

Impact of Premenstrual Syndrome (PMS) on Quality of Life among adolescent girls of rural area of Gautam Buddha Nagar: A Cross sectional study

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ABSTRACT

Background: PMS causes purposeful impairment in efficiency at school/work, impaired relations with friends, , poor social life activities and home responsibilities affecting quality of life. **Aims & Objectives:** This study was conducted to estimate the prevalence and symptoms of premenstrual syndrome in adolescent girls and to assess the impact of premenstrual syndrome on their quality of life. **Methodology:** A cross-sectional study was done among 380 adolescent girls using a pretested semi-structured questionnaire residing in rural field study areas of Department of Community Medicine of a medical college. **Results:** The prevalence of PMS was reported to be 65.7 % . Head ache (66%) was the most frequent symptom followed by acne (60%) and generalized body ache (57%). Only 37.8% of the girls take their quality of life to be good followed by 1.8% as very good when they were asked about experiencing any negative feelings prior to menses like blue mood, despair ,anxiety etc .Around one fourth (26%) of them reported that they never experience any kind of negative feeling .**Conclusion:** The adolescent girls are in greatest need for physical , psychological support as they experience the most severe PMS symptoms.

KEYWORDS

Premenstrual Syndrome; Physical and Psychological Symptoms; Quality of Life

INTRODUCTION

Today 1.2 billion adolescent stand at the crossroads between childhood and adult world (1). In our country adolescent, young people between the ages of 10 to 19 contributing to nearly one quarter of total population (2). The

period of adolescence for the girls is a period of physical and psychological preparation for safe motherhood (3).

The negative views on the menstruation are mutual, and their implications deserve increased consideration (4). A guise at major

religions of the world displays that they have placed restrictions about attending places of worship, cooking, physical intimacy during menstruation.(5)

PMS is defined by international classification of diseases (ICD-10) as occurrence of one symptom in a list of symptoms which include mild psychological discomfort, feelings of bloating, weight gain, breast tenderness, swelling of hands and feet, various aches and pains, poor concentration, sleep disturbances and changes in appetite (6). PMS has countless impact on the quality of life. It can affect the physical, emotional and psychological health of an adolescent (6). These symptoms may be of such severity that they can unsettle interpersonal relations, social activities, work performance or quality of life.(7)

The global prevalence of PMS was reported to be 18.4%, 23.9 %, 49.9%. (8,9,10).The aetiology of PMS is multifactorial including social factors (ethnicity and culture), socioeconomic status, dietary habits, stress, exercise, smoking, alcohol consumption, and menstrual factors (11-14) . One of the common causes which are suggested about PMS is endocrinal cause(15). Environmental aspects, defective nutrition, and faulty adrenal hormone secretion lead to the development of PMS.(16) .Lengthen stress exposure can lead to malfunctions of neuroendocrine system and could flare PMS.(17)

Aims & objectives of the Study:

1. To estimate the prevalence of premenstrual syndrome in women aged 11-19 years of age.
2. To determine the most frequent symptoms of PMS among the study population.
3. To assess the impact of premenstrual syndrome on quality of life among the adolescent girls.

MATERIAL & METHODS

Study type & study design: A community-based cross-sectional study was conducted among adolescent girls residing in field study areas of Rural Health Training Centre (RHTC) of Department of Community Medicine of a Medical College in the district Gautam Budh Nagar .

Study setting: RHTC is located in Pachayatan village of district Gautam Budh Nagar, UP. Eight villages are registered under RHTC with a population of 15000.

Study population: Registered household under the field practice area of Department of Community Medicine, of a Medical College in the district Gautam Budh Nagar.

Study Duration: 3 months.

Sample size: By using formula $n = 4pq/L*L$, taking prevalence as 39% (Badkur D et al), 5% absolute error, the sample size came out to be $380.64 = 380$. Hence 380 girls who gave consent were interviewed.

Inclusion criteria: adolescent females between 11-19 years of age.

Exclusion criteria: Those who have not given consent and did not attained menarche.

