Original Research Article

Study of the magnitude of premenstrual syndrome in a tertiary care institute in Pondicherry, India

Jessy Varghese[1], Vijaya Koothan[1]*, V. Sujaritha[2]

[1]Department of Obstetrics and Gynecology, [2]Department of Psychiatry, Aarupadai Veedu Medical College, Vinayaka Mission's Research Foundation (Deemed To Be University), Pondicherry, India

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*Correspondence:
Dr. Vijaya Koothan,
E-mail: vijaya.koothan@avmc.edu.in

ABSTRACT

Background: Premenstrual syndrome is cyclical physical and behavioural symptoms that appear in days preceding menstruation and interfere with work or life style followed by a symptom free interval. The common affective and somatic symptoms seen are mood swings, irritability, anxiety, breast tenderness, weight gain and abdominal bloating. The present study was done to detect premenstrual syndrome and encourage students to seek treatment which would improve quality of life both socially and academically.

Methods: A cross-sectional study was conducted over a period of three months from November 2018 to January 2019 among medical students in a tertiary care institute in Pondicherry. A detailed questionnaire regarding premenstrual symptoms and screening for depression was obtained from all study subjects. Diagnosis of premenstrual syndrome was done if there were at least one affective symptom like mood swings, insomnia, anxiety and one somatic symptom like abdominal bloating, breast complaints and weight gain.

Results: Total of 207 students were screened out of whom 155 (74.87%) students were found to have premenstrual syndrome. 41 students did not have the same, 11 students were excluded as they were having endocrine disorders like polycystic ovarian syndrome and thyroid abnormalities. 60.6% had mild 38.4% moderate 4.5% had severe premenstrual syndrome. Commonest symptoms were mood swings 81.9% followed by anxiety 80% and fatigue 71.6% breast complaints and joint pains were seen in 71% equally so also abdominal bloating and weight gain which was seen in 67%. Depression was found in 52.9% of the students.

Conclusions: Premenstrual syndrome is prevalent among medical students commonly and detecting it and encouraging students to seek treatment will help them perform better socially and academically.

Keywords: Depression, Neurotransmitter, Premenstrual syndrome

INTRODUCTION

Premenstrual syndrome (PMS) is cyclical physical and behavioural symptoms that appear in days preceding menses and interfere with work or life style, followed by a symptom free interval.[1] ACOG criteria defines that patient must have at least one of the following affective and somatic symptoms during the five days before menses and then must be relieved of the same within four days of onset of menstruation without recurrence till day 13 of the cycle. These symptoms must be present in the absence of any pharmacologic therapy, hormonal ingestion and endocrine disease. These symptoms must exhibit dysfunction in social, academic or work performance. The affective symptoms are mood swings, anger outbursts, irritability, confusion, anxiety, fatigue, and social withdrawal. Somatic symptoms are breast tenderness, abdominal bloating, headache, weight gain,

and swollen extremities.[2] The incidence of PMS in India is 30% among the medical students in previous studies.[3]

Causes of PMS remain an enigma but it has been attributed to altered sensitivity of the neuroendocrine and neurosteroids to fluctuations in the levels of hormones in the menstrual cycle.[4] Premenstrual syndrome can be classified depending on the severity of symptoms as mild, moderate and severe. Medical students encounter multiple anxieties in transformation from insecure students to young knowledgeable physicians. Studies have observed that among medical students a high incidence of personal stress during the course.[5] Detection of PMS and encouraging them to seek treatment will greatly improve their quality of life and perform better academically and socially. Hence we embarked on this study.

METHODS

A cross sectional study was conducted for a period of 3 months during last quarter of 2018. A total of 207 medical students of a tertiary care institute in Pondicherry were enrolled in the study after obtaining institutional ethical clearance. Study subjects were female students of second, third, and fourth year MBBS and post graduates. All participants were briefed about PMS after which a detailed questionnaire regarding information about premenstrual symptoms with clear emphasis on timing of symptoms (1 week before prior to the onset of menstrual period till day four of cycle) were distributed. Along with this an (CES-D) scoring chart for depression was filled by participants.

