# Prevalence and Effect of Premenstrual syndrome among Female Nursing Students at University of Medical Sciences and Technology, Sudan

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**Abstract**

**Aim of the study**: This study aims to assess prevalence and effect of premenstrual syndrome (PMS) among female nursing students at University of Medical Sciences and Technology, Sudan. **Methods**: A descriptive study was conducted to examine PMS among female nursing students enrolled in the Faculty of Nursing Sciences at the University of Medical Sciences and Technology. The study included eighty-six participants aged between 18 and 24 years old. They were selected using convenience sampling. Data were collected using questionnaires. The data was analyzed by SPSS. **Results**: This study focused on nursing students at the University of Medical Sciences and Technology, Sudan. It was found that 40.70% of the participants experienced PMS. PMS impacts daily activities, such as eating, recreation, and social interactions to varying degrees. Severe mood swings and nervous tension (15.8% and 13.2%, respectively) were prominent among the PMS-related behaviors. **Conclusion**: The investigation of nursing students at the University of Medical Sciences and Technology, Sudan, shed light on the demographic composition and prevalence of PMS among nursing students. This study underscored the predominance of female students and reveals that a significant proportion of them experienced PMS. **Recommendations**: The findings highlighted the urgent need for effective university-based health promotion polices and interventions that focused on orienting students at the university on the PMS and its effect. Further studies should be conducted with more sample on a larger community.

**Keywords:** premenstrual syndrome, nursing students, prevalence, Sudan.

## Introduction:

Premenstrual syndrome (PMS) is a prevalent recurring condition that affects young and middle-aged women. It is characterized by emotional and physical symptoms that consistently manifest during the luteal phase of the menstrual cycle (Dickerson et al., 2003). Women with more severe affective symptoms are classified as having premenstrual dysphoric disorder. Although the aetiology of these disorders remains uncertain, research suggests that altered regulation of neurohormones and neurotransmitters is involved. PMS and premenstrual dysphoric disorder are diagnoses of inclusion; therefore, alternative explanations for symptoms must be considered before either diagnosis is made (R Pérez-López et al., 2009, Chawla et al., 2002). The disorders can manifest with a wide variety of symptoms, including depression, mood liability, abdominal pain, breast tenderness, headache, and fatigue (Johnson, 2004, Sanchez et al., 2023). Women with mild symptoms should be instructed about Lifestyle changes, including healthy diet, sodium and caffeine restriction, exercise, and stress reduction. Supportive strategies, such as use of a symptom diary, may be helpful in diagnosing and managing the disorders. In women with moderate symptoms, treatment includes both medication and lifestyle modifications (Nagrath, 2012, Olwa, 2014 ). Dietary supplements, such as calcium and evening primrose oil, may offer modest benefit. Selective serotonin reuptake inhibitors such as fluoxetine and sertraline are the most effective pharmacologic agents (Bendich, 2000, Canning et al., 2006). Only weak evidence supports the effectiveness of gonadotropin-releasing hormone agonists, androgenic agents, estrogen, progesterone, or other psychotropics, and side effects limit their use (Kessel, 2000, Yonkers and Simoni, 2018).

PMS affects millions of women during their reproductive years. The disorder is characterized by the cyclic recurrence of symptoms during the luteal phase of the menstrual cycle (Dilbaz and Aksan, 2021). Symptoms typically begin between

the ages of 25 and 35 years. Women who have severe affective symptoms may also meet criteria for premenstrual dysphoric disorder (PMDD). In both PMS and PMDD, symptoms diminish rapidly with the onset of menses.

Up to 85 percent of menstruating women report having one or more premenstrual symptoms, and 2 to 10 percent report disabling, incapacitating symptoms (Johnson, 2004). More than 200 symptoms have been associated with PMS, but irritability, tension, and dysphoria are the most prominent and consistently described (Rapkin and Winer, 2009, Hamaideh et al., 2014).

