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# PREVALENCE OF PREMENSTRUAL SYNDROME AND ITS RELATIONSHIP WITH PRAKRUTI AMONG SELECT COLLEGE STUDENTS IN BENGALURU

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## ABSTRACT

**Purpose:** Premenstrual Syndrome is a recurrent luteal phase condition characterised by physical, psychological, and behavioural changes of sufficient severity to result in deterioration of interpersonal relationships and normal activity. This has seriously affected health and quality of life. Ayurveda has an awareness of menstrual cycle that are more easily observable. Acharyas have mentioned *Ritu Vyateeta Kala* (Secretory phase) of *Ritu Chakra* (Menstrual cycle) governed by Pitta and undergoes *Prakopa*, it causes *Kapha Kshaya* and *Vata Chaya. Dosas* simultaneously vitiates *Manodosha* and *Rasadhatu* leading to the further symptoms. **Methods:** A study was conducted among 125 students of an Ayurvedic medical college in Bengaluru. Self-evaluating questionnaire covering socio-demographic factors and questions on PMS were analysed. The diagnosis was made using ACOG Diagnostic criteria and screening was done with Premenstrual Symptoms Screening Tool. The subject's *Manasika* and *Shareerika Prakruti* were also analyzed. **Result:** The prevalence of PMS was 66.4% and PMDD 4%. Among them irritability 75.9 %, angry outburst 51.8% are the most common symptoms. About half the students had affective symptoms in the premenstrual phase. The constitution exhibited *Pitta* 41.6%, *Vata* 33.7%, Kapha 24.5% and *Rajasika* 52.7%, *Tamasika* 30.5%. **Conclusion:** PMS could be probably correlated with *Rituvyatita Kalaja Pitta Vata Vriddhi* as *Vata* dosha plays role in aggravating the other Doshas leading to *Pitta* predominant secretory phase getting affected. Understanding this concept can help understand and manage this condition much efficiently.

**KEYWORDS:** Premenstrual Syndrome, Prevalence, Prakruti.

## INTRODUCTION

Premenstrual syndrome (PMS) is a cyclic phenomenon of somatic and affective symptoms appearing in the days preceding menses and interfering with one's work or lifestyle followed by a symptom-free interval. This is restricted to luteal phase begins after ovulation and ends with the start of menstruation. According to ICD-11, it is also called as Premenstrual tension syndrome. The American Congress of Obstetricians and Gynaecologists (ACOG) includes psychiatric and physical symptoms. The American Psychiatric Association (APA) focuses predominantly on psychiatric symptoms in its diagnostic criteria for premenstrual dysphoric disorder (PMDD). Symptoms can occur anytime between menarche and menopause. The burden of disease can be high; women with PMS have higher rates of work absences, higher medical expenses, and lower health-related quality of life.[1]

Previous Indian studies have found a 20% prevalence of PMS in the general population and among those with PMS 8% had severe symptoms.[2,3] Raval et al. did a study in Gujarat among 489 college students and found the prevalence of PMS was 18.4% and of PMDD was 3.7%.[4] In a study of medical students in Delhi, about 37% of participants had PMDD.[5] Prevalence rate of PMS in India between the year 2000 to 2020 is around 43%.[6]

According to Ayurvedic concept, the health of an individual is attributed to the status of *Doshas* in his body. The balanced state of *Doshas* is the cause of health while an imbalance of *Doshas* is termed as disease. In Ayurveda, there is no clear-cut evidence of symptoms relating Premenstrual Syndrome, so it is difficult to give the disease a single Ayurvedic term. It can be correlated with different entities which one explained either as symptoms or disease.

Acharyas have divided the *Ritu Chakra* (Menstrual cycle) into 3 phases depending upon the physiological changes that take place in the body, *Ritu Kala* (Proliferative phase), *Ritu Vyateeta kala* (Secretory phase), *Raja Srava Kala* (Menstrual phase).

