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# FREQUENCY AND ASSOCIATED FACTORS OF PREMENSTRUAL SYNDROME IN MEDICAL COLLEGE GIRLS

1 **Asha Mahesh**
2 **S. Zubair A. Tirmizi**
3 **S. Sanwer Ali** [c]

*1 Assistant Professor*
Jinnah Medical & Dental College Karachi
*2 Assistant Professor*
Jinnah Medical & Dental College Karachi
*3 Associate Professor*
Jinnah Medical & Dental College Karachi

## ABSTRACT

***Objective:*** To determine the frequency & associated factors of premenstrual syndrome in medical collage students.
***Methods:*** A cross sectional study by random sampling was conducted during July to September 2009 among the 200 medical students aged b/w 18-25 years of private medical institution. Questionnaire was derived from DMS-IVdiagnostic criteria for premenstrual dysphonic disease and PMS symptoms.
***Results:*** All of the students (100%) who participated in this study reported some degree of at least one symptom. Using DSM-IV diagnostic criteria prevalence of PMS was found to be 59%. The order of frequency of psychological symptoms include increase appetite 67.5%, worry and anxiety 60%, tired or lethargic 54%, felt suddenly sad / tearful 56.5%, interpersonal conflict 54% and depressed mood 52.5% and physical symptoms were found in the order of backache 55%, acne 50.5%, joint or muscle pains 49.5%, abdominal bloating 44.5% and weight gain 40.5%. Age (p =.460), Living condition (p=0.270) and residence (p=0.170) showed no association with the severity of symptoms of PMS.
***Conclusion:*** PMS is frequently occurring problem in medical students affecting the mental well being and concentration of students on their academics . It requires urgent identification and attention for better academic achievements.

**Key Words** : Premenstrual Syndrome, medical students, associated factors

## INTRODUCTION

Premenstrual syndrome has been defined variedly over the years because of unknown etiology & complexity of symptoms. Physicians all over the world have different opinions regarding the origin of the disorder.[1] Women during their reproductive age often suffer from recurring psychological, physical and behavioral symptoms occurring during the luteal phase of menstrual cycle and resolving by the end of menstruation.[2,,3] These symptoms should interfere with the normal activities of a woman including social, occupational, interpersonal and even the sexual functioning and are not related to any organic and functional disease.[1,3,4]
A variant of premenstrual syndrome, known as premenstrual dysphoric disorder (PMDD) represents the severe form of premenstrual syndrome and mainly manifest psychological symptoms. It means it is a magnification of PMS.[1,5] P.M.D.D. is much less common as compared to PMS. Epidemiological survey indicated that 75% of women of reproductive age with regular menstrual cycles experience some symptom attributed to PMS[6] and approximately 3-8% women of reproductive age report much more severe premenstrual symptoms of irritability, tension, dysphoric and lability of mood which significantly

**Correspondence**
**Dr. Syed Sanwer Ali**
96 – B, second floor, Block II, PECHS, Karachi
Cell No. 03232231972 / 03332135129
dr_ssan@yahoo.com

interfere with their lifestyle and relationship.[6,7,11]

Committee on gynecologic practice of the American college of obstetrician & gynaecologist reported that up to 80% of woman of reproductive age have physical changes with menstruation, 20 -40% of them experience symptoms of PMS while 2-10% report severe disruption of their daily activities.

Premenstrual syndrome is listed in the international statistical classification of disease [12] and related health problems, 10th revision (1 C D-10).[13]The Diagnostic and Statistical Manual of Mental Disorder, 4th ed. Classified premenstrual dysphoric disorder as " depressive disorder not otherwise specified" emphasizing emotional and cognitive behavioral symptoms[14].