Strategy for data collection: After calculating the respective sample sizes be drawn from each of the area by Probability Proportion to Size (PPS), The participants were selected by convenient sampling from the respective areas. An informed consent was taken from the parents/guardians in less than 18 years of aged girls and rest by themselves and questionnaire was filled to help identify the prevalence of PMS, symptoms and the impact on their quality of life.

Working definition : A pretested semi-structured questionnaire was used as a study tool. The questionnaire contained information about demographic data of the study population, diagnostic symptoms of PMS taken from the American College of Obstetricians and Gynaecologists (ACOG) criteria and the impact of PMS on their quality of life with the help of WHO-BREF questionnaire. The WHOQOL- BREF is a short form quality of life assessment that looks at Domain level profiles, the WHOQOL-BREF contains four domains and a total of 26 questions. The four domains consists of questions related to physical health Psychological health , Social relationships and Environment .

Ethical approval: The Ethical approval has been taken from the Institutional Ethics Committee(Ref No. –SU/SMS&R/76-A/2020/43).

Data analysis: The data was entered and analysed in SPSS 20. Descriptive statistics

(Frequency and Percentage) were used to analyze the demographic characteristics, prevalence of PMS, symptoms and impact on the Quality of life.

RESULTS

A total of 380 unmarried girls participated in the present study. Around half(44%) of them belonged to the age group between 14-16 years .The mean age of the study participants were 15.8 years . Out of these 97% belonged to Hindu religion and the rest belonged to Muslim and Christianity. 42% live in joint or three generation families while the rest belonged to nuclear families. The socioeconomic status according to the modified BG Prasad scale of the participants was- 13% in lower class, 40% in lower middle class, 18% were middle class, while 27% belong to upper middle class or upper class as shown in Table 1.

Table1: Distribution of study participants according to their socio-demographic characteristics (N=380)

Characteristics	N	%
Age (in years)		
11-13	56	14.73
14-16	167	43.94
17-19	157	41.33
Religion		
Hindu	370	97.36
Muslim	9	2.36
Christian	1	0.28
Type of family		
3 Generation	46	12%
Joint Family	116	30%
Nuclear	218	58%
Socio-economic status as per Modified B.G Prasad Classification (2020)		
Lower class	52	13.68
Lower middle class	153	40.26
Middle class	71	18.68
Upper middle class	78	20.52
Upper class	26	6.86

Association of age group of the study participants is shown in table 2, The prevalence of PMS is highest among the age group between 11-13 years (98.3%) followed by 17-19 years of age (95.7%) . However, there is no significant association between age group and PMS(p value =0.569).

Table 2 – Association of Age group of study subjects with PMS (n=380)

Age Group(in years)	PMS		p-value
	Absent n(%)	Present n(%)	
11-13	1(1.7)	57(98.3)	0.569
14-16	8(5)	153(95)	
17-19	7(4.3)	154(95.7)	

The prevalence of PMS was reported to be 65.7 % in the present study. 65.7% of the participants reported at least one symptom of PMS. As depicted in Table 3, Of the affective symptoms in ACOG criteria, head ache (66%) proved to be the most frequent symptom followed by acne (60%) and generalized body ache (57%). Most frequent emotional symptom proved to be cravings (55%) and mood swing (55%) while the least frequency was seen for symptoms of anxiety or depressive symptoms. While 48% usually take leave due to pre menstrual causes, 62% notice a lack in their concentration span, and 54% notice a generalized decrease in their school performances. In addition to this, 56% face difficulty in performing their household tasks.

Table 3 Distribution of study subjects with PMS as per symptoms in ACOG criteria (n =250)

A-Physical symptoms	N (%)
Backache	168(44%)
Headache	253(66%)
Generalised body ache	218(57%)
Acne	231(60%)
Fatigue	150(39%)
Diarrhoea/Constipation	168((44%)
B-Emotional symptoms	
Anxiety/Depression	152(4%)
Cravings	211(55%)
Mood Swings	211(55%)
Negative impact on relations with friends/family	189(49%)
Irritability	157(41%)
C- Affect on work life	
Absenteeism from school	186(48%)
Decreased concentration	236(62%)
Difficulty in household chores	216(56%)

** Multiple responses table*

Only 37.8% of the girls take their quality of life to be good followed by 1.8% as very good and when they were asked about experiencing any negative feelings prior to menses like blue

mood , despair ,anxiety etc .Around one fourth (26%) of them reported that they never experience any kind of negative feeling and

41% said they experience it quite often as shown in Table 4.

