

Physical Symptoms, Behavioral Effects and Remedial associated with Pre-menstrual Syndrome among Medical Students of Rawalpindi Medical University, Pakistan

Gulzaib Pervaiz, Rizwana Shahid, Syed Arshad Sabir, Sana Bilal, Abdul Rahman Sheikh, Mahjabeen Qureshi

Department of Community Medicine, Rawalpindi Medical University, Rawalpindi.

Abstract

Objective: To determine the frequency of symptoms associated with premenstrual syndrome and to compare the difference in physical symptoms and behavioral effects among medical students with and without premenstrual syndrome.

Study type, settings & duration: A cross-sectional descriptive study was done among 3rd, 4th and final year medical students of Rawalpindi Medical University during May 2020.

Methodology: About 145 medical students up to 25 years with normal menstrual cycle since last 6 months were enrolled in the study through convenient sampling. Data was analyzed by SPSS version 25.0. and Microsoft Excel 2010.

Results: Mean age of 145 female medical students was 20.9±1.7 years. About 105 (72.4%) students experienced premenstrual syndrome. The difference in mean age of the students with and without premenstrual syndrome was statistically significant ($p < 0.003$). The leading premenstrual symptoms among students were irritability, anger outburst, depression, skin problems, breast tenderness, gastrointestinal problems and abdominal swelling. Social withdrawal among students was also significantly attributed ($p < 0.05$) to premenstrual syndrome. About 22.1% of the students took painkillers and 21.5% did not take any remedial measures.

Conclusion: Physical problems and disrupted social life were more frequently found in pre-menstrual period.

Key words: Premenstrual syndrome, medical students, irritability, depression, dermatological problems, social withdrawal.

Introduction

Premenstrual syndrome is mainly comprised of diverse physical, cognitive and behavioral symptoms that periodically appear about one week before the onset of menstruation and suppress later on.¹ It is known to drastically affect routine life

activities.² This syndrome is predominantly attributed to dropping of serotonin levels, worsening of symptoms with progesterone, varied endorphins, smoking and alcoholism, intake of beef or caffeine rich drinks.³

Premenstrual syndrome is found to be considerable public health issue among young girls.⁴ It has been acknowledged to impair the quality of life of women apart from drastically influencing their productiveness, efficiency and psychological wellbeing.⁵ Premenstrual symptoms of varying severity are experienced by approximately 90% women of reproductive age.⁶ The most radical clinical presentations are reported to be irritability, anxiety and headache.⁷ Cultural attributes and ethnicity are determined to have great impact on prevalence of premenstrual syndrome.⁸ Premenstrual syndrome among most of the women commence at the age of menarche.⁹ A research by Tenkir A et al revealed that at least one

Corresponding Author:

Rizwana Shahid

Department of Community Medicine
Rawalpindi Medical University, Rawalpindi.

Email: dr riz_shahid@yahoo.com

Received: 27 August 2020, **Accepted:** 30 November 2021,

Published: 06 January 2022

Authors Contribution

GP & SAS conceptualized the project. GP & SB did the data collection. GP & RS performed the literature search. RS & MQ did the statistical analysis. BP & RR performed the literature search. Drafting, revision & writing of manuscript were done by RS & ARS.

Copyright © 2021 The Author(s). This is an Open Access article under the CC BY-NC 4.0 license.

premenstrual symptom always prevails in several menstrual cycles of 99.9% students.¹⁰ This syndrome has been determined to be the commonest reason for missed academic sessions, low scoring and distraction from education among adolescent girls.¹¹ Prevalence of premenstrual syndrome among medical students of an Ethiopian University was affirmed to be 37% and about this factor attributed to withdrawal from studies among 1.7%. The maximally reported symptom and behavioral change were abdominal bloating and disinterest in various activities respectively. Pain killer followed by hot drinks and massage were determined to be the most effective remedies.¹² In a similar study by Seedhom AE et al among Egyptian University students, counseling of students for life style modification was done for relief of premenstrual symptoms.² Premenstrual symptoms are known as manageable by appropriate pharmacological and non-pharmacological aids.¹³ Cultural and ethnic diversities in occurrence of premenstrual syndrome demand for study on this aspect in order to get an accurate estimation pertinent to this syndrome.¹⁴

Due to scarcity of data on premenstrual syndrome among Pakistani girls, particularly the medical students, the present research is intended to determine the severity of this syndrome in terms of its physical symptoms and behavioral effects along with remedial actions taken for their resolution. This research would really be advantageous for relevant stakeholders in verifying the propensity of premenstrual syndrome among medical students and taking appropriate steps in facilitation of their learning activities.