While PMS symptoms can vary widely in their intensity and manifestation, they collectively create a challenging and often uncomfortable experience for those affected (Lustyk et al., 2009). It is essential to recognize that PMS is not solely a physiological phenomenon; rather, it is influenced by various factors, including hormonal changes, genetics, and environmental influences (Mohamed et al., 2022, King, 2020).

**1.2 Problem Statement**

Premenstrual symptoms are experienced by up to 90% of women of childbearing age. A smaller subset meets criteria for PMS and less than 10% of them are diagnosed as having PMDD (Braverman, 2007). PMS is generally regard as a cluster of symptoms which arise in the last 3 to 10 days of the menstrual cycle and subside shortly after menstrual onset (Rapkin and Winer, 2009, Freeman, 2003). Women have described changes in their behavioural, emotional, and physiological well-being, with severe disability. Various studies have reported an increased rate of violent crimes committed by women during the premenstrual phase their cycle, with similar increase reported in psychiatric emergences and suicide attempt (Shalini et al., 2022). Among the demographic groups susceptible to PMS, female university students represent a significant cohort facing unique challenges that could potentially exacerbate the symptoms associated with this syndrome (Xing et al., 2023).

**1.3 Rationale and Justification**

Several Previous studies indicated that, many females are suffering from this PMS. It is vital important to study the PMS and incidence that surround the disease, in order to improve the health of female in our society (Wittchen et al., 2002, Shrestha et al., 2019, Chumpalova et al., 2020, Bakhshani et al., 2009, Davis and Davis, 1993, Izadi-Mazidi and Amiri, 2019).

**Aim of the study:**

This study aims to assess prevalence and effect of PMS among female nursing students at University of Medical Sciences and Technology, Sudan. The researcher answered the questions: What is Prevalence & severity of Premenstrual syndrome among Female Nursing Students at University of Medical Sciences and Technology, Sudan? What are effects of Premenstrual syndrome on Female Nursing Students at University of Medical Sciences and Technology, Sudan?

**Materials and methods:**

**Study design:**

The study was done by using descriptive design to assess PMS in female nursing students at the University of Medical Sciences and Technology.

**Study area:**

The study was conducted in Faculty of Nursing Sciences at the University of Medical Sciences and Technology. Sudan. It is located inside the Academy Charity Teaching Hospital in Imtidad Street near Alsahafah area, Khartoum.

**Study population:**

Eighty-six female nursing students from faculty of Nursing Sciences at the University of Medical Sciences and Technology participated in this research.

**Inclusion criteria**

Female nursing students at the University of Medical Sciences and Technology, who accepted to join in the study.

**Exclusion criteria**

Male nursing students, those who already graduated, at the MSc program and those dd not agree to participated were excluded from this study.

**Sampling procedure and sample size**

A convenience sampling technique was used to select female nursing students from the Faculty of Nursing Sciences in University of Medical Sciences and Technology. Eighty-six female nursing students were participating in the study selected. The sample was calculated based on the response form students as convenience.

**Variables**

Demographic characteristics

PMS prevalence

Factors such as physiological, psychological, behavioural changes.

**Data collection techniques:**

Data was collected by distribution of the

constructed questionnaire to the female nursing students after explaining the purpose of the study.

**Fieldwork:**

The fieldwork involves the administration of the Premenstrual Symptoms Screening Tool (PSST), which consists of subscales assessing symptom severity, exacerbating factors, and impact on daily life. Participants are asked to complete the PSST questionnaire, providing valuable quantitative insights into their premenstrual experiences within the university context.

**Data collection tool:**

The PSST was used to collect data form participants. The scores from the PSST are calculated separately for symptom severity, exacerbating factors, and impact on daily life. Cronbach's alpha is calculated to evaluate the internal consistency of the tool's subscales. The tool was adopted from one previous study (Steiner et al., 2003)

**Data Analysis:**

Data was analysed by using Statistical Package for Social Science (SPSS) and with descriptive and inferential statistics.