This cross-sectional study aimed to assess the prevalence of PMS and *Prakruti* among female students from an Ayurveda college in Bengaluru. And with the objective to evaluate the PMS by ACOG diagnostic criteria,[7] Premenstrual Symptoms Screening Tool (PSST),[8] To evaluate *Shareerika* (Physical constitution)[9] and *Manasika Prakruti* (Mental constitution)[10] with the questionnaire established by Gujarat Ayurved University. To find the relation between PMS and *Shareerika* and *Manasika Prakruti.*

## MATERIALS AND METHODS

A cross sectional study was conducted among the selected Ayurveda college students in Bengaluru. ACOG diagnostic criteria consists of affective and somatic symptoms. Premenstrual syndrome can be diagnosed if the patient reports at least one of the affective and somatic symptoms during the five days before menses in each of the three previous menstrual cycles. These symptoms must be relieved within four days of the onset of menses, without recurrence until at least day 13 of the cycle, must be present in the absence of any pharmacologic therapy, hormone ingestion, or drug or alcohol use. The symptoms must occur reproducibly during two cycles of prospective recording. The patient must exhibit identifiable dysfunction in social, academic, or work performance.

The Premenstrual symptoms screening tool (PSST) should be considered a diagnostic screening tool between PMS and Premenstrual Dysmorphic Disorder (PMDD). Both the questionnaire was converted to a questionnaire by using google forms. *Shareerika* and *Manasika Prakuti* questionnaire were built as same. The questionnaire was in English and Sanskrit terms. All participants were educated in English medium and had basic knowledge of Sanskrit. Willingness of the participants to answer the questionnaire was acquired as a consent.

## RESULTS

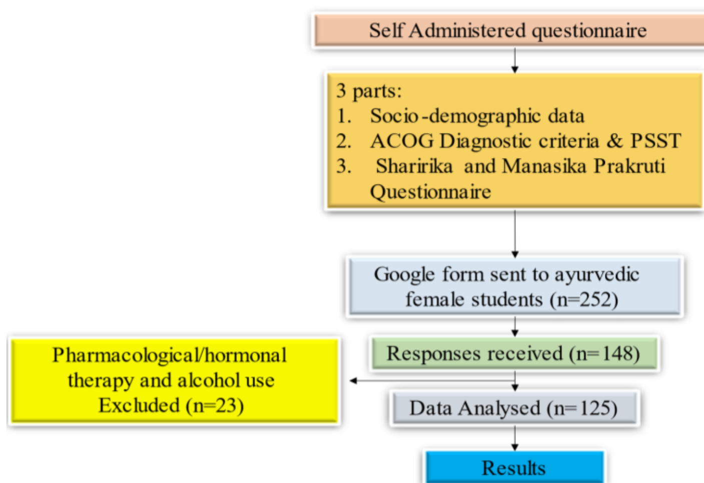



**Figure 1: Study Participants inclusion process.**

A total of 148 responses were received within the period of 4 weeks (Figure.1). The subjects (n= 23) under Pharmacological/ hormonal therapy and alcohol use were excluded and final analysis was done using 125 responses. The average age of the participants was 23.06 years between 20 to 38 years. The result of the socio-demographic data (Table.1) shows the UG students 50.4% (n=63), House surgeons 32% (n=40) and PG students 17.6% (n= 22). Most of them 52% (n=65) were from urban areas and lives in hostel 50.4% (n=63) rented home and self-cooking 23.2% (n=29). The participants who were underweight 14.4% (n=18), ideal 45.6% (n= 57), over weight 16.8% (n=21) and obese 4.8% (n=6). The martial status among the participants unmarried 88.8% (n=111), married 11.2% (n=14). The mean age at menarche was 13.6 (range 10–16) years. The average Hb was 11.8 (range from 9.7- 14).

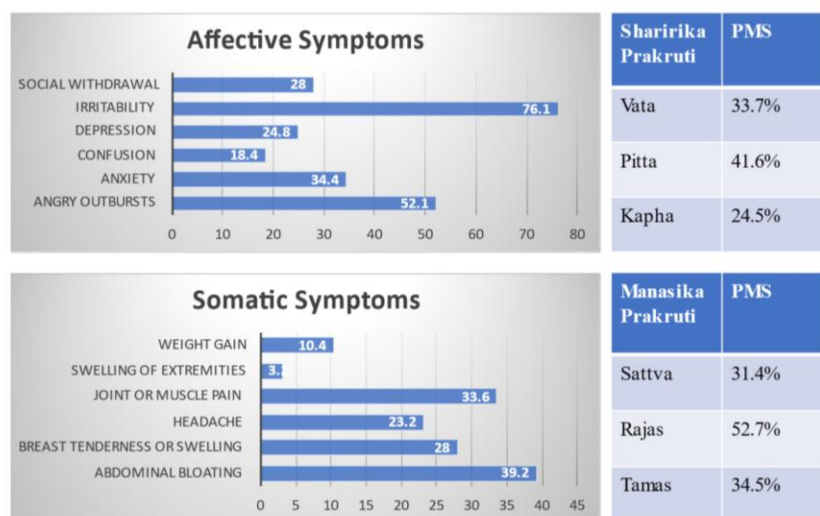
**Table 1: Sociodemographic and Menstrual details of the study participants.**