Methodology

A cross-sectional descriptive study was carried out among 3rd, 4th and final year MBBS students of Rawalpindi Medical University during May 2020. Taking 51% frequency of premenstrual syndrome¹⁵ as reference, the sample size in our study was computed to be 145 by using WHO sample size calculator. So about 145 unmarried medical students, 19-25 years old students having history of normal menstruation since last 6 months were enrolled in this research through convenient sampling. Premenstrual syndrome is a state that is characterized by certain physical symptoms and behavioral changes about 1-2 weeks before onset of a woman's menstruation.¹⁶ There is no laboratory test to accurately diagnose premenstrual syndrome.¹⁷ Premenstrual syndrome among our medical students was verified depending on the presence of certain psychiatric and physical symptoms like angry outbursts, abdominal bloating,

breast tenderness, anxiety, confusion, headache, irritability, swelling of extremities, depression and social withdrawal.¹⁸ The data was gathered by means of structured questionnaire regarding their age, prevailing symptoms during premenstrual period and remedies taken for relief. The data was analyzed by means of SPSS version 25.0. The difference between mean age of the students with and without premenstrual syndrome was statistically confirmed by independent sample t-test. The frequency of premenstrual symptoms among students with and without premenstrual symptoms was statistically compared by chi-square test. p -value ≤ 0.05 will be considered significant.

The Ethical approval was obtained from Research and Ethical Committee of Rawalpindi Medical University, Rawalpindi.

Results

Mean age of 145 female medical students in our research was 20.9 ± 1.7 years. Most (71%) of them were 20-22 years old and highest frequency was constituted by 4th year medical students as depicted below in Figure-1.

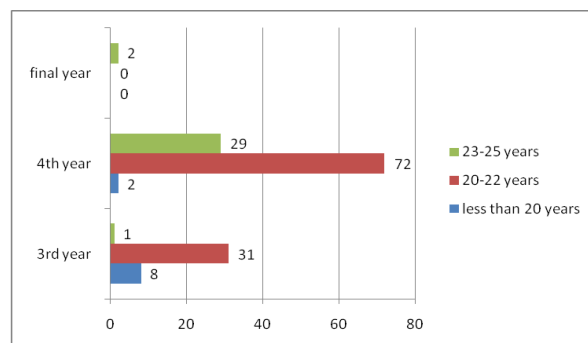


Figure 1: Age and academic year wise distribution of medical students. (n = 145)

Out of 145 (72.4%) students, 105 experienced premenstrual syndrome with majority of students in 20-22 years age group as shown below in Figure-2.

Age of the medical students presenting with premenstrual symptoms was comparatively less than those who did not complain of such symptoms. In addition, statistically significant difference was determined with respect to majority of the premenstrual physical symptoms as illustrated below in Table-1.

Disturbance of routine life, social withdrawal and absence from college among 48.7%, 42.8% and 20.7% medical students respectively were attributed to premenstrual symptoms. Behavioral diversity during pre-menstruation is reflected below in Table-2.

Table 1: Comparison of mean age and premenstrual physical symptoms among medical students.

Attributes	Students with PMS (n = 105)	Students without PMS (n = 40)	p-value
Mean age	20.9±1.5	21.8±1.9	¹ 0.003
Mean age at menarche	13.1±2.05	12.8±1.7	NS*
² Physical symptoms (compared by application of Chi-square test)	n (%)	n (%)	
Irritability	88 (83.8)	28 (70)	$p < 0.001$
Anger outburst	78 (74.3)	15 (37.5)	$p < 0.001$
Depression	70 (67)	15 (37.5)	$p < 0.001$
Skin problems(dermatitis, eczema)	60 (57.1)	16 (15.2)	$p < 0.01$
Breast tenderness	57 (54.3)	17 (16.2)	$p < 0.05$
GIT problems	53 (50.5)	13 (32.5)	$p < 0.01$
Abdominal swelling	51 (48.6)	14 (35)	$p < 0.05$
Sleep disruption	46 (43.8)	14 (35)	NS*
Headache	43 (41)	13 (32.5)	NS*
Swelling of arms & legs	16 (15.2)	04 (10)	NS*

¹t-test, ²Chi-square test, *NS (Non-Significant)

