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Premenstrual Symptoms and Menstruation Pattern Among College Students

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Abstract: A significant number of women who menstruate encounter discomfort during the premenstrual phase of their cycle. Premenstrual symptoms are particularly problematic for adolescents. Globally, the majority of women experience physical and psychological manifestations linked to menstruation, collectively referred to as premenstrual symptoms. This study aims to assess the intensity of premenstrual symptoms and menstrual patterns amongst college students in Dindigul District, Tamil Nadu. In Dindigul district, Tamil Nadu, a cross-sectional investigation was undertaken at Arts and Science Colleges, involving 300 students aged between 18 and 28 years. Questionnaires were disseminated to gather general information about the participants before commencing the primary survey. The participants who had experienced menarche had a median age of 13.03 ± 1.38 years, whilst the overall mean age of participants was 21.11 ± 2.3 . PMS was found to affect 85% of the sample. Regarding activities, 41.5% engaged in some form of physical exercise, and 60% in psychological pursuits. Amongst the psychological symptoms, the most frequently reported were depressed mood, irritability, mood fluctuations, and difficulty concentrating. Physical manifestations commonly included generalised body discomfort, headaches, backaches, fatigue, and joint pain. Behavioural changes such as short temper, food cravings, and drowsiness were also prevalent. The research concluded that PMS is highly common amongst female college students. The study revealed a markedly higher prevalence of PMS amongst adolescent females. It is essential to implement educational initiatives about this condition in academic settings, encompassing both secondary and tertiary educational institutions.

Keywords: Premenstrual symptom, Menstrual cycle, Adolescent, Awareness

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Introduction

Adolescence period is a transitional period between childhood and adulthood. During this transitional period, children experience a variety

of physical and psychological changes. Women of reproductive age commonly experience Premenstrual Syndrome (PMS). Premenstrual Syndrome is

a condition in which a significant proportion of women of reproductive age exhibit one or more of the emotional, behavioral and physical symptoms associated with the menstrual cycle prior to the onset of menstruation (Gnanasambanthan and Dutta, 2019; Roomruangwong and Maes, 2021). PMDD is a more serious form of PMS and is classified as a psychiatric condition in DSM-5 (Diagnostic and Statistical Manual of Mental Disorders) (Bhuvanewari *et al.*, 2019). While the exact causes of PMS are unknown, as its symptoms appear at the same time as hormonal changes during the menstrual period, it is believed to be linked to hormonal imbalance such as excess estrogen and lack of progesterone, certain neurotransmitters (serotonin, GABA, opioid, catecholamine), age, and genetic factor (Shrestha *et al.*, 2019). Premenstrual Disorders include Premenstrual Syndrome, Premenstrual Dysphoric Disorder, and Premenstrual Worsening of Other Medical Conditions. While the causes of these conditions are still being studied, an abnormal response to hormonal changes that occur during the natural menstrual cycle, as well as serotonin deficiency, have been identified as contributing factors (Roomruangwong *et al.*, 2017). There are more than 200 different PMS symptoms. More than a hundred different physical and mental signs have been reported (Abu Alwafa *et al.*, 2021). PMDD is the most severe type of PMS (Thakrar *et al.*, 2021). PMDD is a psychiatric condition characterized by changes in mood, mood instability, irritability, depression, and anxiety (Dubol *et al.*, 2020). In a study of Indian college students Singh *et al.* (2015) found that the most common symptoms were "irritability" and "tiredness" and "lack of energy" for those without any impairment. The women with PMS also have other emotional disorder (Cao *et al.*, 2020).

Materials and Methods

A cross-sectional survey was conducted between various colleges in Dindigul District, Tamil Nadu, India. A convenient sampling method was adopted for this study. Semi structure questionnaires were given to the different college students in age

between 18-28 with regular menstrual cycles. All participants were verbally informed of the study goals and given written consent. Participants who completed the consent were enrolled in this study. The participants with menstrual disorders and any medical issues were excluded. This survey was conducted between March 2023 to April 2023

Sample size:

Utilising a confidence level of 95% (z-score 1.96), a presumed 50% proportion for the variable of interest, and a 5% margin of error, the estimated minimum sample size was determined to be 196 students. Nevertheless, to compensate for an anticipated 5% non-response rate and to bolster statistical power and effect size, the intended sample size was expanded to 300 student.