The etiologic causes of severe PMS and PMDD are not clearly understood but suggested to result from hormonal changes, neurotransmitters, diet, stress and lifestyle.[15] The syndrome is only noticed in women of reproductive age and absent before puberty, during pregnancy or after menopause. PMS has no association with parity, employment, education or income but some association with the use of intrauterine contraceptive devices, long menstrual cycles and heavy menstrual flow are noticed. Genetic factors are pertinent indicating that PMS and PMDD are biological phenomenon which is underscored by recent, convincing evidence of the heritability of premenstrual symptoms [16] and cessation of complaints with the suppression of ovarian cycle[17]or surgical menopause.[18,19]

True prevalence of PMS is difficult to determine because of self treatment, difference in availability and access to medical care, definition & diagnostic criteria and cultural practices. Study on PMS in Pakistan is scarce and few studies have been reported perhaps due to cultural & religious practices, poverty or lack of awareness of the disorder as a health problem.

It has been indicated by some scholar that ignorance of PMS may have an impact on adolescent's health and quality of life. It may affect self confidence, esteem and relationship with others. These are the basic necessities of medical students and if PMS is ignored, this may effect in pursuing the educational goals. They are the future healers and their fitness in terms of physical and mental well being is demanded by the society to treat the community rather than letting these symptoms to control them. Medical students are already under the process of health education programs which causes them to understand easily the health related issues and PMS self care measures. This study was conducted to determine the frequency & associated factors of PMS in a sample of private medical college students using a simple screening tool of questionnaire to identify the girls suffering from PMS and then supporting them by incorporating information on menstruation, PMS and measures, so that they would be able to manage their patients suffering from these symptoms in a better way.

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## MATERIAL AND METHOD

**Ethical approval:**

The study protocol was approved by the principal and students affair committee of the concerned medical college where the study was conducted. Informed and voluntary consent form all the participating female medical students was obtained. Students were taken into confidence that the information they will provide are highly confidential and secrets. They were asked not to disclose their names and addresses on questionnaire papers.

**Study Design**

Cross sectional observational study by random sampling was conducted.

**Study site and recruitment procedure:**

An observational study was conducted among the medical students of a private institution (Jinnah Medical & Dental College Karachi) from July 2009 to September 2009. Two hundred medical students aged between 18 – 25 years were included in the study by random sampling and on refusal of any student another student after an informed and voluntary consent was included to participate.

Inclusion criteria were female medical students of JMDC with regular menstrual cycles and without any medical or psychological disorder. Likewise girls with irregular menstrual cycles and known cases of psychological or medical disorders were excluded from the study. Irregular menstruation affect the charting of symptoms and students may have some form of psychological symptoms due to irregular menses. There are various clinical definitions of PMS all require symptoms free days early in the cycle.

Data was collected on a questionnaire design with the help of DSM-IV definition of PMS & PMDD and available literature on PMS. Questionnaire consists of three sections. First part included socio-demographic data regarding age, menarche, urban or rural background and residence (i.e. living with parent or alone). Second part included 10 Psychological items and third section included 11 physical manifestations / symptoms assessing the frequency of PMS. Questionnaire was discussed with the participants and asked to identify the symptoms starting during the week before menses and remitting a few days after the onset of menses in the last three months.

**Statistical Analyses:**

Data were analyzed using computer package SPSS (Statistical program for social sciences) version 11.0. The frequency of each symptom was calculated by computing the ratio of the students reporting the symptoms to the total number of participants. Chi-square test was used to calculate the p value for comparison of two groups and were considered statistically significant if less than 0.05.

## RESULT

A total of 200 medical students completed the questionnaire form. 99% were unmarried. The age of participants in this study ranged from 19 to 26 yrs with a mean of ± 22.21 yrs.

We adopted the DSM –IV criteria so that the diagnosis of PMS was considered when a student had five of the symptoms

**TABLE I: FREQUENCY OF PSYCHOLOGICAL SYMPTOMS OF PMS**

| Symptom | No. of students | % |
|---|---|---|
| Depressed mood | 105 | 52.5 |
| Worry & Anxiety | 120 | 60 |
| Felt suddenly sad / tearful | 113 | 56.5 |
| Anger / Interpersonal conflict | 108 | 54 |
| Avoided social activities & relationship | 80 | 40 |
| Overwhelmed or out of control | 66 | 33 |
| Increase appetite | 135 | 67.5 |
| Hypersomnia / Insomnia | 99 | 49.5 |
| Difficulty concentration | 86 | 43 |
| Tired or lethargic | 118 | 59 |

