

## Prevalence, pattern and symptomatology of pre-menstrual syndrome among educated urban females

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### ABSTRACT

**Objective:** To assess the pervasiveness and severity of Pre-Menstrual Syndrome (PMS) in educated urban females and analyze the relationship of Pre-Menstrual Syndrome with depression, age, education and Body Mass Index (BMI).

**Study Design:** Cross sectional exploratory study

**Place and Duration:** Lahore College for Women University from 1<sup>st</sup> May 2015 to 31<sup>st</sup> May 2016.

**Methodology:** Women of age between 16 and 53 were enrolled through purposive sampling. A self-constructed questionnaire was used which comprised questions related to severity and intensity of Pre-Menstrual Syndrome and depression symptoms. Socio-demographic variables such as age, education, marital status, weight and height were also asked.

**Results:** The mean age for onset of menstruation was  $13.36 \pm SD 1.77$  years. Backache, headache and depression were most reported symptoms. Pre-Menstrual Syndrome appeared to be correlated with increasing age and education level (P-value of  $<0.05$ ). Severe Pre-Menstrual Syndrome group reported significantly high depression (P-value of  $<0.01$ ). Pre-Menstrual Syndrome remained non-significant with BMI (P-value of  $>0.05$ ).

**Conclusion:** All participants reported different levels of Pre-Menstrual Syndrome. Age, education, Pre-menstrual syndrome and depression observed to be related to each other.

**Keywords:** Premenstrual syndrome, Depression, Education, Physical symptoms, Emotional symptoms, Body mass index, Age

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### INTRODUCTION

Pre-menstrual syndrome (PMS) is a combination of physical and psychological symptoms occurring in luteal phase<sup>1</sup> i.e. one or two weeks before a woman's periods<sup>2</sup>, which is a result of complex hormonal interaction. It can be called a cyclical syndrome, consisting of psychological mood changes, physical changes and behavioral changes (e.g. irritability, tiredness, anger, depression, headache, backache, food cravings and poor concentration etc.). If these symptoms are mild (called as *molimina*); if, however, these symptoms increase in intensity,

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then *molimina* becomes true PMS<sup>3</sup>.

The type and severity of symptoms differ with each patient<sup>1</sup> these changes can disrupt normal functioning and can deteriorate interpersonal relationships<sup>4</sup>. Sometimes it can induce insomnia and suicidal tendencies; this makes awareness regarding PMS and its management necessary<sup>1</sup>.

Different researchers have described different prevalence rates of the disorder. Usually 75% to 85% women report life time prevalence of PMS (one or several symptoms); 10% to 15% seek medical care and 5% report interruption in social activities<sup>5</sup>. It is estimated that 20 to 90% of women all over the world suffer from PMS in varying degrees<sup>6</sup>, and although it frequently starts at menarche (onset of menstruation), PMS may not become a problem to many women until the age of 30.

PMS is found to be related to changes in sex hormones and serotonin level<sup>5</sup>. Body mass index (BMI) studies suggest that women with BMI 30 or above are thrice more prone to PMS than non-obese women<sup>7</sup>. Age is also positively correlated with intensity of PMS symptoms<sup>8</sup> which suggests that older adolescents tend to experience more intense symptoms than young adolescents.

The facts and figures have revealed the importance of PMS as it is an issue of a large number of women. Most of the things stated above are borrowed from foreign literature as there is scarcity of indigenous studies. However, current study encompasses many important correlates of PMS like age,

education, depression and BMI so it would be a meaningful addition in literature.

Few hypotheses were proposed for this study: Firstly, it is expected that PMS will be significantly correlated with education and age. There will be high incidence of PMS in current sample. Depression will be significantly different in females with severe PMS and BMI will be correlated to PMS. This study was conducted to assess the pervasiveness and severity of Pre-Menstrual Syndrome (PMS) in educated urban females and analyze the relationship of Pre-Menstrual Syndrome with depression, age, education and Body Mass Index (BMI).