Statistical analysis

All data were analysed with Microsoft excel software. Descriptive analysis was performed or all variable to obtain the frequency and percentage by chi-square test.

RESULTS

Total of 207 students were screened out of whom 155 (74.87%) students were found to have premenstrual syndrome. 41 students did not have the same 11 students were excluded as they were having endocrine disorders like polycystic ovarian syndrome and thyroid abnormalities. 60.6% had mild 38.4% moderate 4.5% had severe premenstrual syndrome. Commonest symptoms were mood swings 81.9% followed by anxiety 80% and fatigue 71.6% breast complaints and joint pains were seen in 71% equally so also abdominal bloating and weight gain which was seen in 67%. Depression was found in 52.9% of the students.

Table 1 shows demographic profile of students. Mean age of students were 21±1.8 years.

The majority of students were between 21-22 years (40.6%). 36.1% of students were between 19-20 years

and 16.1% of students were between 23-24 years. Similarly 3.9% of students were between 25-26 years and 1.9% of students were between 17-18 years. Also 1.3% of students were between 27-28 years old.

Table 1: Age in years of study population.

Age in years	No. of cases	Percentage
17-18 years	3	1.9%
19-20 years	56	36.1%
21-22 years	63	40.6%
23-24 years	25	16.1%
25-26 years	6	3.9%
27-28 years	2	1.3%
Total	**155**	**100%**

Table 2: BMI of study population.

BMI	No. of cases	Percentage
Underweight	3	1.9%
Normal	84	54.2%
Overweight	52	33.5%
Mild obesity	12	7.7%
Moderate obesity	1	0.6%
Morbid obesity	3	1.9%
Total	**155**	**100%**

The maximum number of students were Normal weight (54.2%). 33.5% of students were Overweight and 7.7% of students had Mild obesity. Similarly 1.9% of students were Underweight and 1.9% of students had Morbid obesity. Also 0.6% of students had Moderate obesity.

Table 3: Severity of premenstrual syndrome.

Premenstrual syndrome	No. of cases	Percentage
Mild	94	60.6%
Moderate	54	34.8%
Severe	7	4.5%
Total	**155**	**100%**

Table 4: Presence of affective and somatic symptoms in PMS.

Symptoms	Numbers	Percentage
Anxiety	124	80%
Mood swing	127	81.9%
Insomnia	101	65.2%
Fatigue	111	71.6%
Confusion	108	69.7%
Breast C	110	71%
Abd bloating	104	67.1%
Headache	98	63.2%
Joint pains	110	71%
Weight gain	104	67.1%

Table 2 shows Mean body mass index was 24.7±5. Out of 155 students, 60.6% had mild pre menstrual syndrome, 38.4% had moderate premenstrual syndrome and 4.5% had severe premenstrual syndrome shown in Table 3.

Out of 155 students majority of them had mild premenstrual syndrome (60.6%). 34.8% of students had moderate premenstrual syndrome and 4.5% of students had severe premenstrual syndrome.

The majority of students had mood swing (81.9%) followed by anxiety (80%). 71.6% of students had

fatigue. Table 4 shows the various affective and somatic symptoms.

Table 5: Percentage of depression among students with PMS.

Depression	No. of cases	Percentage
Present	82	52.9%
Absent	73	47.1%
Total	**155**	**100%**

Table 6: Correlation between severity of PMS and depression.

Severity of PMS			Depression		Total
			Present	**Absent**	
Premenstrual syndrome	Mild	Count	41	53	94
		% Within premenstrual syndrome	43.6%	56.4%	100.0%
	Moderate	Count	36	18	54
		% Within premenstrual syndrome	66.7%	33.3%	100.0%
	Severe	Count	5	2	7
		% Within premenstrual syndrome	71.4%	28.6%	100.0%
Total		**Count**	**82**	**73**	**155**
		% Within premenstrual syndrome	**52.9%**	**47.1%**	**100.0%**

Chi-Square Value = 8.323   P value = 0.016   Significant; The chi-square test shows that there is a significant correlation between Premenstrual syndrome and depression (p=0.016).

Table 7: Correlation between PMS symptoms and depression.