The most frequent physical symptoms among the medical students were backache (55%), acne (50.5%), joints or muscle pain(49.5%), abdominal bloating (44.5%) and weight gain (40.5%).(table II)

**ABLE II:**
**FREQUENCY OF PHYSICAL SYMPTOMS OF PMS**

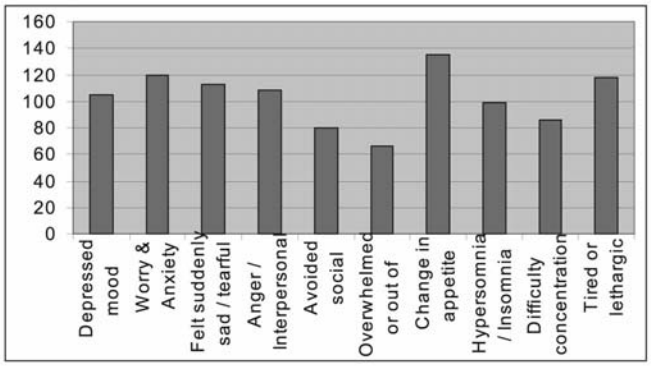
| Symptom | No. of students | % |
|---|---|---|
| Headache | 77 | 38.5 |
| Breast pain | 56 | 28 |
| Breast swelling | 49 | 24.5 |
| Joint or Muscle pain | 99 | 49.5 |
| Urinate Frequency | 69 | 34.5 |
| Weight gain | 81 | 40.5 |
| Backache | 110 | 55 |
| Acne | 101 | 50.5 |
| Extremity swelling | 32 | 16 |
| Nausea or vomiting | 49 | 24.5 |
| Abdominal bloating | 89 | 44.5 |

described in DSM – IV. Among these at least one of them needed to be sadness, rage nervousness or irritability[15] accompanied by interference with the college work or attendance. Using the criterion the prevalence of
P M S was found to be 59% (118 students showed five or more symptoms, one of them was (1), (2), (3) or (4).
The percentage of each psychological symptom is shown in table I. The most prevalent symptoms among the medical students all above 50%, were increase appetite ( 67.5%), worry and anxiety (60%), tired or lethargic (54%) felt suddenly sad/tearful (56.5%), Interpersonal conflict (54%) and depressed mood (52.5%).

**TABLE III:**
**RELATION OF ASSOCIATED FACTORS WITH THE SEVERITY OF PMS**

| Variables | N | Symptoms severity of PMS Mean | T (F) | P- value |
|---|---|---|---|---|
| **Living** | | | | |
| with parents | 115 | 32.3 ± 10.76 | t =1.09 | 0.27 |
| far from parents | 85 | 34.1 ± 10.13 | | |
| **Residence** | | | | |
| Rural | 31 | 36.3 ± 10.1 | t = 1.48 | 0.17 |
| Urban | 169 | 37.6 ± 10.6 | | |
| **Age** | | | | |
| = 20 years | 55 | 40.08 ± 11.0 | t = 1.51 | 0.46 |
| = 21 years | 145 | 39.13 ± 11.5 | | |

**FIGURE I:**
**FREQUENCY OF PSYCHOLOGICAL SYMPTOMS**

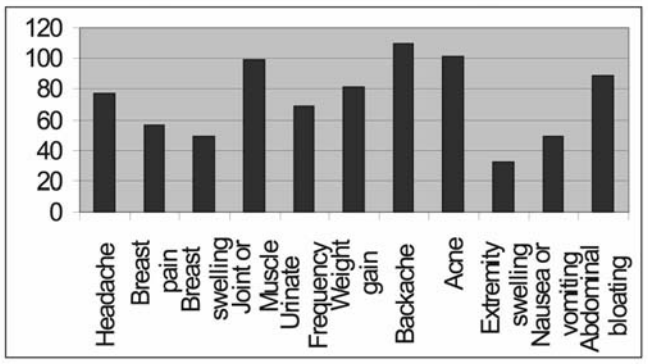



**DISCUSSION:**

In this particular study conducted on medical students of Jinnah Medical & Dental College, Karachi, all students (100%) reported to have at least one premenstrual symptom. A study conducted on Iranian female university students, showed that all (100%) had at least one premenstrual symptoms of some severity.[20] It is estimated that more than 98% of female participants of Thailand University suffer from one or more P M symptoms.[21]