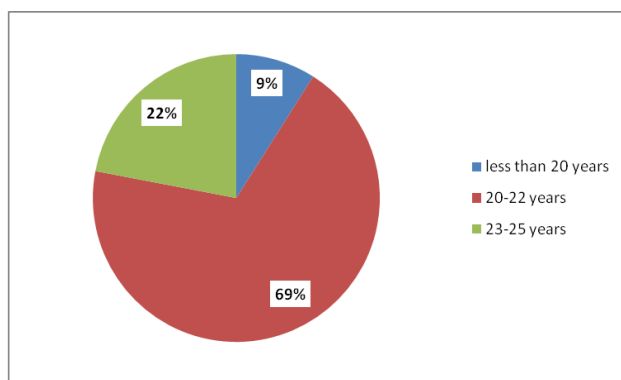


Figure 2: Age distribution of students with respect to premenstrual syndrome. (n = 100)

Table 2: Differences of behavioral effects among students with and without premenstrual syndrome.

Behavioral Effects	Students with PMS (n = 100)	Students without PMS (n = 45)	p-value
Disturbed routine	59	34	NS
Absence from college	23	07	NS
Missing social events	31	06	< 0.05

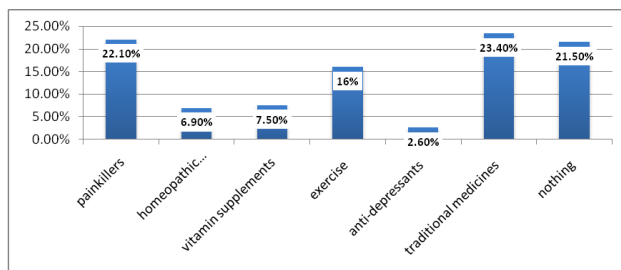


Figure-3: Remedial measures adopted for relief of premenstrual symptoms by medical students.

Multitude of remedies was taken by our study subjects for relief of premenstrual symptoms as illustrated below in Figure-3.

Discussion

Premenstrual syndrome subsists among women of all ages with considerable impairment of social interactions, workplace or institutional responsibilities apart from disrupted quality of life.¹⁹ Being a significant health problem of young girls,²⁰ this syndrome necessitates keen attention of the concerned to hamper the resultant adversity of their social and academic spheres of life.

In current study, mean age of 145 study subjects was 20.9±1.7 years. The principal symptoms reported among 100 medical students associated with premenstrual syndrome were irritability, anger outburst and depression, dermatological problems followed by breast tenderness, gastrointestinal symptoms and abdominal swelling. However, 31% students did not complain of any premenstrual symptoms. Similarly, a research carried out by Raval CM et al among medical and nursing students of Bhavnagar city (Gujarat) with mean age of 18.9±1.6 years. The principal premenstrual symptoms among them were fatigue (68.3%), reduced interest in work (60.1%) followed by aggressiveness (59.9%). About 8.6% of their study participants did not reveal any premenstrual symptom.²¹ Most of the cChinese women complained of pain during premenstrual period. An Iranian study disclosed occurrence of premenstrual syndrome among 85.6% of study participants with associated somatic symptoms of fatigue (72.6%) and abdominal pain (54.2%).²² Although premenstrual symptoms among our medical students and study subjects of Gujrat are prevailing in almost equal magnitude, but 31% of our study

participants without premenstrual syndrome as compared to 8.6% of Gujrat might be due to students' enrollment from one institute. The multi-centre research would really be advantageous in getting true picture of premenstrual syndrome in our community.

Premenstrual syndrome is determined to be about 69% in present study with irritability constituting the predominant symptom (88%) followed by annoyance (78%) and depression (70%). This syndrome resulted in social withdrawal and academic disruption among 42.8% and 20.7% of our medical students respectively. Likewise, a study by Shamnani G et al during 2018 among medical students explored the occurrence of premenstrual syndrome among 65% subjects with greatest magnitude of body aches (52%) and irritability (50%). Absence from the academic sessions and non-participation in social events were accounted to be the grave consequences of this syndrome.²³ A national research among students of Khyber Medical College Peshawar during 2004 unveiled the premenstrual syndrome among 53% student with highest propensity constituted by body aches, depression, anxiety and irritability. Quality of their life was drastically affected in terms of restraining from the work and behavioral modifications with diversion towards aggressiveness.²⁴ Likewise, female medical students of Mekelle University College of Health Sciences had disrupted learning due to their premenstrual symptoms.¹² Effects of premenstrual syndrome on physical and behavioral attributes of the girls should be given due consideration for their comfort and well-being.