Table 4 Distribution of study participants as per their rating of quality of life and Negative feelings

Rating of QOL	Very Poor	Poor	Neither good nor poor	Good	Very Good
	(1.3)	(12.3)	(46.8)	(37.8)	(1.8)
Negative feelings prior to menses	Never	Seldom	Quite often	Very often	Always
	(26)	(26)	(41)	(6)	(1)

As shown in **Table 5**, around half of females (48%) felt that physical pain prevents them from doing what they intend to do in a moderate amount followed by a small percentage of 3% who were not able to do anything due to physical pain. 17% of females did not enjoy their life and do not find their

life to be meaningful. 26% were not able to concentrate in studies and daily work and 42% have energy to perform their physical task without PMS affecting them. Only 46% remain satisfied with their physical appearances prior to menstrual days.

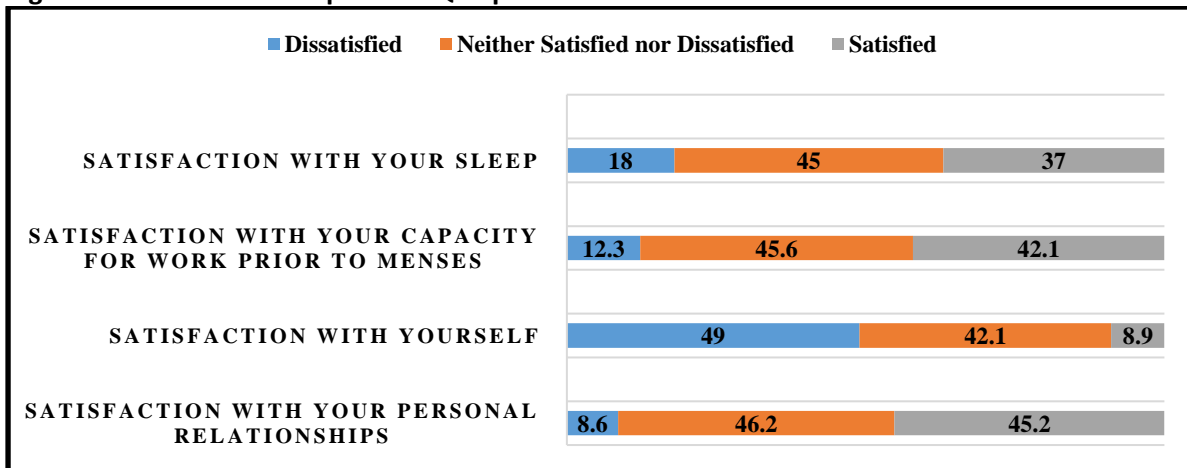
Table 5 -Distribution of study participants according to factors which impact the quality of life on days prior to menses (n = 250)

Factors	Not at all (%)	A little (%)	A moderate amount (%)	Very much (%)	Extremely (%)
To what extent do you feel that physical pain prevents you from doing what you need to do?	4.21	32.63	48.68	11.84	2.64
How much do you enjoy life?	0.789	16.05	51.57	27.89	3.70
To what extent do you feel your life to be meaningful?	1.5	16.57	23.94	55	2.99
How well are you able to concentrate?	2.10	52.63	16.57	26.57	2.13
Do you have enough energy for everyday life prior to menses?	0.26	11.84	42.10	42.36	3.44
Are you able to accept your bodily appearance prior to menses?	0.52	11.57	43.42	30.81	13.68

As illustrated in **Figure 1**, 45 % of study participants were satisfied with their personal relationship prior to menstruation. Around half (49%) of them were dissatisfied with

themselves, 12.3% were dissatisfied with their work capacity and 18 % were dissatisfied with their sleep prior to menses.