**FIGURE II:**

**FREQUENCY OF PHYSICAL SYMPTOMS OF PMS**




In our study we followed the criteria proposed by DSM–IV [14] and PMS was considered to be the presence of five of the above symptoms, among these at lest one of them needed to be sadness, rage, nervousness or irritability, accompanied by difficulties in relationship at home, missing college / missing work. Using the criterion the prevalence of PMS was found to be 59% (118 students snowed five or more symptoms, one of them was1,2, 3or 4). A study on girls of Khyber Medical College showed 53% prevalence of PMS which is near to the findings of our study[3]. Some studies estimated 75% and 88% prevalence of PMS respectively than our study.[6, 22] Derman[23] & Silva et al [24] also observed 61.4% and 60.3% (self reported) prevalence of PMS respectively in their studies which is very close to our study. Earlier study conducted on Pakistani women reported 33% prevalence of PMS which is lower than our study.[25]The difference could be attributed to diagnostic criteria and study group. Medical students due to strict scheduling of academic carrier are being more tense. When the diagnostic criteria are less rigid the prevalence rate is high. In our study we followed DSM-IV criteria and a woman was considered to have PMS when she reported 5 or more symptoms out of which one was (1)(2)(3)or(4).
The variation of study results are associated with variation in definition & diagnostic criteria of PMS, methodology adopted in data collection and the group of population studied.
The frequency of symptoms in our study is more or less identical to reports of earlier study. Psychological symptoms were found more prevalent than the physical symptoms and increased appetite (67.5%) was reported by most of the student among the psychological symptoms. This is in contrast to the other studies conducted in Pakistan for example studies on girls of the Khyber Medical College Peshawar, reported 42% of student had change in appetite. In a study from Iran conducted on female University students appetite change was reported by more than 60% of the participants.[20] 32.5% of Indonesian women have reported change in appetite.[1] Worry and anxiety, tired or lethargic, felt suddenly sad / tearful, Intrapersonal conflict and depressed mood all above 50% prevalence rate are in accordance with most of the studies conducted in Pakistan or abroad. In a study, 80% of Indonesian participants reported anger or irritability and 66.1% anxiety or tension.[1] A study on Iranian female University students has shown feeling of tiredness or lethargy in 84%, depressed mood in 72%, sudden feeling of sadness or tearfulness in 70.3%, anxiety in 70% and sleep problems in 66% of participants.[20] More than 50% of students reported physical symptoms including backache and acne.77.3% of the participants of Khyber Medical College girls reported back pain.[3] Iranian University female students reported acne in 48.3% respondents.[20] Prevalence of premenstrual symptoms in this particular study is in line with most of the study conducted earlier. [3, 26]
We have also studied the prevalence of PMS and their severity according to the living condition (with or without parents), residence (urban or rural) and age (=20 or =20). Previous studies have been performed on the effect of age[22], ethnicity [26], health status [27] and culture [28] to the outcome of PMS. Living condition, residence and age in our study were not shown to be associated with the outcome of PMS. We could not study on the marital status as 99% of female students were unmarried at the time of study. Previous studies had demonstrated association of age that contributed the severity of PMS.[20, 23] A study on female students of Medical University of Sindh also found no association of PMS with age but showed significant relationship with dysmenorrhoea and family history.[29]
Limitation of our study was highly selective sample i.e. medical students who agreed to participate in the study. We have used linen criteria of diagnosing PMS and that is why we have estimated higher figures for PMS. It may also be due to the awareness of the medical student about the symptoms.

## CONCLUSION:

From the study we can conclude that symptoms of premenstrual syndrome are a common occurrence which some how adversely affect the educational outcome and social and mental well being. It is required that we plan a pilot study to explore the correct incidence / prevalence of PMS& PMDD among the population and to make better diagnostic criteria to manage these cases.

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