



Premenstrual Syndrome among Female Students of Colleges in Ujjain City, Madhya Pradesh

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ABSTRACT

Objective: To estimate the prevalence and severity of premenstrual syndrome (PMS) and the frequency of contributing symptoms among female students of colleges situated in Ujjain city.

Method: Observational follow-up study was conducted at 4 colleges selected by convenience sampling located in Ujjain city. PMS related data from 250 girls (18-25years) who consented to participate was collected using a modified version of daily record of severity of problems for at least 2 consecutive menstrual cycles. Diagnosis of PMS was made using DRSP criteria and ACOG criteria. Descriptive analysis of data using SPSS version 16.0 was done.

Result: The prevalence of PMS was 39.6%. Most common symptoms reported were social withdrawal (77.5%) and headache (77.5%) and most severe symptoms were swollen extremity, anger, social withdrawal and headache in decreasing order of frequency.

Conclusion: Frequency of PMS is relatively common in young girls with swollen extremity as most severe symptom reported. A more robust and easily trackable tool to detect PMS is needed.

Keywords: Premenstrual syndrome, premenstrual symptoms, College student

INTRODUCTION

Premenstrual syndrome (PMS) is a broad diagnostic concept first proposed by Greene and Dalton (1953) as the "presence of recurrent symptoms during the premenstrual phase or the first few days of menses, and complete absence of these symptoms in the post-menstrual phase."¹

Retrospective community surveys^{2,3} and epidemiological surveys⁴ estimate that 75% - 90% of women have experienced at least one premenstrual symptom as defined by International Classification of Diseases (ICD) -10 criteria.⁵ Meta-analysis shows that prevalence of PMS in reproductive age group female was 47.8% and lowest and highest prevalence

were reported in France (12%) and Iran (98%), respectively.⁷

Premenstrual syndrome symptoms usually become problematic in the adolescent years⁷ and decline in the climacteric. Symptoms are most severe in the late 20s to mid 30s but women are most likely to seek treatment after the age of 30 years,⁸ but its basis lies with the onset of menses. Adolescence (10-19 years)⁹ and youth (15-24 years)⁹ are the budding future of society and the country and adolescence is the bridge between childhood and adulthood. An adolescent experiences and undergoes remarkable dynamic anatomical, physiological and psychological changes during this phase. The result is that during this disability and hormonal depres-

sion, young women are drawn into a whirl wind of depression.

Hence this vulnerable phase of life requires special attention by health care providers who can help to create awareness among young females on comprehensive measures to reduce PMS in their child bearing age. This in turn helps to prevent the negative impact on the quality of life of women. So, this research work was planned to follow at least two consecutive menstrual cycles of females to estimate the point prevalence & severity of PMS and associated symptoms among female (18-25 years) students of colleges in Ujjain city by using a self-reported scoring system.

METHOD

An observational follow-up study was conducted from December 2014 to June 2015 at 4 colleges selected by convenience sampling located in Ujjain city. A sample size of 250 participants was calculated using the formula $4pq/l^2$ considering average PMS prevalence (p) of 55%¹⁰, allowable error 7% and 20% loss to follow up. Females who were between the age of 18 and 25 years enrolled for regular courses in the selected colleges, had regular periods (28-35 days) for last 3 months before start of study and who consented for voluntary participation were included. Female using hormonal contraceptive, or who had metrorrhagia and/or menometrorrhagia were excluded. Two consecutive menstrual cycle symptoms and their severity were self reported by participants using modified Daily Record of Severity of Problems (DRSP) questionnaire (Constipation/diarrhea, acne, skin rash)^{11,12}

Screening of PMS was made using DRSP criteria and American College of Obstetrics and Gynecology (ACOG) criteria¹³. Diagnosis of severity of PMS and symptoms were divided according to the score of severity which was taken out from average score.

As only 101(out of targeted 250) (as 2 consecutive menstrual cycles were followed and self adminis-

tered questionnaire was applied) participants submitted forms in completed manner, so they were only included in final analysis.

RESULT

Out of a total of 250 target female college students, only 101students responded (a response rate of ~ 40%) and hence were included for tracking the changes in premenstrual symptoms for at least 2 consecutive menstrual cycles. Amongst the 101 participants who returned the forms filled completely for at least 2 menstrual cycles consecutively, PMS was prevalent in 40(39.6%) and 3(3%) participants according to the ACOG and DRSP criteria, respectively (Table 1).

For further descriptive analyses, participants diagnosed by ACOG criteria (n=40) were included. Amongst those 40 females screened positive for PMS, the distribution of severity of associated symptoms was minimal 2.5%, mild 27.5%, moderate 42.5%, severe 25% and extreme 2.5% (Table 2).

Table 1:- Prevalence of premenstrual syndrome (PMS) in study participants (n=101)

Criteria	PMS		Total
	Yes (n=43) (%)	No (n=159) (%)	
ACOG ¹³	40 (39.6)	61 (60.4)	101
DRSP	3 (3)	98 (97)	101

ACOG: American Congress of Obstetricians and Gynecologists criteria
DRSP: Daily Record of Severity of Problems criteria

Table 2:- Distribution of symptoms severity of premenstrual syndrome positive participants according to the ACOG criteria (n=40)

Severity of PMS	Frequency (%)
Minimal	1 (2.5)
Mild	11 (27.5)
Moderate	17 (42.5)
Severe	10 (25)
Extreme	1 (2.5)

Table 3: Distribution of premenstrual symptoms (listed by ACOG for screening PMS) according to their presence and severity among study participants screened positive for premenstrual syndrome

