Premenstrual syndrome among adolescent girl students in a rural school of West Bengal, India

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Abstract

Background: Various studies in India have observed an incidence of premenstrual syndrome (PMS) to be 20% in general population, with 8% revealing severe symptoms.

Objective: To study the sociodemographic characteristics of adolescent rural school girls, assess the prevalence of PMS among them, and find out the factors associated with PMS, if any.

Materials and Methods: This was a descriptive study with cross-sectional design, conducted in Purba Medinipur district of West Bengal from July to August 2014. Multistage random sampling method was used. Totally, 244 students were included in the study. Data were analyzed with the help of statistical software SPSS, version 20.0, using mean, standard deviation, proportion, and χ^2-test.

Result: PMS was reported by 61.5% of girls. Of the affective symptoms in ACOG criteria, 62.7% girls reported depression and 70.5% girls anger. Irritability was reported to be as high as 84.8%. Anxiety and confusion were reported by 76.0% and 66.8% adolescent girls, respectively. Around one-third of girls experienced breast pain, and 55.3% of girls have also faced social rejection during that period. Headache and abdominal distension were reported by around 55% students. Only 14.7% of them reported limb swelling in premenstrual period. PMS was found to be associated with mother's occupation, amount of blood flow during menstruation, and presence of dysmenorrhea ($p < 0.05$).

Conclusion: PMS was found to be an important health problem of adolescent girl students in rural areas.

KEY WORDS: Premenstrual syndrome, adolescent girls, rural school

Introduction

Adolescence is a period of transition from childhood to adulthood, occurring between the ages of 10 and 19 years.[1] The significant happening in a girl's life is menarche. Menstrual complications are considered to be the main gynecological problem, among others, particularly in adolescent females.[2]

Premenstrual syndrome (PMS) refers to a group of expectable physical, cognitive, affective, and behavioral symptoms that are observed cyclically during the luteal phase of the menstrual cycle and resolve immediately in a few days at the beginning of menstruation.[3] Various studies in India have observed an incidence of PMS to be 20% in general population, with 8% revealing severe symptoms [4]

American College of Obstetrician and Gynecologist (ACOG) put forward criteria, which consist of any one of the affective symptoms (depression, angry outbursts, irritability, anxiety, confusion, and social withdrawal) and somatic symptoms (breast tenderness, abdominal bloating, headache, and swelling of extremities). These symptoms should occur in the three prior menstrual cycles during the 5 days before the onset of menses, and the symptoms must resolve within 4 days of initiation of the menses and not relapse until after day 12

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of the cycle. An unfavorable effect on social or work-related activities must be exerted by these symptoms.[5] These conditions are not life-threatening, but they can seriously decrease the quality of life of many women and affect their mental health and their productivity.[6]

With this background, this study was undertaken to study the sociodemographic characteristics of adolescent rural school girls, assess the prevalence of PMS among them, and find out the factors associated with PMS, if any.

Materials and Methods

This was a descriptive study with cross-sectional design conducted in Purba Medinipur district of West Bengal, India, from July to August 2014, as this period was found to have maximum attendance of students from records in the previous years. Multistage random sampling method was used. At first, of all blocks in the district, Chandipur block was selected through simple random sampling. Six higher secondary schools for girls are situated in this block. Of them, one school was selected by simple random sampling. The name of the selected school was Kalikakhali S.B. Vidyapith, Chandipur. At first, the school authority was approached to obtain permission for the study. The purpose of the study was explained to them. Then, the data were collected from the students of class IX to class XII who attended the school on the days of data collection. Data were collected in the class room. Totally, 244 students were included in the study. All of the students who were present in school on the days of data collection were included in the study. Informed consent was obtained from the students before data collection. Data collection was done with the help of a predesigned and pretested self-administered questionnaire. Questionnaire was translated in Bengali with the help of language experts. Again, it was retranslated in English to find out the discrepancies and modified accordingly. The first part of the questionnaire included information on sociodemographic characteristics, while the second part dealt with PMS. Students were briefed about how to fill up the questionnaire; 30-min time was allotted for filling up the questionnaire. ACOG criteria[4] were used for the assessment of PMS. It contains six affective and four somatic symptoms. Symptoms must also meet the following criteria: (i) be relieved within 4 days of the onset of menses, without recurrence until at least cycle day 13, (ii) be present in the absence of any pharmacologic therapy, hormone ingestion, or drug or alcohol use, (iii) be causing identifiable dysfunction in social or economic performance, and (iv) occur reproducibly during two cycles of prospective recording.

Data were entered in MS Excel spread sheet and analyzed with the help of statistical software SPSS, version 20.0, using mean, standard deviation, proportion, and χ^2-test.

Results

The mean age of the students was 15.1 ± 1.42 (range, 13–21) years. Majority of them were Hindus (97.5%), whereas rests were Muslims. Majority belonged to general caste (82.4%), while 16.0% and 1.6% were contributed by scheduled caste and other backward classes. About 60.6% of girls came from nuclear families. Majority of the mother of the girls were educated up to higher secondary (42.2%), while 7.8% of them were illiterates. In majority of them, mothers were homemaker (90.6%) by occupation. BPL card was present in case of only 22.9% of students.