### METHODOLOGY

The cross sectional exploratory study was conducted at Lahore College for Women University over a period of 12 months from 1st May 2015 to 31st May 2016. Females from urban area with age range 16 years to 53 years were selected through non probability purposive sampling. Uneducated and non-urban females were not included in study

A self-constructed questionnaire was used to collect the data. There were 20 questions in the scale. These questions were about depression, physical symptoms (like headache, backache, bloating, breast tenderness, nausea etc) and emotional symptoms (mood swings, irritability, tension, anger, low energy etc). For close ended questions scale was calculated by score of 0, 1, for each category of 'Yes/No' items, whereas 1, 2, 3 were scores used for "less, moderate and severe" respectively. The participants were asked as how many symptoms they feel before periods and how intense these symptoms are? Those who reported one symptom with mild intensity were categorized as having mild PMS more than one and moderate intensity were categorized as moderate PMS and more than three and severe were categorized as having severe PMS. Open ended question like 'do you feel any other symptom' etc were also asked. Demographics include age, height, weight, education and marital status. The questionnaire was reviewed by experts and pilot study was conducted as well. The item-subject ratio was up to the mark indicating sampling adequacy<sup>9</sup>. After seeking institutional permission, the data was collected from different departments of Lahore College for Women University. The participants were purposively selected (keeping their age and education in view). Informed consent was taken from all the participants and they were assured for confidentiality and anonymity.

**Data Analysis:** Data was analyzed using the SPSS version 21. Correlation was computed to see relationship between age and severity of PMS symptoms. ANOVA was also computed to find out differences between participants with mild, moderate and severe PMS. Graphs were used to present the data as well. P value was considered significant if  $< 0.05$ .

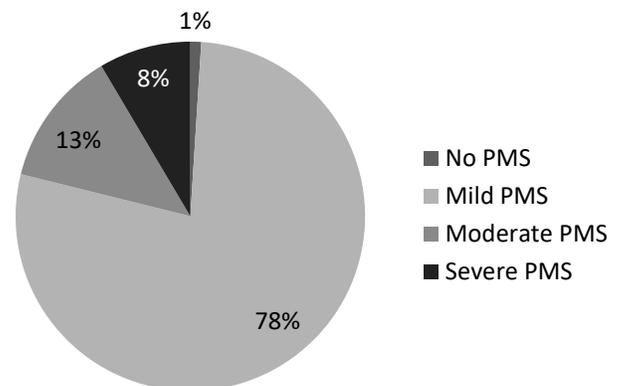
### RESULTS

This study included 400 educated urban females. Age range was from 16 years to 53 years ( $M= 21.06$ ,  $SD= 4.31$ ). 376 females aged range from 16 to 25 and twenty four were from age 26

onwards. 342 were single whereas 37 were married whereas 21 did not reveal their marital status. Usually menstruation onset in Pakistan is 8 to 15 years of age<sup>10</sup> but our demographic data revealed that most of the participants of our study fall in 10-15 years of age with mean  $13.36 \pm SD 1.77$ .

To explore relationship between age, education and PMS Pearson correlation was carried out and significant results indicate increasing age is positively correlated with existence of PMS ( $r= .104$ ,  $p<.05$ ). Results also proved that existence of PMS is positively correlated with education ( $r= .109$ ,  $p<.05$ ).

Next we explored the prevalence and symptomatology of PMS in our participants. Overall 97.6 % females reported existence of PMS either in form of physical (like headache, backache, bloating, breast tenderness, nausea etc) or emotional symptoms (mood swings, irritability, tension, anger etc) and the severity of symptoms is indicated in following figure.