Symptoms	Total Present (%)	Severity (n=40)				
		Minimal (%)	Mild (%)	Moderate (%)	Severe (%)	Extreme (%)
Depression	27 (67.5)	19 (70.4)	6 (22.2)	2 (7.4)	0	0
Anxiety	26 (65)	22 (84.6)	4 (15.5)	0	0	0
Irritable	20 (50)	13 (65)	7 (35)	0	0	0
Angry	30 (75)	19 (63.3)	3 (10)	7 (23.3)	1 (3.3)	0
Conflict and confusion	22 (55)	11 (50)	7 (31.8)	4 (18.2)	0	0
Social withdrawal	31 (77.5)	20 (64.5)	4 (12.9)	6 (19.4)	1 (3.2)	0
Breast tenderness	22 (54.5)	15 (68.2)	6 (27.3)	1 (4.5)	0	0
Abdominal bloating	23 (57.5)	18 (78.3)	3 (13)	2 (8.7)	0	0
Headache	31 (77.5)	18 (58)	8 (25.8)	4 (12.9)	1 (3.2)	0
Swollen extremity	29 (72.5)	22 (75.9)	2 (6.9)	3 (10.3)	2 (6.9)	0

The most common affective symptom was social withdrawal (77.5%) and the most common somatic symptom was headache (77.5%). The least common affective and somatic symptoms were irritability (50%) and breast tenderness (54.5%), respectively (Table 3).

DISCUSSION

Out of 101 study participants who returned forms filled completely, PMS was diagnosed in 3 (3%) girls according to the DRSP criteria and in 40 (39.6%) females according to the ACOG criteria. All the participants who screened positive for PMS using the DRSP criteria were also identified as positive using the ACOG criteria for diagnosis but not vice versa. This shows that the ACOG criterion is more flexible or wider to diagnose PMS.

In the present study, the prevalence of PMS was estimated as 39.6%, which was lower as compared to other studies from India. Amita Singh et al.(2008)¹⁴ reported 60.5% medical students suffered from PMS, Lakshmi et al. (2011)¹⁵ found the prevalence of PMS to be 67% whereas, Thakre et al.(2012)¹⁶ reported prevalence of PMS as 55.8%, Ramya S et al.(2014)¹⁷ reported the prevalence of PMS in urban girls as 40.9% and in rural girls as 51.6% and Sarkar et al.(2015)¹⁸ reported prevalence of PMS as 61.5%. The variation in prevalence rates can be attributed to the difference in study designs used in above studies: observational follow up (present study), cross sectional^{14,15,16,18} and educational interventional¹⁷. Other possible for variation in detected PMS prevalence included the age of the participants, study population, sample size, cultural and geographical influences considered by investigators in various studies.

Studies conducted outside India reported wide variation in the prevalence of PMS. Studies from Pakistan (51%¹⁹ and 81.25%²⁰), Tehran (71.1%)²¹ and Brazil (91.7%)²² reported a higher prevalence while studies from Iran(16%)²³ and North Ethiopia(37%)²⁴ reported prevalence lower than in the present study. The variation could be due to the differences in participating general community, cultural and geographical variation and the type of population studied.

Severity of premenstrual syndrome

In the present study, PMS positive participants were classified according to severity of premenstrual syndrome. Minimal PMS was found in 1 (2.5%) female(s), and mild PMS was found in 11 (27.5%) female(s). Frequency of moderate and severe PMS was 17(42.5%) and 10(25%), respectively whereas extreme PMS was found only in 1 (2.5%) female(s). Moderate PMS was found to be more frequent (42.5%) in the study participants and ex-

treme PMS, which is also known as PMDD was less frequent (2.5%) in the study participants. Similar findings were reported by Hetal et al.²⁵ from India which can be attributed to the fact that same age group of female participants were included in both the studies. While Kamat et al.²⁶ reported the prevalence of moderate to severe PMS as 17.3% and PMDD as 4.7% and Padhy et al.²⁷ reported that 8% had severe PMS and 3% had very severe PMS and PMDD was present in 10% participants. Variations in findings can be due to the willingness of participants to answer and differential perception of the severity of the symptoms under study.

Studies from Pakistan^{28,19} and Tehran²¹ reported severity of PMS and the variation in findings can be attributed to the difference in collecting data related to PMS, cultural/geographical disparity, differential willingness of the participants to disclose information about their experiences and awareness of participants about their physical and emotional status in general, and prior to or during menstruation in particular.

Severity of symptoms of premenstrual syndrome

In present study the most common affective symptom was social withdrawal (77.5%) and the most common somatic symptom was headache (77.5%) which was similar to that reported by Sarkar et al. in 2015.¹⁸ The least common affective symptom was irritability (50.0%) and the least common somatic symptom was breast tenderness (54.5%). The findings are different from the previous studies in India. This can be due to the willingness and awareness of participants to disclose about their physical and emotional status in general, and prior to or during menstruation, in particular.

In present study, the most severe symptoms experienced and identified were swollen extremity, anger, social withdrawal and headache. Out of these, swollen extremity was most severe symptom, possibly because somatic symptoms are easily identified and so can be quantified by participants undoubtedly and clearly.

Some studies^{26,23,29,30} have concluded that majority of participants had at least one mild or severe premenstrual symptom. The difference in findings can be attributed to the difference in method of collecting data related to PMS, questionnaire derived from literature review²⁹ and premenstrual assessment scale³⁰ and scoring methods used by investigators to grade symptoms.

CONCLUSION

Findings of this study suggest that frequency of PMS is relatively common in younger girls (18-25 years) and moderate form of PMS is most frequent

which adversely affects the educational, social and emotional well-being of the young adolescent girls, so means should be adopted to reduce the prevalence of this disorder and mitigate the severity of symptoms. Further studies on large samples of population should be conducted to confirm these results and to plan out strategies for better management of PMS, especially among young girls.

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