The current research explored insignificant association of premenstrual syndrome with disturbed routine and absence from the college but revealed statistically significant association ($p < 0.05$) with abstinence from social events. Likewise, a short report presented by Bhuvanewari K et al on premenstrual syndrome during 2019 revealed that impaired physical functioning and diminished social activities among young girls were significantly attributed to premenstrual syndrome.²⁵ A similar study among medical students of Al Qassim Univeristy situated in Saudi Arabia reflected impaired quality of their life because of premenstrual syndrome.²⁶ Hence quality of life is an attribute that would sufficiently be maintained by giving due consideration to premenstrual syndrome and its apt management.

In our research, most (23.4%) students opted for traditional medicaments (warm milk, tea, boiled egg, hot water bottle etc.) while 21.5% of medical students did not take any medication to

relieve premenstrual syndrome. Likewise a cross-sectional study conducted among students of Karachi universities illustrated that 49.4% of them did not take any medication for relief of premenstrual symptoms.²⁷ A similar study among Ethiopian medical students illustrated the use of medicine by 48% participants with highest propensity (36.4%) dependent on pain killers while 7.5% and 4% were using hot drinks and message therapy for subsidence of symptoms.¹² A similar research done to compare the management of premenstrual symptoms among medical and non-medical students of Riyadh revealed that medical students used NSAIDs and sought gynecological therapy more frequently than those of non-medical students. Despite the use of both medications and alternative therapies for symptomatic relief, only 67.6% claimed the effectiveness of their remedial measures.²⁸ Although diverse remedies are used for symptomatic relief during premenstrual period, but the use of few medications is authenticated by evidence.²⁹ However, diverse treatment options in association with adequate counseling can help a great deal to relieve discrete symptoms linked with premenstrual syndrome.

Irritability, anger, depression and skin problems were the frequent presentations associated with premenstrual syndrome. Social relationships were drastically interrupted. Physical as well as behavioral changes are more likely to impede the daily life activities. Health education is of paramount significance to address the physical and behavioral problems linked to this syndrome.

Conflict of interest: None declared.

References

1. Braverman PK. Premenstrual Syndrome and Premenstrual Dysphoric Disorder. *J Pediatr Adolesc Gynecol* 2007; 20(1): 3-12.
2. Seedhom AE, Mohammed EM, Mahfouz EM. Life style factors associated with premenstrual syndrome among El-Minia University students Egypt. *ISRN Public Health*; 2013. (Accessed on 28th November 2021) Available from URL:<http://dx.doi.org/10.1155/2013/617123>
3. Yonkers KA, O'Brien PMS, Eriksson E. Premenstrual syndrome. *The Lancet* 2008; 371(9619): 1200-10.
4. Balaha MS, Amr MA, Al Moghannum MS, Al Muhaidab NS. The phenomenology of premenstrual syndrome in female medical students: a cross-sectional study. *Pan Afr Med J* 2010; 5: 4.
5. O'Brien PMS. The premenstrual syndrome. A review. *J Reproduct Med* 1985; 30: 113-26.
6. Matsumoto T, Sakura H, Hayashi T. Premenstrual syndrome: biopsychosocial aspects of premenstrual