| a. Age (years) | |
|---|---|
| 18-20 | 3 (2.4%) |
| 21-25 | 109(87.2%) |
| >25 | 13 (10.4%) |
| b. BMI: | |

| <18.5 | 18 (14.4%) |
|---|---|
| 18.5-25 | 80 (64%) |
| 25-30 | 21(16.8%) |
| > 30 | 6 (4.8%) |
| c. Marital Status: | |
| Unmarried | 111 (88.8%) |
| Married | 14(11.2%) |
| d. Living condition: | |
| Urban | 65(52%) |
| Sub-Urban | 41(32.8%) |
| Rural | 19(15.2%) |
| e. Place of Residence: | |
| Hostel | 63 (50.4%) |
| Rented home and self-cooking | 29(23.2%) |
| Staying with family | 20(16%) |
| PG hostel | 12(9.6%) |
| f. Education: | |
| BAMS | 63(50.6%) |
| Internship | 40(32.6%) |
| MD/MS (Ayu) | 22(16.8%) |
| g. Age at menarche (years) | |
| <12 | 16 (12.8%) |
| 12- 15. | 108(86.4%) |
| >15 | 1 (0.8%) |
| h. Regular menstrual cycle | 104 (83.2%) |

In this study, the prevalence of PMS was 66.4% (n=83). About half the students had affective symptoms in the premenstrual phase. Among them irritability 75.9% (n=63), angry outburst 51.8%(n=43) are seen (Figure.2).

The *Prakruti* analysis exhibited *Pitta* 41.6%, *Vata* 33.7%, *Kapha* 24.5% and *Rajasika* 52.7%, *Tamasika* 34.5% with the participants diagnosed with PMS.




| Sharirika Prakruti | PMS |
|---|---|
| Vata | 33.7% |
| Pitta | 41.6% |
| Kapha | 24.5% |

| Manasika Prakruti | PMS |
|---|---|
| Sattva | 31.4% |
| Rajas | 52.7% |
| Tamas | 34.5% |

**Figure 2.**

## DISCUSSION

The PMS/PMDD has characteristics typically associated with ovulatory menstrual cycles.[12] Though in this study, 83.2 % (n=104) had regular cycle among which 96.3% (n=80) has PMS symptoms. Elizabeth et al. they found a strong relationship between BMI and incidence of PMS which was demonstrated by the fact that each 1 kg/m2 increase in BMI was associated with a significant 3% increase in risk of PMS and women with BMI ≥ 27.5 kg/m$^2$ at baseline had significantly higher risks of PMS than women with BMI < 20 kg/m$^2$.[13] In another study by Mai et al. they found that a significant positive relation exists between BMI and PMS. In their study females with high BMI experienced severe PMS than those females with low BMI.[14] In our study, underweight was14.4 % and overweight were 16.8% and most of the participants falls under normal weight 45.6%.

PMS symptoms were seen in a significant number of the participants who had <12 g/dl Hb suggesting the occurrence of PMS symptoms proportional to a fall in Hb level.[15] In this study, average was Hb was 11.8 gm% and 44% (n=55) of them falls under 12gm%.

The prevalence of PMS was 66.4% among students of a Ayurveda medical stream, Which is slightly higher to the study conducted in Puducherry found to have 62.7%.[16] The highest prevalence was found in studies reported from Delhi, estimated at 64.4% and lowest was for Kerala at 15.3% and Karnataka was 33.9%. Our study being conducted in a Ayurveda medical college in Karnataka with more prevalence comparatively and the participants may have been more forthcoming and willing to discuss their symptoms during the study.

The frequency of symptoms exhibited was irritability 75.9 %, angry outburst 51.8% which was approximately like the study conducted in turkey were 72% and 67.3% respectively.[17] The common symptom in somatic was is abdominal bloating (39.7%). P Chumpalova et al The clinical picture is dominated by almost equally distributed psychological and somatic symptoms.[18] which was not seen in our study psychological symptoms were seen more dominant.

The PMS was categorised with PSST tool, mild was 52% (n=64), moderate to severe was 44% (n=55) and severe or PMDD was 4% (n=6). This shows most of the participants falls under mild category. PMDD Prevalence reported by individual studies were ranged from 3.7% to 65.67%. The pooled estimate of was 14% which was lesser comparatively in this study.