**Fig-1: Frequency of Severity of PMS (N=397)**

The results of above pie chart further indicated that a vast majority of our participants 78% fall in mild PMS category ( $N= 309$ ). 13 % females indicated moderate PMS ( $N= 50$ ); whereas 8% fall in severe PMS category ( $N= 34$ ). 1% participants report no PMS ( $N= 4$ )

**Table-I: Frequency of severity and percentage of Physical and Emotional Symptoms (N=389)**

Nature of Symptoms	Severity	n (%)
Physical Symptoms	Mild	326 (83.8 %)
	Moderate	42 (4.4%)
	Severe	4 (1.0%)
	No symptoms	42 (10.5%)
Emotional Symptoms	Symptoms Exist	76 (19%)
	Symptoms do not Exist	313 (78.3)

The participants were further asked the nature of symptoms they feel before periods.

The table-I indicates 89.2 % females reported existence of physical symptoms whereas just 19 % reported existence of emotional symptoms, 5.25% reported existence of both physical and emotional symptoms whereas 42 (10.5%) out of 400 did not report any symptoms before periods.

When asked about details of problems females faced; they reported following mostly faced problems:

**Table-II: Most frequently reported symptoms of PMS in females (N=400)**

Symptoms	n
Backache	180 (45%)
Depression	80 (20%)
Headache	52 (13%)
Breast Tenderness	45 (11.25%)
Nausea	38 (9.5%)
Bloating	5 (1.25%)

Table-II reveals that backache is most frequently reported symptom in young educated urban females and bloating is least reported symptom.

We also attempted to explore relationship between depression and age. Depression is mostly reported in foreign literature and our participants too reported its existence. Results indicated significant influence of different levels of PMS on depression.

Results indicate that the F-value remained significant with effect size of 0.39. Post hoc analysis revealed that mild PMS group (M= 1.13, SD=.34) scored significantly lower on depression as compared to moderate (M= 1.40, SD=.494) and severe PMS (M= 1.61, SD=.49).

Further it was attempted to relate PMS with body mass index (BMI). Most of the participants fall in healthy BMI category but the correlation between BMI groups and PMS groups yielded a negative but non-significant correlation (P-value >.05). Further the results of one way ANOVA also indicated non-significant effect of BMI on pain (P-value >.05).

## DISCUSSION

Results indicate significant relationship between age and Pre-Menstrual Syndrome (PMS). Increasing age and education is significantly positively correlated with Pre-Menstrual Syndrome (PMS) in females. Our results are supported by a study<sup>6</sup> which suggested that PMS becomes intense after 30 and it also suggested that older adolescents tend to experience more intense symptoms than young adolescents. Further results indicated the relation between education and PMS. It is also in line with a previous research<sup>11</sup> which indicated educated females report PMS more.

So far as existence and severity of PMS was concerned; most of the participants reported existence of mild PMS. This result is also supported by a previous study<sup>11</sup> which indicated that 20 – 90% of women reported life time prevalence of PMS and a study<sup>6</sup> also suggested 20-90% of women all over the world suffer from PMS in varying degrees. Thus women in current study too resemble their counter parts in foreign world in terms of PMS. Further exploration of nature of symptoms revealed that physical symptoms were most reported by participants and emotional symptoms were reported in a small percentage. The participants reported backache as most occurring symptom which is also in line with previous researches. Previous studies

also indicated that pain was most prominent PMS symptom<sup>3</sup>. Another study<sup>11</sup> also reported pain as most prominent symptom but interestingly both these studies did not categorize backache separately so we cannot differentiate if it means backache or not. In Western culture it is indicated<sup>12</sup> that Nigerians are affected more by headaches, whereas American women suffer more from backache. So we can say that our participants appeared to be like the women described in above mentioned studies. For our participants bloating was least reported symptom. There was no study in support of this finding in previous literature so we can conclude that it is novel symptom in our participants. Pakistanis are used to of eating heavy, oily and fried things so we can relate the bloating symptom with eating habits; which are reported to be linked with PMS<sup>13</sup>.