**Ethical consideration:**

The study was conducted with respect to participants rights, as they were informed that the result of this study is for the research purposes only, and their participation is voluntary, and they could provide agreement before filling the online survey. Permission was taken from Dean of Faculty of Nursing Sciences of UMST and Dean of Academy Students Affair of Medical Sciences and Technology. Then Consent was taken from Dean of postgraduate college and all the female nursing students

**Results:**

**Results summary:**

The demographic characteristics of Nursing students at the University of Medical Sciences and Technology, Sudan, are presented in Table 1. In terms of the level of study, the distribution is as follows: first level (13.95%), third- level (19.77%), fourth- level (18.60%), fifth- level (11.63%), sixth- level (13.95%), seventh- level (12.79%), and eighth- level (9.30%). The average age of the students is approximately 21 years, with a small standard deviation of 1.2 years.

Figure 1 illustrates the prevalence of PMS (PMS) among nursing students at the University of Medical Sciences and Technology, Sudan. Among the participants, 40.70% reported experiencing PMS, while the remaining 59.30% did not report having PMS.

Table 2 presents the impact of PMS (PMS) on daily living activities among nursing students at the University of Medical Sciences and Technology, Sudan. The table indicates the percentage of students who could and could not perform specific activities during PMS. Among the activities examined, normal eating, recreational/leisure activities, ability to read, and coping with friends each saw around one-third of the participants unable to perform them during PMS. Additionally, a notable proportion experienced difficulty with going to school, sleeping patterns, and engaging in social interactions. However, activities like playing with neighbours and bathing were comparatively less affected. Overall, this table highlights the varying degrees to which PMS impacts different aspects of daily life for the surveyed nursing students.

Table 3 depicts the behaviour symptoms linked to PMS (PMS) among nursing students at the University of Medical Sciences and Technology, Sudan, presenting the frequency and percentage distribution of mild, moderate, and severe levels of anxiety, irritability, mood swings, and nervous tension. The results indicate that mood swings and nervous tension are more frequently reported at severe levels (15.8% and 13.2% respectively) compared to other symptoms, shedding light on the varying severity of PMS-associated behaviours experienced by the surveyed students.

Table 4 provides an overview of the correlation between Nursing students' characteristics and the prevalence of PMS at the University of Medical Sciences and Technology in Sudan. The table displays the distribution of students with and without PMS based on their level of study and age. Notably, PMS prevalence varies across different levels of study, with percentages ranging from 50.0% to 64.7%. Additionally, students with PMS had an average age of 22 years (±1.3), slightly higher than the average age of 21.4 years (±1.9) for those without PMS. The associated p-value for age difference was 0.06, indicating a subtle statistical significance in relation to PMS prevalence.

**Table 1: Demographic characteristics of Nursing students at the University of Medical Sciences and Technology, Sudan**

| Variable | | Freq. | Percent |
|---|---|---|---|
| | Female | 86 | 100 |
| Level of study | First | 12 | 13.95 |
| | Third | 17 | 19.77 |
| | Fourth | 16 | 18.60 |
| | Fifth | 10 | 11.63 |
| | Sixth | 12 | 13.95 |
| | Seventh | 11 | 12.79 |
| | Eighth | 8 | 9.30 |
| Age | | 21±1.2 years | |

