

Original Research Article

Premenstrual syndrome and its association with emotional dysregulation: a comparison between medical and non medical students

Suganthi Selvarajan¹, Hiba Ajmal^{2*}

¹Department of Community Medicine, Govt. Kilpauk Medical College, Chennai, Tamil Nadu, India

²Govt. Kilpauk Medical College, Chennai, Tamil Nadu, India

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*Correspondence:

Dr. Hiba Ajmal,

E-mail: hibaa17@gmail.com

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ABSTRACT

Background: Premenstrual syndrome is a disorder of menstrual cycle that encompasses varied symptoms ranging from physical, emotional to psychological. Depression and anxiety were considered to be two of the most severely disabling, amongst the varied emotional symptoms, as found by Gotts et al. This study was to find if the stressful life of medicos further dampened their ability to regulate their emotions during PMS.

Methods: This was a comparative cross sectional study was carried out between July and October 2018. Female students of first three years studying on Govt. Kilpauk Medical College and JBAS College, Teynamet, were recruited for the study after obtaining written informed consent.

Results: The mean PMS score among medicos is 93.791 and the mean PMS score among non-medicos is 88.473. Since the mean score of both the groups is higher than the cut off for PMS as per the PMS Scale, there is occurrence of PMS in both the groups. Further comparing the PMS scores of case and control, the case group consisting of medicos had a higher prevalence compared to the non-medicos.

Conclusions: Since there is significant prevalence of PMS among medicos, early diagnosis is crucial. The people with PMS can be given cognitive behavioural therapy. Advising women with PMS to take vitamin B6 can also help in managing this abnormal mood regulatory menstrual disease. Pyridoxine is known to provide great results in the treatment of PMS.

Keywords: Premenstrual syndrome, Expressive suppression, Cognitive reappraisal

INTRODUCTION

An estimated 31.1% percent of medical students experience premenstrual syndrome during their reproductive age.¹ It is a disorder of menstrual cycle that encompasses varied symptoms ranging from physical, emotional to psychological. It commonly affects adolescent and middle-aged women occurring during the late luteal phase and resolving on the onset of menstrual cycle.² The associated symptoms are acne, tender breasts, fatigue, myalgia, tension, irritability and mood swings, even anxiety and depression.³

Depression and anxiety were considered to be two of the most severely disabling, amongst the varied emotional symptoms, as found by Gotts et al.⁴ Hormonal changes such as estrogen-progesterone imbalance, having an influence on the serotonin levels in the brain, have been cited to be the most common cause. These hormones act on the serotonin receptors in the brain through activation of multiple intracellular signalling pathways including MAPK/ERK and the Akt pathway, both of which belong to a set of non-genomic signalling cascade pathways, thereby taking effect within millisecond to seconds. The decrease in the level of this mood-regulatory

neurotransmitter predisposes the women to the varied emotional derangements.

Emotional dysregulation refers to hindrance in capacity of a person to regulate their emotional responses to provocative stimuli, also sometimes referred to as emotional hyper reactivity. Gratz proposed that emotional dysregulation encompasses six sub factors: lack of awareness, clarity, non-acceptance, limited access to emotional responses, difficulties controlling negative impulses and in engaging in a goal-directed behaviour when experiencing negative emotions. Adolescence is known to be the time of social, cognitive and emotional change, occurring parallel with physical development.⁵ When confronted with a stressful situation, usually encountered in college, there is a heightened activity of an emotional response when compared to those in non-stressful situations.

The prevalence of PMS worldwide, among women of reproductive age is 75%, with the prevalence being even higher in younger women.⁶ The prevalence of PMS in India was 55.8% to 67%.⁷⁻⁹ Prevalence of PMS among urban and rural girls and reported the prevalence of PMS as 40.9% and 51.6%.¹⁰ Among the medical students population in India, an estimated 60.5% of students suffer from PMS.¹¹

This study aimed to determine whether the stressful life of a medical student has an influence on emotional regulation during PMS and with the objectives to estimate the proportion of occurrence of PMS among medicos and non-medicos, to compare emotional dysregulation among the medicos and non-medicos and to find if there is correlation between PMS and emotional dysregulation measured using scales of cognitive reappraisal and expressive suppression.

METHODS

This was a comparative cross sectional study was carried out between July and October 2018. Female Medical students of first three years studying on Govt. Kilpauk Medical College and Non-Medical students JBAS College, Teynamet, were recruited for the study after obtaining written informed consent. Confidentiality and safety was taken care of. All willing female undergraduate students from first three years of medical college and an equal number of students from a non-medical course were selected and divided into 2 sample groups. Group 1: female students, studying MBBS course Govt. Kilpauk Medical College. Group 2: considered as controls, female students, studying in non-medical courses in JBAS College, Teynamet. Female students who had menorrhagia, irregular periods and unwilling students were excluded from the study. 201 Medical students were included as cases and 201 Arts college students as controls, and the study was conducted in the department of Social and Preventive Medicine on Govt. Kilpauk Medical College.