Results of one way ANOVA proved significant differences between depression and varying levels of PMS. Severe PMS patients reported more depression as compared to moderate and severe PMS patients. It is also in line with a study<sup>14</sup> based on the Swiss health survey, which reported that women with severe PMS had reported depression more as compared to women who reported less severe PMS<sup>15</sup>.

The findings of this study failed to highlight any differences in different BMI levels and PMS in our sample. Moreover, severity of symptoms also remained non significantly correlated with BMI. In Western literature Body mass index (BMI) studies suggest that women with BMI 30 or above are thrice more prone to PMS than non-obese women<sup>10</sup> but our findings remained contrary to that. One reason for this might be different cultural predispositions.

## CONCLUSION

All participants reported different levels of Pre-menstrual syndrome but mostly categorized it into mild Pre-Menstrual Syndrome. Age, education and depression appeared to be prominent factors in relation to Pre-Menstrual Syndrome.

## LIMITATIONS AND IMPLICATIONS

The study is limited in its scope as we mainly recruited educated, urban females in our sample. Future studies can broaden their research having more demographics included. Moreover, comparison of married and unmarried females on PMS too would be an interesting analysis.

## CONTRIBUTION OF AUTHORS

Shahed S: Conceived the idea, Designed research methodology, Data collection, Literature review

Yasin SA: Statistical analysis, Manuscript writing

Yaseen T: Manuscript writing, Literature review

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## REFERENCES

1. Brahmabhatt S, Sattigeri B., Shah H, Kumar A, Parikh D. A prospective survey study on premenstrual syndrome in young and middle aged women with an emphasis on its management. *Int J Res Med Sci.* 2013;1(2): 69-72.
2. Freeman E. Premenstrual syndrome and premenstrual dysphoric disorder: definitions and diagnosis. *Psychoneuroendocrinology.* 2003;28(3): 25-37.
3. Shershah S, Jafarey S, Morrison J. Prevalence of premenstrual syndrome in Pakistani women. *J Pak Med Assoc.* 1991; 41: 101-103.
4. Limosin F, Ades J, Psychiatric and psychological aspects of premenstrual syndrome. *L' Encephale.* 2001; 27(6):501-508.
5. Higuera V. Understanding PMS [Internet]. healthline.com. 2018. Website: [<http://www.healthline.com/health/premenstrual>]. Accessed on 11 August 2017].
6. Golub S. *Periods.* Newbury Park: Sage Publications; 1992. PP 125-28.
7. Masho S, Adera T, South-Paul J. Obesity as a risk factor for premenstrual syndrome. *J Psychosomatic Obste Gynae.* 2005; 26(1): 33-39.
8. Cleckner-Smith C, Doughty A, Grossman J. Premenstrual symptoms. Prevalence and severity in an adolescent sample. *J Adolesc Health.* 1998;22(5): 403-408.
9. Field A, *Discovering Statistics in SPSS.* London: Sage Publications. 2005.Pp 648
10. Akbar S. Menstrual Hygiene [Internet]. newslens.pk. 2018. Website: [<http://www.newslens.pk/menstrual-hygiene/>] Accessed on 2 June 2017.
11. Pal SA, Dennerstein L, Lehert P. Premenstrual symptoms in Pakistani women and their effect on activities of daily life. *J Pakistan Med Assoc.* 2011; 61(8):763-8.
12. Ginsburg B, Carter B. *Premenstrual Syndrome: Ethical and Legal Implications in a Biomedical Perspective.* USA: Springer. 2012. Pp 178-92
13. Warren M, Constantini N. *Sports Endocrinology.* New York: Springer Science. 2000. Pp 165
14. Forrester-Knauss C, Stutz EZ, Weiss C, Tschudin S. The interrelation between premenstrual syndrome and major depression: Results from a population-based sample. *BMC Public Health.* 2011: 1-11.
15. Mirowsky J, Ross CE. Age and depression. *J Health & Soc Beh.* 1992; 33(3): 187-205.