Statistical Analysis:

Participants details were analysed by using SPSS 25.0 version and Excel. Descriptive statistical methods including frequency, percentage, mean and standard deviation were used for data analysis.

Ethical consideration:

The investigator explained the study's aims and purpose to all participants. Written consent was secured from the subject, whilst verbal informed consent was obtained from all participants before they took part in the study.

Results and Discussion

It is important to note that not all women experience regular menstrual bleeding; in fact, up to 30% will experience changes in the amount or type of menstrual blood flow. This is known as an AUB, which stands for abnormal uterine bleeding. AUB can be caused by several different etiologies, and sometimes more than one at once (Munro *et al.*, 2018). In this study 52% of the students were in age between 18-21 years. Similar study was conducted in Turkey (Pinar *et al.*, 2010). Durairaj and Ramamurthi (2019) conducted study on undergraduate medical students and Engineering

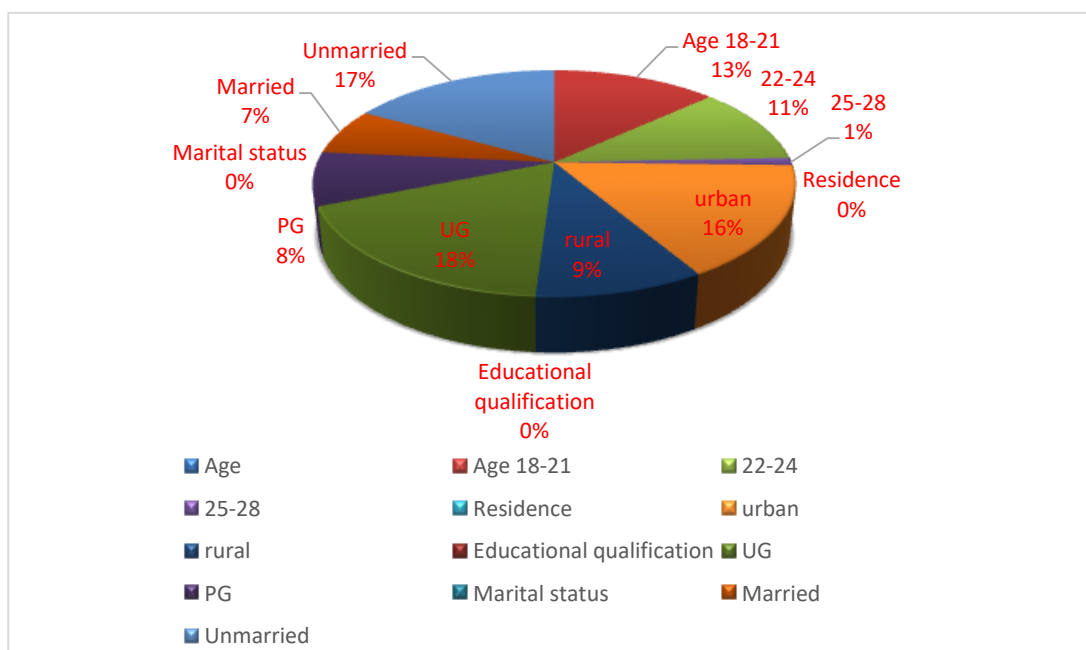


Fig. 1: Sociodemographic details of participants.