This was a novel study where the attempt done to find the relation between PMS and prakruti. Previously studies were done different individual features, on general anxiety by Amin H et al, Vata Pradhana Prakriti and Rajas Pradhana Prakriti patients was found.[19] Govindaraj P et al,premenstrual irritability occurring in a woman of Kapha Prakriti is confounding, since Kapha Prakriti individuals normally possess low irritability.[20] People with the dominance of Vata in their prakruti are more prone to stress induced diseases and reduced Stress Handling Capacity.[21] All the above studies justifies the result that was obtained.

In menopausal women when manasika prakruti was analysed, 66.67% were of *Rajasika-Tamasika Prakriti* exhibited more symptoms which were similar to PMS, 29.17% were of *Satwika-Rajasika Prakriti*, and 4.17% were of *Satwika-Tamasika Prakriti*. In the same study 54.17% were of *Vata-Pitta Prakriti* and 22.92% were of *Vata-Kapha* and *Kapha-Pitta Prakriti.*[22]

The perimenopausal women relation to sareerika prakruti, *Vataprakruti* exhibited symptoms like anxiety, irritability, depression, mood swings and *Pitta Prakruti* has anger outburst be more frequent & in *Kapha Prakruti* weight gain was seen.[23] Comparing with our study on Premenstrual syndrome, the participants of Kapha predominance reported less of the symptoms like weight gain and bloating.

According to Acharya Charaka, it is impossible to give the name to all the diseases so a learned physician should recognize the balanced or imbalanced state of Doshas in body and then treatment based on its nature.[24] Taking this into consideration, Symptoms of the PMS is seen few days prior to menstruation in luteal phase. In the concept of Ritu Chakra which is classified as Ritukala, Rituvyateetakala and Rajakala. There is a specific pattern of Dosha dominance during these three Kala. During Rituvyateetakala, there is dominance or Kopa of Pitta Dosha with Vata Sanchayavastha. *Dosas* simultaneously vitiates *Manodosha* and *Rasadhatu* leading to the further symptoms. *Vata Dosha* plays role in aggravating the other Doshas leading to *Pitta* predominant secretory phase getting affected. Symptoms of PMS mainly resemble to that of *Vata Vruddhi* or *Avarana janya vyadhi.*

On the basis of symptoms and restriction of the disease to the luteal phase can be stated as *Rituvyatita Kalaja Pitta Vata Vriddhi*. Sharma B stated that symptoms are more likely to be related with pittavrutta vyana vata.[25] And occurring probably due to failure of implementation of Rajaswalacharya and Rutumati charya.

## CONCLUSION

In this study, the prevalence of PMS was 66.4%. About half the students has PMS with more of affective symptoms in the premenstrual phase. On looking into the symptoms and prakruti of PMS shows dominance of *Vata pitta Dosha* and *Rajo Guna*. So, PMS could be probably correlated as *Rituvyatita Kalaja Pitta Vata Vriddhi*. Understanding this concept can help understand and manage this condition much efficiently.

## REFERENCES

1. Mishell DR Jr. Premenstrual disorders: epidemiology and disease burden. Am J Manag Care, 2005; 11(16 suppl): S473-S479.
2. Sarkar AP, Mandal R, Ghorai S. Premenstrual syndrome among adolescent girl students in a rural school of West Bengal, India. Int J Med Sci Public Health, 2016; 5: 408–11.
3. Ziba T, Maryam S, Mohammad A. The effect of premenstrual syndrome on quality of life in adolescent girls. Iran J Psychiatry, 2008; 3: 105–9.
4. Raval CM, Panchal BN, Tiwari DS, Vala AU, Bhatt RB. Prevalence of premenstrual syndrome and premenstrual dysphoric disorder among college students of Bhavnagar, Gujarat. Indian J Psychiatry, 2016; 58: 164–70.
5. Mishra A, Banwari G, Yadav P. Premenstrual dysphoric disorder in medical students residing in hostel and its association with lifestyle factors. Ind Psychiatry J, 2015; 24: 150–7.