Data collections was done by the principle investigator using standardized questionnaires like premenstrual syndrome scale which comprises of 40 questions with three sub scales (physiological, psychological and behavioural symptoms) which the subject is expected to grade based on their last menstrual periods.¹² It is graded based on 5- point Likert- type scale. The response never was scored as “1”, rarely as “2”, sometimes as “3”, very often as “4” and always as “5” points. Total score obtained from subscales is added to give the PMSS total score. The scales lowest score is 40 and the highest score is 200. If the scales total score is above 80 points or above, it indicates the occurrence of PMS and emotional regulation scale which consists of 10 questions.¹³ Each question is graded based on 7 point scale in which 1 considered to be strongly disagree, 4 as neutral, 7 as strongly agree. These questions are grouped into two emotion regulation strategies, cognitive reappraisal including questions 1, 3, 5, 7, 8, 10 and expressive suppression which includes questions 2, 4, 6, 9. The possible range of score for cognitive reappraisal is 6-42 and that for expressive suppression is 4-28. This scale has high internal consistencies for both cognitive reappraisal and expressive suppression subscales.

The collected data was entered in MS- Excel spreadsheet and statistical analysis was performed using SPSS20 package. Spearmans rank correlation was used for univariate analysis. T test was used to compare the various parameters amongst the two groups. $P < 0.05$ was considered as significant.

RESULTS

All the students recruited for the study were on the age group between 17 and 20, no specific data collected based on their socio demographic profile. The study found that the difference between mean PMS score of medicos and PMS score of non-medicos is statistically significant ($p=0.038$). Mean PMS score of medicos (93.79) was significantly high when compared to mean PMS score of non-medicos (88.47) which is shown in Table 1. Correlation between PMS scores and cognitive reappraisal among medicos and non-medicos was done using Pearson correlation. Cognitive reappraisal of medicos (case) was not statistically significant ($p=0.261$) and cognitive reappraisal of non-medicos (control) was statistically significant ($p=0.04$).

Table 1: Comparison of cognitive reappraisal scores between medicos and non-medicos.

	Controls PMS score-medicos	Cases PMS score non medicos
	PMS	PMS
Mean	93.791	88.473
Standard deviation	27.920	25.779

Table 2: Correlation between PMS scores and expressive suppression among medicos.

Pearson correlation	0.176
N	201
P	0.012

Table 3: Correlation between PMS scores and expressive suppression among non-medicos.

Pearson correlation	0.196
N	201
P	0.05

Correlation between PMS scores and expressive suppression among medicos and non-medicos was done using Pearson correlation. Expressive suppression of medicos (case) was statistically significant ($p=0.012$) and expressive suppression of non-medicos (control) was statistically significant ($p=0.05$) which was shown on Table 2 and Table 3.

Table 4: Comparison of expressive suppression score between medicos and non-medicos.

	Expressive suppression of medicos (case)	Expressive suppression of non medicos (control)
Mean	14.080	15.945
Standard deviation	5.293	5.549

Statistically significant difference ($p=0.001$) found on mean expressive suppression medicos score of medicos and mean expressive suppression of non-medicos score. Mean expressive suppression score of medicos (14.080) was significantly high when compared to mean expressive suppression score of non-medicos (15.95) which is shown in Table 4.

DISCUSSION

The purpose of this study was to find if the stressful life of medicos further dampened their ability to regulate their emotions during PMS. The mean PMS score among medicos is 93.791 and the mean PMS score among non-medicos is 88.473. Since the mean score of both the groups is higher than the cut off for PMS as per the PMS scale, there is occurrence of PMS in both the groups. Further comparing the PMS scores of case and control, the case group consisting of medicos had a higher prevalence compared to the non-medicos which is substantiated statistically by occurrence of p value of 0.038. This is similar to the study conducted by Singh et al and Lakshmi et al, but was higher compared to the study compared by Rumana et al.^{3,8,11} This might probably due to stressful life of medical students, as found by Abdulghani et al.¹⁴

An analysis between PMS and cognitive reappraisal in medicos gave a p value of 0.261 which is not statistically significant, but a slightly raising trend was noted. PMS score and cognitive reappraisal were better correlated amongst non-medicos with p value of 0.04 which is statistically significant. This was in contradiction to study done by Al-Batanony et al, who found statistically significant quality of life affecting emotional behaviour in medical students with PMS.¹⁵

The cognitive reappraisals of both the groups were compared which gave a p value of 0.264. Though statistically not significant, cognitive reappraisal scores continues to be higher amongst the non-medicos. The maximum number of medicos fell in the range of scores of 18-24 while maximum number of non-medicos fell in the 24 to 30 range. This indicates that the response modulation of non-medicos when confronted with various situation is good.

An analysis between PMS and expressive suppression in medicos gave a p value of 0.012 which was significant. This is in accordance to the results obtained by Acikgoz et al who showed that there is significant relationship was found between the risk of depression and the PMSS total score.¹⁶ The results were promising amongst the non-medicos as well with p value of 0.005.

Comparing the medicos and non-medicos, expressive suppression was found to be higher amongst non-medicos with p value of 0.001. Most number of medicos fell in the 16 to 20 range of scores, while maximum number of Non medicos fell in the 20 to 24 range. This shows that most number of medicos suppress their emotions.