Table 1: Menstrual cycle characteristics of study participants

Variables	Category	Frequency	Percentage (%)
Length of the cycle	25–31 days	235	78.3
	31–35 days	65	21.6
Menstruation	3–7 days	223	74.3
	>7 days	77	25.6
Blood flow	Less	20	6.6
	Normal	243	81
	Heavy	47	15.3

students in Madurai, Tamil Nadu and reported 85.6% premenstrual symptom (Direkvand *et al.*, 2014). In the present study 85% of the undergraduate students had premenstrual symptoms. Mean age of the participants were 21.09 ± 2.3

In this study more than half (63%) (Fig. 1) of

the participants resided in urban area and only 37.6 % resided in rural area. These findings are similar to the study conducted by Amna *et al.* (2014) where 12.3 % resided in rural and 85.6% in urban area. In this study the prevalence of the premenstrual syndrome (PMS) was found to be 85%, while studies conducted in Saudi Arabia,

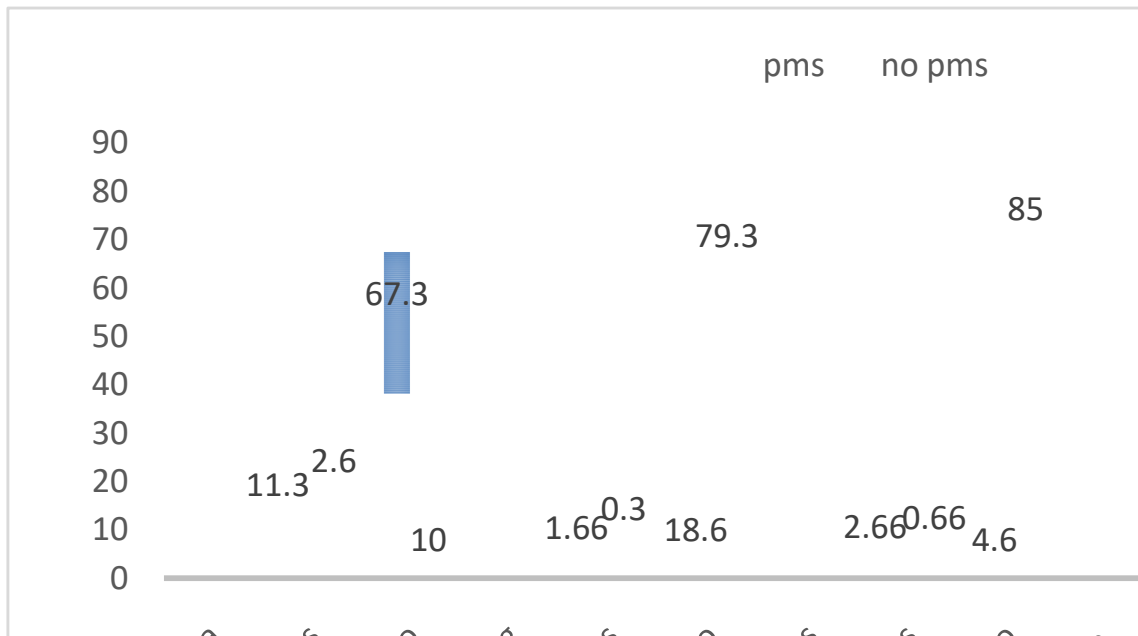


Fig. 2: Lifestyle pattern of participants.

