International Journal of Reproduction, Contraception, Obstetrics and Gynecology
Singh A et al. Int J Reprod Contracept Obstet Gynecol. 2024 Jun;13(6):1531-1535
www.ijrcog.org
pISSN 2320-1770 | eISSN 2320-1789

DOI: https://dx.doi.org/10.18203/2320-1770.ijrcog20241439

Original Research Article

Premenstrual syndrome among budding medical professionals at medical college in a metro city: a cross sectional study

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Received: 19 April 2024
Revised: 11 May 2024
Accepted: 13 May 2024

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ABSTRACT

Background: Premenstrual syndrome (PMS) is a group of menstrual disorder constituting various physical, emotional and behavioral symptoms occurring in the luteal phase usually a week before menstruation. It is a very common condition affecting many young girls and severity can have a negative impact on the quality of life. Our study was done to estimate the prevalence of this condition among the medical undergraduate students.
Methods: This cross-sectional study was conducted at Lady Hardinge medical college, New Delhi, India among medical undergraduates after ethical clearance. A convenient sample size of 228 was taken. The participants were selected by random sampling technique and informed consent was obtained. The data was collected as per PMSS scale and analyzed by frequencies and percentages using SPSS version 21.
Results: The prevalence of PMS among our enrolled participants was 100%. Majority about 61% belonged to age group of 21-25 years. About 40.8% of students had mild symptoms, 35.1% moderate, 18.0% severe and 6.1% very severe form of PMS. However, no significant difference was found in the severity between 2 age groups.
Conclusions: Our study highlights 100% prevalence of PMS with varied severity of presentation. The very high prevalence of PMS among medical undergraduates calls for an urgent need to priorities the health care by creating awareness and provide necessary medical, social and psychological support to our budding professionals.

Keywords: PMS, Medical undergraduates, Menstrual disorder, Premenstrual symptoms

INTRODUCTION

Premenstrual syndrome (PMS) is a global problem affecting millions of young women of child bearing age. It occurs during the luteal phase and resolves shortly after menstruation. It affects about 75% of women in reproductive age and about 3 to 8% suffer from extremely severe forms of symptoms.[1] This entity was first described in 1931 by Frank as "premenstrual tension". The term "PMS" was first used by Greene and Dalton in 1953 to describe its various symptomatology.[2] It's a constellation of various physical and psychological symptoms causing significant distress, interfering with work, social activities and lowering the quality of life. It is one of the major public health problems in young girls affecting their physical and mental health.[3] A smaller subset meet criteria for PMS and less than 10% of them are diagnosed as having premenstrual dysphoric disorder (PMDD).[4] Various social and psychological causes have been proposed as the cause of this syndrome. The abnormal serotonin function, presence of progesterone, smoking, alcohol intake, altered trans-capillary fluid balance, high consumption of beef, increased caffeine intake may have role in PMS.[5] As per studies at molecular level, decreased estrogen stimulates hypothalamus to release norepinephrine which further triggers a decline in levels of

acetylcholine, dopamine and serotonin resulting in varied symptoms in PMS like insomnia, fatigue and depression.[6]

The American college of obstetricians and gynecologists (ACOG) proposes presence of one of the six affective and one of the four somatic symptoms to consider PMS. It is defined as a clinical condition characterized by the cyclic presence of physical and emotional symptoms unrelated to any organic disease and appear 5 days before menses in each of the three prior menstrual cycles and disappear within 4 days of the onset of menses.[7]

The medical students have more stress due to the demanding academic and clinical performance. Therefore, there is a great need to know the prevalence and severity of PMS amongst budding professionals and hence, we carried out this study. The early intervention with the multidisciplinary group of psychiatrists, gynecologists and psychologists can prevent major complications and improve the physical and mental wellbeing.

METHODS

A cross-sectional study was conducted amongst medical undergraduates of Lady Hardinge medical college between January to March 2021. Ethical clearance was obtained from the institutional ethical committee of LHMC. A convenient sample size of 228 was taken and participants were selected by random sampling technique and written informed consent was obtained. Inclusion criteria for the participants were: age (18-25 years) and medical undergraduates. The participants were divided into 2 age groups i.e., (18-21) years and (21-25) years.

The PMSS scale was used for data collection and questionnaire were filled. The ability of the PMS scale to predict the development of PUs (predictive validity) has been tested extensively. Inter-rater reliability between 0.81 and 0.97 is reported.[8] This Likert scale comprises of 40 questions with three sub-scales (Physiological, psychological and behavioral symptoms). The measurements on the scale are set according to the following scoring system: the response never was scored as "1", rarely as "2", sometimes as "3", very often as "4" and always as "5" points. The lowest PMSS score is 40 and the highest score is 200, 40-80-mild, 81-120-moderate, 121-160-severe, 161-200-very severe.