6. Dutta A, Sharma A. Prevalence of premenstrual syndrome and premenstrual dysphoric disorder in India: A systematic review and meta-analysis. Health Promotion Perspectives, 2021; 11(2): 161.
7. American College of Obstetricians and Gynecologists. Guidelines for Women's Health Care: A Resource Manual. 4th ed. Washington, DC: American College of Obstetricians and Gynecologists, 2014; 607-13.
8. Steiner M, Peer M, Palova E, Freeman EW, Macdougall M, Soares CN. The Premenstrual Symptoms Screening Tool revised for adolescents (PSST-A): prevalence of severe PMS and premenstrual dysphoric disorder in adolescents. Archives of women's mental health, 2011; 14(1): 77-81.
9. BaghelM S. Developing guidelines for clinical Research Methadology in Ayurveda, Institute for postgraduate teaching and research in Ayurveda, Gujrat Ayurved University, Jamnagar, 2011; 69- 70.
10. Tanna IR, Chandola HM, Kumar R. Role of Omega 3 Fatty acids in aetiopathogenesis of Depression (Chittavasada) and evaluation of Atasi (Linum usitatissimum) as adjuvant to Ashwagandadyarishta in its management [Internet]. Gujarat Ayurveda University, 2013. Available from: http://hdl. handle.net/10603/13295.
11. Dutta A, Sharma A. Prevalence of premenstrual syndrome and premenstrual dysphoric disorder in India: A systematic review and meta-analysis. Health Promot Perspect, 2021; 19, 11(2): 161-70.
12. Ryu A, Kim TH. Premenstrual syndrome: A mini review. Maturitas, 2015; 1, 82(4): 436-40.
13. Bertone-Johnson ER, Hankinson SE, Willett WC, Johnson SR, Manson JE. Adiposity and the development of premenstrual syndrome. J Womens Health, 2010; 19: 2128.
14. ElBanna MM, ElBbandrawy AM, Elhosary EA, Gabr AA. Relation between body mass index and premenstrual syndrome. Curr Sci Int, 2019; 8: 394-402.
15. Mamatha S D, Priya S A, Smitha M C. Association of hemogobin levels with symptoms of premenstrual syndrome in adults. Med J DY Patil Vidyapeeth [Epub ahead of print] [cited 2023 Jan 14]. Available from: https://www.mjdrdypv.org/preprintarticle.asp?id=343061
16. Bhuvaneswari 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; 1, 32(1): 17-9.
17. Adiguezel H, Taşkin EO, Danaci AE. The symptomatology and prevalence of symptoms of premenstrual syndrome in Manisa, Turkey. Turk Psikiyatri Dergisi= Turkish Journal of Psychiatry, 2007; 1, 18(3): 215-22.
18. Chumpalova P, Iakimova R, Stoimenova-Popova M, Aptalidis D, Pandova M, Stoyanova M, Fountoulakis KN. Prevalence and clinical picture of premenstrual syndrome in females from Bulgaria. Annals of general psychiatry, 2020; 15, 19: 3.
19. Amin H, Vyas M. Evaluation of Pradhana Sharira and Manas Prakriti (bodily and mental constitution) on disease manifestations in generalized anxiety disorder. Int J Clin Exp Physiol, 2016; 3: 170-9.
20. Govindaraj P, Nizamuddin S, Sharath A, Jyothi V, Rotti H, Raval R, Nayak J, Bhat BK, Prasanna BV, Shintre P, Sule M. Genome-wide analysis correlates Ayurveda Prakriti. Scientific reports, 2015; 29, 5(1): 1-2.
21. Giri D, Wairagade S, Desai P, Agrawal A, Jha RK. Relation between Prakriti and stress handling capacity: An observational study. International Journal of Current Research and Review, 2020; 12(15): 103-9.
22. Santwani K, Shukla VD, Santwani MA, Thaker G. An assessment of Manasika Bhavas in menopausal syndrome and its management. Ayu, 2010; 31(3): 311.
23. Ashwini I. Honagannavar, Mahanthswami Hiremath, & Pratibha Kulkarni. An observational study to evaluate the relation between Prakruti and Menopausal Symptoms. Journal of Ayurveda and Integrated Medical Sciences, 2022; 7(1): 46 - 53. Retrieved from http://jaims.in/jaims/article/view/1679
24. Agnivesha, Charaka Samhita of Acharya Charaka, Ram Karan Sharma and Bhagwan Dash. Sutra sthana. Ch.18/22, 2nd edition, Varanasi: Chaukhambha Sanskrit Series, 2007; 98.
25. Sharma B, Sharma S. Ayurvedic Concept Of Premenstrual Syndrome With Special Reference To Pittavritta Vyana Vayu. International Journal Of Ayurveda And Pharma Research, 2017; 4.