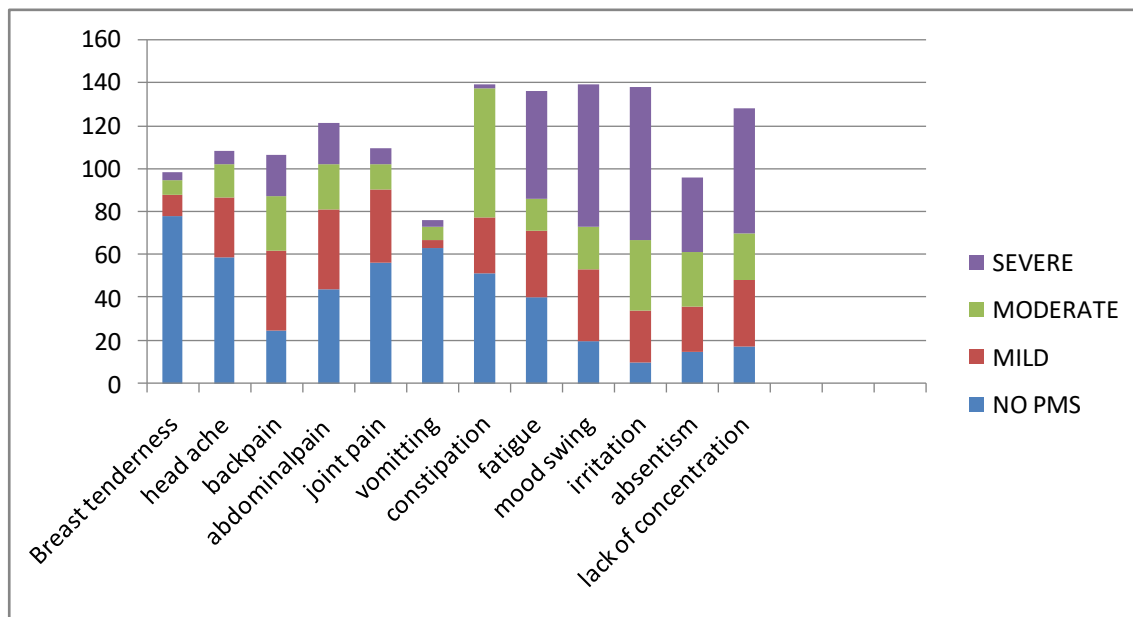


Fig. 3: PMS Symptoms.

Ethiopia, and Kingdom of Saudi Arabia, reported the prevalence as 46.7%, 37.9%, and 38.3%, respectively (Eshetu *et al.*, 2022). The average age of menarche in this study was 13.03 ± 1.38 years, these findings are more or less similar to a former study conducted by Konapur and Nagaraj (2014) in Bangalore and other study by Sarkar *et al.* (2016) in West Bengal, India which showed the

mean age of menarche of 12.35 ± 1.174 years and 12.77 ± 1.06 years. In majority of the participants (Table 1) length of the normal cycle is 78.3% and had blood flow for 3–7 days and amount of blood flow was moderate in 73% participants. These findings are similar to a study conducted in Ethiopia (Yesildere and Orsal, 2020), and Kathmandu (Wafaa Taha, 2019). Out of 300

participants who did not do any type of physical activity, 80.6% had PMS (Fig. 2). The percentage of participants with PMS among them was high at 85%. 15 participants had the habit of consuming soft drinks and tobacco among them 85 % had PMS. These findings suggest that PMS can be related to lifestyle characteristics. Many studies have shown that lifestyle characteristics are related to PMS and few have shown no association. The difference between studies may be due to socio-demographic factors, cultural factors and religious beliefs. The study did not control for any kind of association between PMS and different characteristics. The most common (Fig 3) PMS symptoms reported were fatigue (31.2%), general body pain (34%), back pain (37.3%), abdominal cramps (37.3%), and head ache (27.6%). Therefore symptoms described in this study are less or more in agreement with the other studies.

Conclusion

The research revealed that 85% of students experienced premenstrual syndrome (PMS), exceeding anticipated levels. Primary symptoms of PMS encompassed depressive mood, physical discomfort, fatigue, irritability, difficulty concentrating, apathy, emotional lability, abdominal pain, and heightened irritability. To address PMS effectively, it is imperative to implement educational initiatives within academic institutions and local communities to enhance understanding and recognition of the condition. This study conducted to selected Arts and Science college students those who were willing to participate, so the result cannot be generalized. This study recommends that healthy lifestyle adaptation will improve the menstrual health of adolescent and therefore menstrual health education could be included in curriculum.

Conflict of Interest

The authors declare no conflicts of interest.