Symptoms		Depression		P Value
		Present	**Absent**	
Anxiety	Present	71	53	0.03*
	Absent	11	20	
Mood swing	Present	67	60	0.938
	Absent	15	13	
Insomnia	Present	61	40	0.011*
	Absent	21	33	
Fatigue	Present	60	51	0.648
	Absent	22	22	
Confusion	Present	65	43	0.006*
	Absent	17	30	
Breast C	Present	60	50	0.522
	Absent	22	23	
ABD Bloat	Present	59	45	0.173
	Absent	23	28	
Headache	Present	56	42	0.166
	Absent	26	31	
Joint pains	Present	61	49	0.32
	Absent	21	24	
Weight gain	Present	60	44	0.088
	Absent	22	29	

-Significant; The chi-square test result shows that depression has significant correlation with anxiety (p=0.03), Insomnia (p=0.011*) and confusion (p=0.006*)

Majority of students have mood swing (81.9%) followed by anxiety (80%) and fatigue (71.6%). Breast complaints and joint pains were seen in 71% equally, so also abdominal bloating and weight gain which was seen in 67% of students. Depression was found in 52.9% of the students, 47.1% did not experience any depression as shown in Table 5. Out of 155 students, 82(52.9%) students had depression.

There was a significant correlation with premenstrual syndrome and depression as shown in Table 6, students with severe PMS had higher percentage of depression, with p value = 0.016. When all the symptoms of premenstrual syndrome were analysed symptoms of anxiety (p=0.03), insomnia (p=0.011) and confusion (p=0.006) was found to have significant correlation with depression as shown in Table 7 among students with premenstrual syndrome.

DISCUSSION

Premenstrual syndrome is a common disorder among young women and not detected till it is specifically looked for as it affects work productivity, healthcare and overall quality of life.[6] Current study was aimed to measure the magnitude of premenstrual symptoms among medical students in a tertiary care institute. Of the 155 students with premenstrual syndrome, mean age was 21±1.8 years and mean BMI was 24.7±5.03. Similarly studies by Kyan H et al where they observed mean age as 23.13 and BMI 21.6, respectively.[7] Mild symptoms were commonest 60.6% moderate were 34.8% severe 4.5%. This is different from studies by Abirami et al where they observe mild PMS 26%, moderate 55% and severe 19%.[8] This difference may be due to perception of premenstrual symptoms among medical students to be more than others.

Studies by Joshi JV et al showed a prevalence of severe premenstrual syndrome to be 5% which is similar to our study where it was 4.5%.[9] This shows that severe forms are more or less constant than mild and moderate premenstrual symptoms which are less specifically identified by students.

Majority of students in our study had mood swing 81.9% followed by anxiety 80% and fatigue 71.6% this is comparable to students by Bakshani et al which showed fatigue to 84%, depressed mood 72.3%, sudden feeling of sadness or tearfulness 70.3% and anxiety 70%.[10]

Breast complaints were 71%, followed by joint pain in 71%, while abdominal bloating and weight gain was 67%. This is similar to studies by Zehra S et al where they noticed fatigue in 86.84%, breast tenderness in 67.65% and irritability in 71.05%.[11]

Depression was seen in 52.9% of students with significant correlation with premenstrual symptoms of anxiety insomnia and confusion. This is similar to

students by Myint T et al from Thailand where 40% of responders noticed sadness, depression, irritability and conflicts with friends and boyfriends.[12] Similarly, depression was seen in 48% among 2270 medical students in a study by Mohammed et al from Karachi, Pakistan.[13] Study from Rajana M et al showed similarity with 45.7% of depression among students with premenstrual syndrome.[14]

The recall of premenstrual symptoms may not be as accurate as daily log of symptoms prospectively which is a limitation in our study and we recommend the latter in future studies.

CONCLUSION

Premenstrual syndrome can be a challenging disorder for medical students which needs to be identified and is closely related with depression. Treatment of both will improve the quality of life of medical students and reduce the levels of stress and help them perform better academically. Depression scale is only a screening test, hence a psychiatric counselling is required to confirm the diagnosis in those screened to be positive.

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