Figure 1- Factors which impact the QOL prior to menses



DISCUSSION

The present study was conducted to estimate the prevalence of premenstrual syndrome, to determine the most frequent symptoms of PMS and to assess the impact of premenstrual syndrome on quality of life among the adolescent girls of rural catchment area of Department of Community Medicine, of a Medical College in the district Gautam Budh Nagar, Uttar Pradesh, India. WHO-BREF Questionnaire was used on 380 adolescents girls who were participating in the study.

The prevalence of PMS in the present study was 65.7%. While other epidemiologic studies have estimated that as many as 80% of women of reproductive age experience some symptoms attributed to premenstrual phase of menstrual cycle (6). The global prevalence of PMS was reported to be 18.4%, 23.9 %, 49.9% (8,9,10). This difference may have occurred due to limitations and differences in the definition of PMS, standards and methods of data collection, sampling technique and type of population studied.

The most frequent symptom observed was headache followed by lack of concentration and acne in the present study while the similar study from Gujarat reported it to be generalized body ache. (8) The possible reason can be more physical activity in general of the subjects of the current study as they belong to rural area while the subjects there were from urban area college students so possibly less habituated of manual labor. The presence of more acne in subjects can also be due to the quality of drinking water in rural areas and access to proper dermatological care.

This study reports that the most frequent functional impairment was school/work efficiency and productivity which is consistent with the study in college students of Gujarat (8). Around half (48%) of them were absent in class during menstruation whereas it was reported almost same 43.2% in a similar conducted in Pune (2), however in a similar study conducted in India only one third (33.6%) of them reported to be absent in rural school girls (18).

12.3 % of study participants rated their quality of life to be poor in the present study which is

in cohesion to a study conducted in Brazil where the study participants reported lower quality of life (10). This can be due to the fact that the symptoms of PMS are very diverse and can affect several aspects of a women's life.

Around 45 % of study subjects told that they did not have adequate energy to perform their routine physical tasks prior to menses, 15% of women agreed that their physical pain stops them from doing the daily work they would otherwise perform in physical domain which is similar to the findings from a study conducted in Brazil (10)

Regarding the mental domain, which includes self-esteem, body image, and negative feelings only 26% of women do not experience feelings of despair, sadness or a blue mood in the present study which is similar to results in other study conducted in Brazil.

CONCLUSION

The high prevalence of PMS among girls of rural areas of Gautam Budh Nagar and its effect on their quality of life suggest the necessity to implement educational practices that inform girls about the syndrome. Adolescent-friendly health services should be strengthened and life-skill education in schools should be provided. Once informed, they will be more likely to disregard the taboo, seek medical care, which will lead to reduction in the incidence of the syndrome and its negative influence on their quality of life. This way it will be easier for the girls to not only get proper medical help but also the support of their families which in turn will improve the quality of life of women experiencing Pre Menstrual Syndrome

RECOMMENDATION

Premenstrual syndrome can sometimes impact the quality of life to an extent that the adolescent girl can be affected physically and psychologically. To effectively address this issue, interventions should begin during school education and at home too, where girls must be made aware and educated about the seriousness of PMS, its symptoms and when to seek the medical care .

LIMITATION OF THE STUDY

The study has certain limitations. As this was a cross sectional study based on retrospective symptoms recall, there could have been problems leading to recall bias and the data could differ from data collected prospectively that evaluate each cycle for at least 2 or 3 months according to criteria statement. Differentiation of “mild PMS” and “moderate or severe PMS” was not possible as the distinction in the ACOG criteria being unclear. It can only differentiate between presence or absence of PMS .

RELEVANCE OF THE STUDY

Research on PMS has scarcely been reported from rural area of Uttar Pradesh state and therefore this study was carried out in order to provoke the need of imparting awareness about PMS, its prevalence, frequent symptoms, psychosocial aspects and impact on the quality of life.

AUTHORS CONTRIBUTION

All authors have contributed equally.

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Nil

CONFLICT OF INTEREST

There are no conflicts of interest.

DECLARATION OF GENERATIVE AI AND AI ASSISTED TECHNOLOGIES IN THE WRITING PROCESS

The authors haven't used any generative AI/AI assisted technologies in the writing process.

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