The average age at menarche was 12.77 ± 1.06 (range, 10–16) years. Majority of them (84.0%) revealed irregular cycles, while flow was more than normal level in 18.0% girls. Duration of menstrual cycle varied from 2 to 10 days, with an average of 5.3 days. Nearly, about two-third of the adolescent girls reported to have cycles longer than 5 days, while 59.4% girls suffered from dysmenorrhea. About 61.5% of the girls reported to have PMS. Of the affective symptoms in ACOG criteria, 62.7% reported depression, of which 7% experienced frequently in the premenstrual period [Table 1]. Anger was reported by 70.5% of girls, where 20.5% was mostly affected. Irritability was reported to be most frequent as high as 84.8% girls, where 20.5% experienced it most frequently. Anxiety and confusion were reported by 76.0% and 66.8% adolescent girls, respectively, where about one-fifth experienced frequent such episodes. Around one-third of girls experienced breast pain, while only 4.1% experienced it most frequently. Social rejection was faced by 55.3% of girls during that period; of them, 13.1% faced it most frequently. Headache and abdominal distension were reported by around 55% students. Only around 10% of girls experienced both of these most frequently. Only 14.7% of them reported limb swelling in the premenstrual period, with only 3.3% facing it most frequently.

PMS was not found to be statistically associated with age, religion, caste, type of family, education of mother, and possession of BPL card in the family, whereas occupation of mother was found to be statistically significant ($p < 0.05$) [Table 2]. No statistical significance was observed with age at menarche, duration of cycle, and nature of flow. However, it was found to be associated with amount of blood flow during menstruation and presence of dysmenorrhea ($p < 0.05$) [Table 3].

Table 1: Distribution of adolescent girls with PMS according to symptoms in ACOG criteria (*n* = 150)

Symptom	Number	Percentage
Depression	94	62.7
Anger	105	70.0
Irritability	127	84.7
Anxiety	114	76.0
Confusion	100	66.8
Rejection	83	55.3
Breast pain	51	34.0
Abdominal distension	82	54.7
Headache	84	56.0
Swelling of limbs	22	14.7

Table 2: Distribution of adolescent girls according to sociodemographic characteristics and premenstrual syndrome ($n = 244$)

Factors	Premenstrual syndrome		χ^2 value, *p*/Fisher's exact value
	Present, *n* (%)	Absent, *n* (%)	
Age (years)			
13–17	139 (61.5)	87 (38.5)	0.001, 1, 0.97
18–21	11 (61.1)	7 (38.9)	
Religion			
Hindu	145 (60.9)	93 (39.1)	1.2, 1, 0.26
Muslim	5 (83.3)	1 (16.7)	
Caste			
General	123 (61.2)	78 (38.9)	0.34, 2, 0.84
Scheduled caste	25 (64.1)	14 (35.9)	
Other backward classes	2 (50.0)	2 (50.0)	
Type of family			
Nuclear	87 (58.8)	61 (41.2)	1.1, 1, 0.28
Joint	63 (65.6)	33 (33.4)	
Educational status of mother			
Illiterate	12 (63.2)	7 (36.8)	0.02, 1, 0.87
Literate	138 (61.3)	87 (38.7)	
Occupation of mother			
Homemaker	141 (63.8)	80 (36.2)	5.3, 1, 0.02
Others	9 (39.1)	14 (60.1)	
BPL card			
Present	35 (62.5)	21 (37.5)	0.03, 1, 0.85
Absent	115 (61.2)	73 (38.8)	

Table 3: Distribution of adolescent girls according to physical factors and premenstrual syndrome ($n = 244$)

Physical factors	Premenstrual syndrome		χ^2 value, *p*
	Present, *n* (%)	Absent, *n* (%)	
Age at Menarche			
13–17	113 (59.5)	77 (49.5)	1.45, 1, 0.22
18–21	37 (68.5)	17 (31.5)	
Regularity of cycle			
Regular	131 (63.9)	74 (36.1)	3.19, 1, 0.07
Irregular	19 (48.7)	20 (51.3)	
Flow			
Normal or low	117 (58.5)	83 (41.5)	4.15, 1, 0.04
Heavy	33 (75.0)	11 (25.0)	
Duration of cycle			
≤5 days	91 (59.5)	62 (40.5)	0.69, 1, 0.40
>5 days	59 (64.8)	32 (35.2)	
Dysmenorrhea			
Present	97 (66.9)	48 (33.1)	4.43, 1, 0.03
Absent	53 (53.5)	46 (46.5)	

Discussion

A cross-sectional descriptive study on PMS revealed that the majority of the girls were Hindus, of general caste, and from nuclear family. Majority of their mothers were educated up to higher secondary and homemakers. Most of the girls did not have BPL card. Majority of the girls revealed irregular cycle, dysmenorrhea, and PMS.

The mean age at menarche was found to be similar to a previous study in Nagpur.[7] Amount of menstrual bleeding was reported to be more than that in the study in Iran.[7] Prevalence of PMS was less than that reported in the studies in Nagpur and Bangalore,[7–9] while it was slightly more in studies in Central India and Korea.[10,11] In a study at Amaravati district of Maharashtra, only 17.9% reported PMS.[12] The prevalence of PMS was more in the girls having homemaker mothers, which may be owing to more apprehensive mothers staying at home. In Iranian adolescents, the most-reported physical symptoms were lower abdominal and back pain, and lethargy was the major psychological complaint of the respondents,[13] whereas, in this study, irritability was the commonest psychological symptom and abdominal distension to be the most-common physical symptoms. More than half of the girl students had to face social rejection owing to PMS. This may be because of low level of literacy and awareness. Similar to this study, dysmenorrhea was found to be significantly associated with PMS in studies conducted in Iran[13] and United Arab Emirates.[14]

This study provides a picture of PMS among rural girls studying in schools. However, being a school-based study, the findings cannot be extrapolated to general population.

Conclusion

This study revealed a high prevalence of PMS among school-going adolescents in a rural area. It was significantly associated with homemaker mother, amount of blood flow during menstruation, and dysmenorrhea. Adolescent-friendly health services should be strengthened for proper counseling of the girls. Life-skill education in schools should be properly given. This will help them to get rid of PMS so that they can enjoy and utilize the formative years of life to the fullest extent.

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