Thus in this study, non-medicos population were better at cognitive reappraisal during PMS, compared to the medicos. Also both groups showed statistically prevalent expressive suppression, but the scales weighed heavily on the side of non-medicos. This might possibly be because, the knowledge of the various manifestations of PMS are better recognised by the medical students and they are keen to share their pent up emotions. The consideration of menstruation as a taboo topic amongst the non-medical population might also explain why they suppress their emotions during PMS.

CONCLUSION

Since there is significant prevalence of PMS among medicos, early diagnosis is crucial. The people with PMS can be given cognitive behavioural therapy and studies have shown that it improves their quality of life.¹ Advising women with PMS to take vitamin B6 can also help in managing this abnormal Mood regulatory menstrual disease. Pyridoxine (vitamin B6) is known to provide great results in the treatment of PMS by correcting impaired estrogen metabolism and regulating brain monoamine production¹⁸. The worsening of PMS

to its deadly counterpart premenstrual dysmorphic disorder can be prevented.

The diagnosis of PMDD stipulates the presence of at least five luteal-phase symptoms (panel), at least one of which must be a mood symptom (i.e., depressed mood, anxiety or tension, affect liability, or persistent anger and irritability), two cycles of daily charting to confirm the timing of symptoms; and evidence of functional impairment. Finally, symptoms must not be the exacerbation of another psychiatric condition.

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REFERENCES

1. Rumana AM, Sudharani M, Kallapurackal SX, Ramya V, Nagendren GMR, Suryakantha AH. Prevalence of Premenstrual Syndrome among Medical Students. *Natl J Community Med*. 2017;8(6):292-4.
2. Sekigawa I, Naito T, Hira K, Mitsuishi K, Ogasawara H, Hashimoto H, et al. Possible mechanisms of gender bias in sle: a new hypothesis involving a comparison of sle with atopy. *Lupus*. 2004;13(4):217-22.
3. Di Giulio G, Reissing ED. Premenstrual dysphoric disorder : prevalence, diagnostic considerations, and controversies. *J Psychosom Obstet Gynaecol*. 2006;27:201-10.
4. Gotts G, Moese CA, Dennerstein L. Premenstrual complaints: an idiosyncratic syndrome. *J Psychosom Obstet Gynaecol*. 1995;16(1):29-35.
5. Gratz KL, Roemer L. Multidimensional Assessment of Emotion Regulation and Dysregulation: Development, Factor Structure and Initial validation of the Difficulties in Emotion Regulation Scale. *J Psychopathol Behavioral Assessment*. 2004;26(1):41-54.
6. Chocano-Bedoya PO, Bertone-Johnson ER. Premenstrual syndrome. In: Goldman MB, Roisi R, Rexrode KM, editors. *Women and Health*. USA: Elsevier; 2013: 68–82.
7. Badkur D, Singh S, Chauhan DS, Sinha A. Premenstrual syndrome and its association with menstrual profile among female students of colleges in Ujjain city, Madhya Pradesh, India. *Int J Res Med Sci*. 2018;6:2726-31.
8. Anandha Lakshmi S, Saraswathi I, Saravanan A, Ramamchandran C. Prevalence of premenstrual syndrome and dysmenorrhoea among female medical students and its association with college absenteeism. *Int J Biol Med Res*. 2011;2(4):1011-6.
9. Thakre SB, Thakre SS, Ughade S, Thakre AD. Urban-Rural Differences in Menstrual Problems and Practices of Girl Students in Nagpur, India. *Indian Pediatrics*. 2012;49:733-6.
10. Ramya S, Rupavani K, Bupathy A. Effect of educational program on premenstrual syndrome in adolescent school girls. *Int J Reprod Contracept Obstet Gynecol*. 2014;3:168-71.
11. Singh A, Kiran D, Singh H, Nel B, Singh P, Tiwari P. Prevalence and severity of dysmenorrhea: a problem related to menstruation, among first and second year female medical students. *Indian J Physiol Pharmacol*. 2008;52(4):389-97.
12. Padmavathi P, Shankar R, Kokilavani N, Dhanapal K, Ashok B. Validity and Reliability Study of Premenstrual Syndrome Scale (PMSS). *IJANM*. 2014;2(1):4-5.
13. Gross JJ, John OP. Individual Differences in Two Emotion Regulation Processes: Implication for Affect, Relationships, and Well- Being. *J Personality Soc Psychol*. 2003;85(2):348-62.
14. Abdulghani HM, Alkanhalal AA, Mahmoud eS, Ponnampereuma GG, Alfari EA. Stress and its Effects on Medical Students: A cross sectional study at a college of Medicine in Saudi Arabia. *J Health Popul Nutr*. 2011;29(5):516-52.
15. 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):1-6.
16. Ayla A, Dayi A, Binbay T. Prevalence of Premenstrual Syndrome and Its Relationship to Depressive Symptoms in First-Year University Students. *Saudi Med J*. 2017;38(11):1125–31.

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