- syndrome and premenstrual dysphoric disorder. *Gynecol Endocrinol* 2013; 29(1): 67-73.
7. Schmelzer K, Ditzen B, Weise C, Andersson G, Hiller O, Kleinstaeuber M. Clinical profiles of premenstrual experiences among women having premenstrual syndrome (PMS): affective changes predominate and relate to social and occupational functioning. *Health Care Women Int* 2015; 36: 1104-23.
8. Ghani S, Parveen T. Frequency of dysmenorrhea and premenstrual syndrome, its impact on quality of life and management approach among medical university students. *Pak J Surg* 2016; 32(2): 104-10.
9. Segni H, Gebremariam A, Woldu M. Prevalence of premenstrual syndrome and associated functional disability among female students of Addis ketema preparatory school, Ethiopia. *J Educ Res Behav Sci* 2014; 3(9): 304-11.
10. Tenkir A, Fisseha N, Ayele B. Premenstrual syndrom: prevalence and effect on academic and social performances of students in Jimma University, Ethiopia. *Ethiop J Health Dev* 2003; 17(3): 181-8.
11. Oraby FA, Fawaz MA, El-sharkawy NB. Reproductive and demographic Predictors' of premenstrual syndrome severity among university students. *IOSR J Nurs Health Sci* 2016; 5(5): 10-19.
12. Tolossa FW, Bekele ML. Prevalence, impacts and medical managements of premenstrual syndrome among female students: cross-sectional study in college of health sciences, Mekelle University, Mekelle, Northern Ethiopia. *BMC Women's Health* 2014; 14: 52.
13. Rumana AM, Sudharani M, Kallupurackal SJX, Ramya V, Nagendra GMR, Suryakantha AH. Prevalence of Premenstrual Syndrome among Medical Students. *Natl J Community Med* 2017; 8(6): 292-4.
14. Direkvand-Moghadam A, Sayehmiri K, Delpisheh A, Kaikhavandi S. Epidemiology of premenstrual syndrome, a systematic review and meta-analysis study. *J Clin Diagn Res* 2014; 8(2): 106-9.
15. Nisar N, Zehra N, Haider G, Munir AA, Sohoo NA. Frequency, intensity and impact of premenstrual syndrome in medical students. *JCPSP* 2008; 18 (8): 481-4.
16. Stoppler MC. Premenstrual Syndrome (PMS). *emedicine health*. (Accessed on 28th November 2021) Available from URL:https://www.emedicinehealth.com/premenstrual_syndrome_pms/article_em.htm.
17. Halbreich U, Backstrom T, Eriksson E, O'brien S, Calil H, Ceskova E, et al. Clinical diagnostic criteria for premenstrual syndrome and guidelines for their quantification for research studies. *Gynecol Endocrinol* 2007; 23(3): 123-30.
18. Hofmeister S, Bodden S. Premenstrual syndrome and premenstrual dysphoric disorder. *Am Fam Physician* 2016; 94(3): 236-40.
19. Borenstein JE, Dean BB, Endicott J, Wong J, Brown C, Dickerson V, et al. Health and economic impact of the premenstrual syndrome. *J Reprod Med* 2003; 48: 515-24.
20. Derman O, Kanbur NO, Tokur TE, Kutluk T. Premenstrual syndrome and associated symptoms in adolescent girls. *Eur J Obstet Gynecol Reprod Biol* 2004; 116: 201-6.
21. Raval CM, Panchal BN, Tiwari DS, Vala AU, Bhatt RB. Prevalence of premenstrual syndrome and premenstrual dysphoric disorder among college students of Bhavnagar Gujrat. *Indian J Psy* 2016; 58(2): 164-70.
22. Chang AM, Holroyd E, Chau JP. Premenstrual syndrome in employed Chinese women in Hong Kong. *Health Care Women Int* 1995; 16: 551-61.
23. Shamnani G, Gupta V, Jiwani R, Singh S, Tiwari S, Bharti SS. Prevalence of premenstrual syndrome and premenstrual dysphoric disorder among medical students and its impact on their academic and social performance. *Natl J Physiol Pharm Pharmacol* 2018; 8(8): 1205-8.
24. Tabassum S, Afridi B, Aman Z, Tabassum W, Durrani R. Premenstrual syndrome: Frequency and severity in young college girls. *JPMA* 2005; 55(12): 546-9.
25. Bhuvanewari K, Rabindran P, Bharadwaj B. Prevalence of premenstrual syndrome and its impact on quality of life among selected college students in Puducherry. *Natl Med J India* 2019; 32(1): 17-9.
26. Al-Batanony MA, Al-Nohair SF. Prevalence of premenstrual syndrome and its impact on quality of life among university medical students, Al Qassim university, KSA. *Public Health Res* 2014; 4: 1-6.
27. Mohib A, Zafar A, Najam A, Tanveer H, Rehman R. Premenstrual syndrome: Existence, knowledge and attitude among female university students in Karachi. *Cureus* 2018; 10(3): e2290.
28. Majeed-Saidan MMA, AlKharraz N, Kaaki K, AlTawil N, Alenezy S, Ahamed SS. Prevalence of premenstrual syndrome levels and its management among female students of medical and non-medical colleges in Riyadh. *Cureus* 2020; 12(11): e11595.
29. Yonkers KA, O'Brien PMS, Eriksson E. Premenstrual syndrome. *Lancet* 2008; 371(9619): 1200-10.