**Figure 1: Prevalence of PMS among nursing students at the University of Medical Sciences and Technology, Sudan**

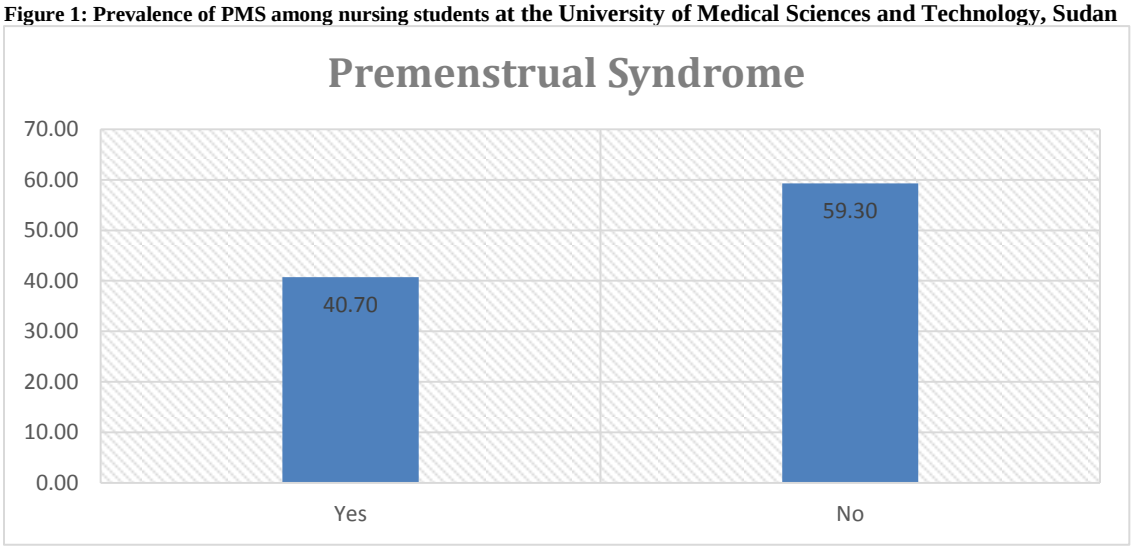

**Table 2: Daily living activities associated with PMS among nursing students at the University of Medical Sciences and Technology, Sudan**

| No. | Daily living activities | Can not performed (No) Percent | Can performed (Yes) Percent |
|---|---|---|---|
| 1. | Able to go to school | 21.1 | 78.9 |
| 2. | Normal eating | 26.3 | 73.7 |
| 3. | Play with neighbor | 50 | 50 |
| 4. | Bathing | 5.3 | 94.7 |
| 5. | Recreational/leisure activities | 36.8 | 63.2 |
| 6. | Sleeping pattern | 18.4 | 81.6 |
| 7. | Ability to read | 36.8 | 63.2 |
| 8. | Coping with friends | 31.6 | 68.4 |

**Table 3: Behavior symptoms associated with PMS among nursing students at the University of Medical Sciences and Technology, Sudan**

| Variables | Mild | | Moderate | | Sever | |
|---|---|---|---|---|---|---|
| | Frequency | Percent | Frequency | Percent | Frequency | Percent |
| Anxiety | 13 | 34.2 | 20 | 52.6 | 5 | 13.2 |
| Irritability | 19 | 50 | 15 | 39.5 | 4 | 10.5 |
| Mood swings | 17 | 44.7 | 15 | 39.5 | 6 | 15.8 |
| Nervous tension | 18 | 47.4 | 15 | 39.5 | 5 | 13.2 |

**Table 4: Correlation between characteristics of Nursing students and prevalence of PMS at the University of Medical Sciences and Technology, Sudan**

| Variables | | PMS | | p-value |
|---|---|---|---|---|
| | | Yes | No | |
| Level of study | First | 58.3 | 41.7 | 0.07 |
| | Third | 64.7 | 35.3 | |
| | Fourth | 62.5 | 37.5 | |
| | Fifth | 60.0 | 40.0 | |
| | Sixth | 50.0 | 50.0 | |
| | Seventh | 54.5 | 45.5 | |
| | Eighth | 62.5 | 37.5 | |
| Age (years) | | 22±1.3 | 21.4±1.9 | 0.06 |

**Discussion:**

The research aimed to investigate the occurrence of PMS and explore potential related consequences among nursing students at the University of Medical Sciences and Technology, Sudan. PMS, a cluster of psychosomatic symptoms that can manifest in the latter part of the menstrual cycle, is recognized for its influence on daily tasks. A notable proportion of women in their reproductive years contend with this condition (PAVITRA, 2022).