Data was coded and entered in statistical package for the social sciences (SPSS) latest version. Descriptive statistics were elaborated in the form of means/standard deviations and medians/IQRs for continuous variables, and frequencies and percentages for categorical variables. The data were presented in a graphical manner wherever appropriate for data visualization.

RESULTS

A total of 228 participants were enrolled into the study and response rate was 100%. The age distribution and severity of PMS is depicted in Table 1. Out of total, 39% of the participants were from the 18-21 age group while remaining 61% fell in the 21-25 age group as shown in Figure 1. The prevalence of PMS was found to be 100% in our study with 40.8% falling under mild symptoms, 35.1% moderate, 18.0% having a severe score and 6.1% being found to fall under the very severe score category (Figure 2). However, no significant difference was found in the severity between the two age groups.

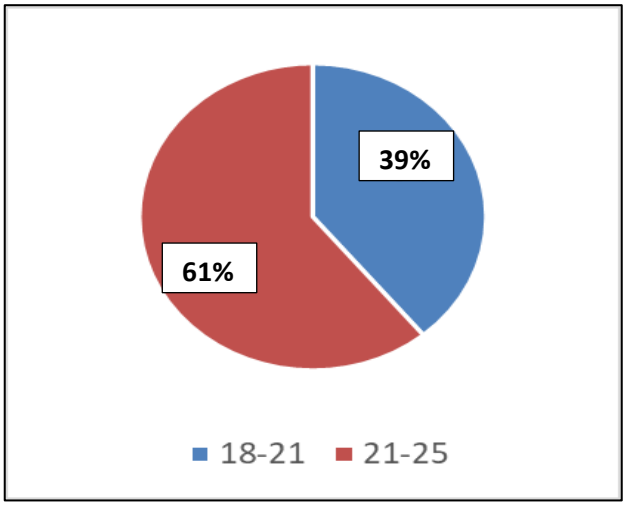

Figure 1: Age distribution.

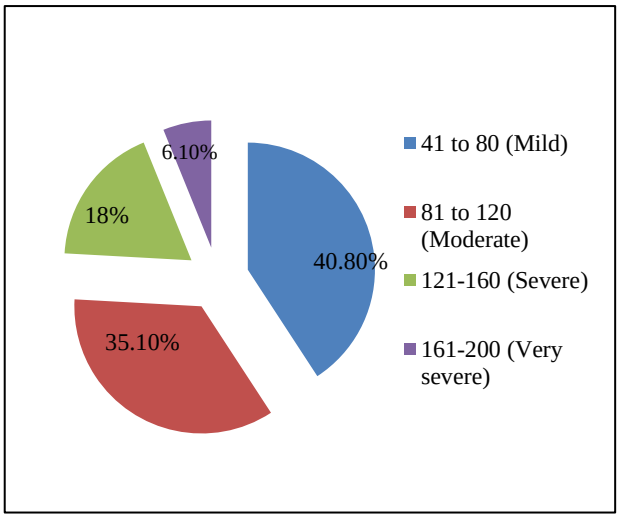

Figure 2: Severity of PMS.

Among the 16 physiological symptoms as in Table 2 it was found that pelvic pain and abdominal cramps were most commonly put under severe/very severe category by around 42% participants, with mean score of 3.1 and 3.2 respectively. Change in bowel habits and food cravings were the next two bothersome symptoms with 38% and 31% of severe/very severe scores respectively.

A total of 13 psychological symptoms were evaluated and 46% participants put irritability under severe/very severe score while 48% considered mood swings as most

bothersome. Crying spells and loss of concentration were the next most bothering symptoms with 41% and 38% categorizing them under severe/very severe group as shown in Table 3.

As shown in Table 4, about 13 behavioral symptoms were assessed and overall, their severity was found to be less when compared to physiological and psychological symptoms with lesser percentage of severe categories. Being oversensitive and loss of interest in usual activity were most commonly categorized under the severe groups with 38% and 31% participants respectively. Rest all behavioral symptoms were usually mild.

Table 1: Distribution of age and severity of PMS, (n=228).

Variables	N	Percentage (%)
Age (in years)		
18-21	89	39
21-25	139	61
Severity of PMS		
Mild	93	40.80
Moderate	80	35.10
Severe	41	18
Very severe	14	6.10

Table 2: Summary of physiological symptoms.

