-74.
9. Dennerstein L, Lehert P, Bäckström T, Heinemann K. Premenstrual symptoms-severity, duration and typology: An international cross-sectional study. Menopause Int 2009;15:120-6.
10. Silva CM, Gigante DP, Carret ML, Fassa AG. Population study of premenstrual syndrome. Rev Saude Publica 2006;40:47-56.
11. Girman A, Lee R, Kligler B. An integrative medicine approach to premenstrual syndrome. Am J Obstet Gynecol 2003;188:S56-65.
12. Roca CA, Schmidt PJ, Altemus M, Deuster P, Danaceau MA, Putnam K, *et al*. Differential menstrual cycle regulation of hypothalamic-pituitary-adrenal axis in women with

premenstrual syndrome and controls. J Clin Endocrinol Metab 2003;88:3057-63.
13. Deuster P, Adera T, South-Paul J. Biological, social, and behavioral factors associated with premenstrual syndrome. Arch Fam Med 1999;8:122-8.
14. Parry B, Rausch J. In: Kaplan H, Sadock B, Cancro R, editors. Premenstrual Dysphoric Disorder, in Comprehensive Textbook of Psychiatry. Baltimore: Williams and Wilkins; 1995. p. 1707-13.
15. Obindo T, Okeahialam B, Ogbonna C. Violence against women: Is pre-menstrual syndrome a vulnerability factor? Int J Acad Res 2010;2:153-6.
16. Takeda T, Koga S, Yaegashi N. Prevalence of premenstrual syndrome and premenstrual dysphoric disorder in Japanese high school students. Arch Womens Ment Health 2010;13:535-7.
17. Ogebe O, Abdulmalik J, Bello-Mojeed MA, Holder N, Jones HA, Ogun OO, *et al*. A comparison of the prevalence of premenstrual dysphoric disorder and comorbidities among adolescents in the United States of America and Nigeria. J Pediatr Adolesc Gynecol 2011;24:397-403.
18. Chau JP, Chang AM, Chang AM. Relationship between premenstrual tension syndrome and anxiety in Chinese adolescents. J Adolesc Health 1998;22:247-9.
19. Rapkin AJ, Mikacich JA. Premenstrual dysphoric disorder and severe premenstrual syndrome in adolescents. Paediatr Drugs 2013;15:191-202.
20. Berek S. Berek and Novak's Gynecology. 14th ed. Baltimore: Lippincott Williams and Wilkins; 2007.
21. Chang AM, Holroyd E, Chau JP. Premenstrual syndrome in employed Chinese women in Hong Kong. Health Care Women Int 1995;16:551-61.
22. Naeimi N. The prevalence and symptoms of Premenstrual syndrome under examination. Sci Res 2015;3:1-8.
23. Buddhabunyakan N, Kaewrudee S, Chongsomchai C, Soontrapa S, Somboonporn W, Sothornwit J. Premenstrual syndrome (PMS) among high school students. Int J Women's Health 2017;9:501-5.
24. Sarkar AP, Mandal R, Ghorai S. Premenstrual syndrome among adolescent girl students in a rural school of West Bengal, India. Int J Med Sci Public Health 2016;5:408-11.
25. Moghadam AD, Sayehmiri K, Delpisheh A, Kaikhavandi S. Epidemiology of premenstrual syndrome (PMS)-a systematic review and meta-analysis study. J Clin Diagn Res 2015;9:ZZ05.
26. Stout A, Grady T, Steege J. Premenstrual symptoms in black and white community samples. Am J Psychiatry 1986;143:1436-9.
27. Woods N, Most A, Dery G. Prevalene of perimenstrual symptoms. Am J Public Health.1982;72:1257-64.
28. Lee LK, Chen PC, Lee KK, Kaur J. Menstruation among adolescent girls in Malaysia: A cross-sectional school survey. Singapore Med J 2006;47:869-74.
29. Sharma P, Malhotra C, Taneja DK, Saha R. Problems related to menstruation amongst adolescent girls. Indian J Pediatr 2008;75:125-9.

**How to cite this article:** Shamnani G, Gupta V, Jiwane R, Singh S, Tiwari S, Bhartiy SS. Prevalence of premenstrual syndrome and premenstrual dysphoric disorder among medical students and its impact on their academic and social performance. Natl J Physiol Pharm Pharmacol 2018;8(8):1205-1208.

**Source of Support:** Nil, **Conflict of Interest:** None declared.