The investigation examined the prevalence of PMS in female nursing students, uncovering that a significant number of students are in their third level of study, with an average age of 21 years. This observation aligns with the findings of a study conducted by Tolossa at the College of Health Sciences, Mekelle University, in northern Ethiopia, where the age range of the participants spanned from 18 to 25 years (Tolossa and Bekele, 2014).

Regarding the prevalence of PMS, the present study revealed that forty per cent of students had experienced PMS. This is in line with the study done in Ethiopia by Tolossa who found that the prevalence of PMS was more than third. On the other hand, it was lower than the study conducted by Al-Batanony in Al Qassim University KSA among medical students found that the prevalence of PMS was more than two thirds (Tolossa and Bekele, 2014, Al-Batanony and AL-Nohair, 2014). Additionally، it is similar to the results of the study done by Soliman, in Faculty of Nursing, Tanta University, Egypt revealed that more than two third of studied females mentioned that they were previously complaining of PMS (Soliman et al., 2022). This variation may be explained by a variety of causes, including the food habits of college students and the role of hormonal, and environmental, on the prevalence of PMS.

Regarding absence from school about quarter of PMS students were absent from school this is lower than the study carried out by Syed in India found that near half of students were absent from college due to the severity of dysmenorrhea, Absence negatively affects the student's achievement level.

Additionally, half of the PMS students in our study reported experiencing social disinterest. These findings are consistent with Syed's earlier research, which showed that 32% of students avoid attending social events.

Most of the nursing students experiencing PMS in this research continue to engage in their daily tasks, which is in line with a study conducted by Abeje in 2016 in Debremarkos town, North-west Ethiopia. The latter study identified a noteworthy link between the occurrence of PMS and participation in non-academic household responsibilities, signifying a statistically significant correlation (Abeje and Berhanu, 2016). This is consistent with the findings of Kustriyanti, Maternity Department, Science Health College of Karya Husada, Semarang, Indonesia (Kustriyanti and Rahayu, 2020), who stated that there has been a decline in students' quality of life across all domains, including physical and mental health, social interactions, the environment, and relationships with others. Also, Karpagavalli, Himalayan University, Itanagar, Arunachal Pradesh (Karpagavalli and Rani, 2020) showed that lifestyle factors such as physical activity and sleep are significantly related with PMS.

In the present study, behavioral symptoms (anxiety, irritability. mood swings, and nervous tension). The most common severe behavioral symptoms are mood swings, however the current study showed that fewer of the students under investigation experienced severe levels of behavioral PMS symptoms. In a similar manner, according to Nageeb (Nageeb et al., 2015), a few number of participants suffered severe PMS also this finding agrees with a study done in UAE by Hashim from Sharjah, UAE (Hashim et al., 2019), found that behavioral symptoms were the least common.

**Conclusion:**

In conclusion, the investigation of Nursing students at the University of Medical Sciences and Technology, Sudan, sheds light on the demographic composition and the prevalence of premenstrual syndrome (PMS) among the students. The study underscores the predominance of female students and reveals that a significant proportion experiences PMS. The impact of PMS on daily activities demonstrates the diverse range of its effects on aspects like eating, recreation, and social interactions. Notably, severe mood swings and nervous tension emerge as prominent symptoms within the spectrum of PMS-related behaviors. This research contributes valuable insights into the challenges faced by nursing students due to PMS, emphasizing the need for further support and awareness in addressing these issues.

**Recommendations:**

These findings indicates that the urgent need for effective university-based health promotion polices and interventions that focused on orienting nursing students at the university on the effects of PMS. Further studies should be conducted with more sample and all over the country and with different study design.

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