Physiological symptoms	None/ mild, N (%)	Moderate, N (%)	Severe/ very severe, N (%)
Breast tenderness and swelling	167 (73.2)	39 (17.1)	22 (9.6)
Abdominal bloating	110 (48.2)	52 (22.8)	66 (28.9)
Weight gain	172 (75.4)	40 (17.5)	16 (7.0)
Headache	177 (77.6)	30 (13.2)	21 (9.2)
Dizziness/fainting	188 (82.5)	23 (10.1)	17 (7.5)
Fatigue	116 (50.9)	47 (20.6)	65 (28.5)
Palpitations	195 (85.5)	17 (7.5)	16 (7.0)
Pelvic discomfort and pain	87 (38.2)	44 (19.3)	97 (42.5)
Abdominal cramps	70 (30.7)	62 (27.2)	96 (42.1)
Change in bowel habits	98 (43.0)	42 (18.4)	88 (38.6)
Increased appetite	149 (65.4)	37 (16.2)	42 (18.4)
Generalized aches and pains	113 (49.6)	52 (22.8)	63 (27.6)
Food craving (Sugar/ salt)	122 (53.5)	36 (15.8)	70 (30.7)
Skin changes, rashes, pimples	122 (53.5)	37 (16.2)	69 (30.3)
Nausea/vomiting	194 (85.1)	18 (7.9)	16 (7.0)
Muscle and joint pain	139 (61.0)	41 (18.0)	48 (21.1)

Table 3: Summary of psychological symptoms.

Psychological symptoms	None/ mild, N (%)	Moderate, N (%)	Severe/ very severe, N (%)
Irritability	86 (37.7)	38 (16.7)	104 (45.6)
Anxiety	126 (55.3)	38 (16.7)	64 (28.1)
Tension	125 (54.8)	43 (18.9)	60 (26.3)
Mood swings	82 (36.0)	37 (16.2)	109 (47.8)
Loss of concentration	97 (42.5)	45 (19.7)	86 (37.7)
Depression	135 (59.2)	35 (15.4)	58 (25.4)
Forgetfulness	171 (75.0)	23 (10.1)	34 (14.9)
Easy crying/crying spells	99 (43.4)	36 (15.8)	93 (40.8)
Sleep changes (insomnia/ hypersomnia)	135 (59.2)	32 (14.0)	61 (26.8)
Confusion	168 (73.7)	28 (12.3)	32 (14.0)
Aggression	110 (48.2)	37 (16.2)	81 (35.5)
Hopelessness	151 (66.2)	25 (11.0)	52 (22.8)

Table 4: Summary of behavioral symptoms.

Behavioral symptoms	None/ mild, N (%)	Moderate, N (%)	Severe/ very severe, N (%)
Social withdrawal	145 (63.6)	34 (14.9)	49 (21.5)
Restlessness	115 (50.4)	56 (24.6)	57 (25.0)
Lack of self-control	137 (60.1)	43 (18.9)	48 (21.1)
Feeling guilty	145 (63.6)	33 (14.5)	50 (21.9)
Clumsiness	143 (62.7)	41 (18.0)	44 (19.3)

Continued.

Behavioral symptoms	None/ mild, N (%)	Moderate, N (%)	Severe/ very severe, N (%)
Loss of interest in usual activities	116 (50.9)	53 (23.2)	59 (25.9)
Poor judgement	161 (70.6)	33 (14.5)	34 (14.9)
Impaired work performance	122 (53.5)	55 (24.1)	51 (22.4)
Obsessional thoughts	137 (60.1)	40 (17.5)	51 (22.4)
Compulsive behaviour	156 (68.4)	28 (12.3)	44 (19.3)
Irrational thoughts	139 (61.0)	35 (15.4)	54 (23.7)
Being over sensitive	99 (43.4)	43 (18.9)	86 (37.7)

DISCUSSION

The premenstrual symptoms are well known in reproductive age group women. The presentation may vary from somatic symptoms to psychological manifestations and may limit the performance of the individual.[9] Our study revealed prevalence of PMS in all the enrolled study participants. This high prevalence (100%) among our medical students may be attributed to stressful academic and social environment. The major symptoms reported by our participants were severe pelvic discomfort and pain (42.5%), confusion (73.7%), mild depression (59.2%), poor judgement (70.6%). A similar 100% prevalence of PMS was seen in a study done in Palestine by Alwafa. The most frequent symptoms noted in his study includes lethargy (88.7%), depressed mood (87%), difficulty in concentration (84.2%), anxiety (83.9%) irritability (82.6%).[10]

A study conducted among university students in Ankara, Turkey by Pinar et al PMS was detected in 72.1% of the students indicating a high prevalence as in our study. The low back pain, stress-discomfort, nervous-anger, distension and breast tenderness were the varied symptomatology experienced by the study participants.[11] In contrast, a study in China by Qiao et al showed the prevalence of PMS as 21.1%, which was very less as compared to our study. The most common symptoms reported by their participants include irritability (91.21%), breast tenderness (77.62%), depression (68.31%), abdominal bloating (63.70%) and angry outbursts (59.62%).[12]

Another similar study was conducted among 208 female medical students in Iran by Shahbazi. The overall prevalence of PMS was 73.6% and 59.1% reported back pain, 64.9% had mood swings as major symptoms during their premenstrual phase.[13] Another study from a nursing college in Northern India by Malhotra and his team showed somewhat similar results with 21 percent participants reported very severe PMS symptoms, followed by 27% severe, 3% moderate and 17% mild level PMS symptoms.[14]

The prevalence of PMS and its severity may vary depending on the number of participants, sociocultural factors, health background, lifestyle, emotional and physical stress and difference in the diagnostic tool used in the study. The PMS and its severe symptoms have also been related to increased risk of suicide in hormone sensitive individual.[15] The awareness and education of girls around the age of menarche may play a pivotal role in recognition and seeking early care to prevent future complications.