References

- Abu Alwafa R, Badrasawi M and Haj Hamad R. (2021) Prevalence of premenstrual syndrome and its association with psychosocial and lifestyle variables: a cross-sectional study from Palestine. *BMC Womens Health* 21(1): 233.
- Amna A, Kumar R and Syeda BM. (2014) Socio-demographic factors and premenstrual syndrome among women attending a teaching hospital in Islamabad, Pakistan. *J Pioneer Med Sci.* 4(4): 159-162.
- Bhuvaneswari K, Rabindran P and Bharadwaj B. (2019) Prevalence of premenstrual syndrome and its impact on quality of life among selected college students in Puducherry. *Natl Med J India* 32(1):17-19.
- Cao S, Jones M, Tooth L and Mishra GD. (2020) History of premenstrual syndrome and development of postpartum depression: a systematic review and meta-analysis. *J Psychiatric Res.* 121: 82-90.
- Direkvand MK, Sayehmiri AD and Satar K. (2014) Epidemiology of premenstrual syndrome, a systematic review and meta-analysis study *J Clin Diagn Res.* 8: 106-109,
- Dubol M, Epperson CN, Lanzenberger R, Sundström-Poromaa I and Comasco E. (2020) Neuroimaging premenstrual dysphoric disorder: a systematic and critical review. *Front Neuroendocrinol* 57: 100838.
- Durairaj A and Ramamurthi R. (2019) Prevalence, pattern and predictors of premenstrual syndrome (PMS) and premenstrual dysphoric disorder (PMDD) among college girls. *The New Indian J OBGYN.* 5(2): 93-98.
- Eshetu N, Abebe H, Fikadu E, Getaye S, Jemal S, Geze S, Mesfin Y, Abebe S, Tsega D, Tefera B and Tesfaye W. (2022) Premenstrual syndrome, coping mechanisms and associated factors among Wolkite university female regular students, Ethiopia, 2021. *BMC Womens Health* 22(1): 88.
- Gnanasambanthan S and Datta S. (2019) Premenstrual syndrome. *Obstetrics Gynaecology Reproductive Med* 29(10): 281-285.
- Konapur KS and Nagaraj C. (2014) Dysmenorrhoea and premenstrual syndrome: frequency and effect on daily activities of adolescent girls in rural areas of Bangalore. *Int J Med Sci Public Hlth.* 3(10): 1225-1228.
- Munro MG, Critchley HOD, Fraser IS and FIGO Menstrual Disorders Committee (2018) The two FIGO systems for normal and abnormal uterine bleeding symptoms and classification of causes of abnormal uterine bleeding in the reproductive years: 2018 revisions. *Int J Gynaecol Obstet.* 143(3): 393-408.
- Pinar G, Colak M and Oksuz E. (2011) Premenstrual Syndrome in Turkish college students and its effects on life quality. *Sexual Reproductive Healthcare* 2(1): 21-27.

- Roomruangwong C and Maes M. (2021) Biomarker validation of a new case definition of menstrual cycle-associated syndrome (MCAS) opinion paper. *CNS Neurological Disorders-Drug Targets* 20(2): 105-111.
- Roomruangwong C, Barbosa DS, Matsumoto AK, Nogueira AS, Kanchanatawan B, Sirivichayakul S, Carvalho AF, Duleu S, Geffard M, Moreira EG and Maes M. (2017) Activated neuro-oxidative and neuro-nitrosative pathways at the end of term are associated with inflammation and physio-somatic and depression symptoms, while predicting outcome characteristics in mother and baby. *J Affect Disord* 223: 49-58.
- Sarkar AP, Mandal R and Ghorai S. (2016) Premenstrual syndrome among adolescent girl students in a rural school of West Bengal, India. *Int J Med Sci Public Hlth*. 5(3): 408-411.
- Singh P, Kumar S, Kaur H, Swami M, Soni A and Shah R. (2015) Cross sectional identification of premenstrual syndrome and premenstrual dysphoric disorder among college students: A preliminary study. *Indian J Priv Psychiatry* 9: 21-27.
- Wafaa Taha IE. (2019) Premenstrual syndrome: Prevalence, severity and impact on daily life activates among medical students at Najran University KSA. *Indo Am J Pharmaceut Sci*. 6(9): 12104-12112.
- Yesildere Saglam H and Orsal O. (2020) Effect of exercise on premenstrual symptoms: A systematic review. *Complement Ther Med* 48: 102272.