The limitation of our study includes, it's a cross sectional, single center, questionnaire-based study conducted among medical undergraduates with limited sample size. Hence, the results cannot be generalized. The underlying socio-cultural differences, lifestyle, daily dietary habits, body mass index and other factors have not been considered. All our study participants had PMS. This warrants a multicentric study with a bigger sample size to identify PMS and its impact on academic performance and quality of life in our medical undergraduates and combat this major public health problem.

CONCLUSION

Our study highlights the high prevalence of PMS and its severe forms among the medical undergraduates necessitating the need to address the issue on priority basis at both community and individual levels. Raising the awareness about this disorder among these young girls can sensitize them to seek early medical consultation and management. The multidisciplinary support team should be involved to tackle this issue to improve the overall wellbeing, performance and quality of life.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Steiner M. Premenstrual syndrome and premenstrual dysphoric disorder: guidelines for management. J Psychiatr Neurosci. 2000;25(5):459-68.
2. Richardson JT. The premenstrual syndrome: a brief history. Soc Sci Med. 1995;41(6):761-7.
3. Mishell DR Jr. Premenstrual disorders: epidemiology and disease burden. Am J Manag Care. 2005;11(16):S473-9.
4. Begum M, Das S, Sharma HK. Menstrual disorders: causes and natural remedies. J Pharm Chem Biol Sci. 2016;4(2):307-20.
5. Yonkers KA, Obrien PS, Eriksson E. Premenstrual syndrome. Lancet. 2008;371(9619):1200-10.

6. Bu L, Lai Y, Deng Y, Xiong C, Li F, Li L, et al. Negative Mood Is Associated with Diet and Dietary Antioxidants in University Students During the Menstrual Cycle: A Cross-Sectional Study from Guangzhou, China. Antioxidants. 2019;9(1):23.
7. American College of Obstetrics and Gynecology: ACOG practice bulletin: premenstrual syndrome. Washington, DC: ACOG. 2000;15.
8. Padmavathi P, Sankar R, Kokilavani N, Dhanapal K, Ashok B. Validity and Reliability Study of Premenstrual Syndrome Scale (PMSS). Int J Adv Nursing Management. 2014;2(1):4-5.
9. Brahmabhatt S, Sattigeri BM, Shah H, Kumar A, Parikh D. A prospective survey study on Premenstrual Syndrome in young and middle aged women with an emphasis on its management. Int J Res Med Sci. 2013;1(2):69-72.
10. Alwafa AR, Badrasawi M, Hamad RH. Prevalence of premenstrual syndrome and its association with psychosocial and lifestyle variables: a cross-sectional study from Palestine. BMC Womens Health. 2021;21(1):233.
11. Pinar G, Colak M, Oksuz E. Premenstrual Syndrome in Turkish college students and its effects on life quality. Sex Reprod Healthc. 2011;2(1):21-7.
12. Qiao M, Zhang H, Liu H, Luo S, Wang T, Zhang J, et al. Prevalence of premenstrual syndrome and premenstrual dysphoric disorder in a population-based sample in China. Eur J Obstet Gynecol Reprod Biol. 2012;162(1):83-6.
13. Shahbazi F, Eslampanah Z, Niaparast M. Prevalence of symptoms and medication use among female medical students and pharmacy clients with premenstrual syndrome: a cross-sectional study in Iran. J Pharmacy Pract Res. 2020;50(1):55-60.
14. Malhotra P, Sharma SK, Kaur R, Urvashi V, Gaur R, Mugdal SK. Pre-menstrual syndrome and health related quality of life among young adult females at Northern India: A Cross-Sectional Study. Clin Psychiatr J. 2019;6:65.
15. Owens SA, Eisenlohr-Moul T. Suicide Risk and the Menstrual Cycle: a Review of Candidate RDoC Mechanisms. Curr Psychiatr Rep. 2018;20(11):106.

Cite this article as: Singh A, Triveni GS, Sharma K, Saran B. Premenstrual syndrome among budding medical professionals at medical college in a metro city: a cross sectional study. Int J Reprod Contracept Obstet Gynecol 2024;13:1531-5.