

Prevalence of Menstrual Disorders and Their Effect on Academic Performance Among Nursing Students

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Abstract

Menstrual disorders are a significant public health concern, particularly among adolescent and young adult females, including nursing students, who often face academic pressures alongside physiological challenges. Despite being a common health issue, menstrual problems remain underreported due to stigma, lack of awareness, and normalization of symptoms. This study was designed to assess the prevalence of menstrual disorders and to evaluate their potential impact on academic performance among nursing students at Rama Medical College Hospital and Research Centre, Kanpur. It also aimed to identify patterns of menstruation-related issues and the coping mechanisms adopted by students, offering a holistic view of how menstrual health influences educational outcomes. The cross-sectional study was conducted over a period of six months and included a total of 300 female nursing students from first year to final year who were selected using stratified random sampling. Data was collected through a pre-tested, semi-structured questionnaire designed to capture demographic details, menstrual history, types and frequency of menstrual disorders such as dysmenorrhea, menorrhagia, oligomenorrhea, amenorrhea, and premenstrual syndrome (PMS), and their direct or indirect impact on academic performance. Academic parameters included attendance, self-reported concentration levels, participation in practical training, examination

performance, and overall academic confidence. The results revealed that 76% of participants reported experiencing at least one form of menstrual disorder. Dysmenorrhea was the most common, affecting 58% of the students, followed by PMS (46%), menorrhagia (18%), and oligomenorrhea (11%). Only 5% reported amenorrhea. A significant proportion of students experiencing these disorders admitted to missing classes, avoiding clinical rounds, or facing difficulty in concentrating during lectures and exams. About 62% of affected students reported using self-medication or home remedies, while only 22% had ever consulted a physician. Many participants expressed that menstrual discomfort and related emotional distress, including irritability and anxiety, made it harder for them to perform academically to their full potential. Statistical analysis using the chi-square test revealed a strong association between the presence of menstrual disorders and poor academic performance indicators ($p < 0.05$). Additionally, students with severe dysmenorrhea and PMS reported significantly lower attendance and greater instances of academic stress and anxiety. The study also found that third-year students exhibited better coping mechanisms and more effective self-care routines, likely due to increased exposure to medical knowledge and experience. In contrast, first-year students were most affected, often missing critical early learning opportunities and practical sessions due to unmanaged symptoms. The findings of this study emphasize the urgent need for comprehensive menstrual health education, early identification of menstrual disorders, and support systems within academic institutions, especially in female-dominated disciplines like nursing. Despite being in a health-related field, most students demonstrated inadequate awareness and poor health-seeking behavior regarding menstrual issues. Institutional health programs should incorporate menstrual hygiene management, access to counseling, and medical care, ensuring students do not suffer silently or experience academic setbacks. In conclusion, menstrual disorders are prevalent among nursing students and are significantly associated with impaired academic performance. Addressing menstrual health should be a priority in healthcare education settings to ensure student well-being and academic success. Empowering students with knowledge, access to care, and supportive policies can lead to improved quality of life and enhanced academic outcomes. The study suggests integrating reproductive health education, improving campus health services, and creating a stigma-free environment where female students feel comfortable seeking help. Future research may explore longitudinal data and intervention-based strategies to evaluate the effectiveness of awareness and management programs. Overall, this research sheds light on a neglected yet vital aspect of women's health in academic institutions and calls for proactive measures to bridge the gap between health and education.

Keywords (in paragraph): *This study focuses on key aspects such as menstrual disorders, dysmenorrhea, premenstrual syndrome (PMS), menorrhagia, oligomenorrhea, amenorrhea, and their prevalence among nursing students.*

Introduction

Menstrual health is a vital component of reproductive well-being and has far-reaching implications on the physical, mental, and emotional health of women [1]. The menstrual cycle, a physiological process regulated by hormonal changes, begins at menarche and continues until menopause [2].

While it is a natural part of a woman's life, it is frequently associated with various disorders that can significantly impair quality of life and daily functioning [3].

In the context of young women, particularly those enrolled in rigorous academic programs such as nursing, menstrual disorders may have a profound effect on academic performance, attendance, participation in clinical work, and overall mental wellness [4]. Menstrual disorders refer to a spectrum of conditions that affect the normal menstrual cycle, including but not limited to dysmenorrhea (painful menstruation), premenstrual syndrome (PMS), menorrhagia (heavy menstrual bleeding), oligomenorrhea (infrequent menstruation), amenorrhea (absence of menstruation), and irregular cycles [5]. Among these, dysmenorrhea and PMS are reported to be the most common, especially in adolescents and young adult women [6]. These disorders are often underreported due to stigma, embarrassment, or the perception that such issues are a normal part of being female [7]. As a result, they remain inadequately addressed within both healthcare and educational systems [8]. Nursing students represent a unique demographic for studying menstrual health. Their training demands long hours, physical exertion, emotional resilience, and high academic performance [9]. The dual burden of managing the stress of professional education along with physiological disturbances caused by menstrual issues can be overwhelming [10]. Moreover, since nursing students are future healthcare providers, their understanding, management, and perceptions about menstrual health carry added significance [11]. If unaddressed, these disorders can affect not only their personal well-being but also their academic growth, practical skills, and empathy towards patients with similar conditions in the future [12]. In recent years, there has been growing awareness regarding the impact of menstruation on education, especially in developing countries where taboos and lack of resources continue to pose challenges [13]. However, much of the focus remains on school-going girls, with limited literature targeting higher education students, particularly those in professional healthcare training [14]. Nursing students, due to their clinical rotations and tight academic schedules, are often expected to function optimally even when experiencing menstrual distress [15]. They may avoid reporting symptoms for fear of being perceived as weak or unprofessional, thereby exacerbating the psychological and physical toll [16].

Existing literature indicates a high prevalence of menstrual disorders among female college students. Studies from various regions have reported dysmenorrhea rates ranging from 50% to 90% among young women [17]. PMS symptoms such as mood swings, irritability, fatigue, bloating, and breast tenderness are also frequently reported [18]. These symptoms often contribute to missed classes, poor academic engagement, difficulty in concentration, and overall lower academic performance [19]. Some students may rely on self-medication or home remedies, while others may not seek any treatment at all [20]. The lack of structured support systems within colleges, particularly regarding menstrual health counseling, adds to the burden [21]. Understanding the relationship between menstrual disorders and academic performance is crucial for designing student welfare programs [22]. Addressing these issues proactively could improve attendance, reduce stress, and enhance the educational experience [23]. Furthermore, it is essential to assess whether students are equipped with adequate knowledge and coping mechanisms to manage these disorders [24]. Do they consult a physician? Do they have access to pain relief medication? Are there provisions for academic leniency or menstrual leave in extreme cases? These are pertinent questions that need to be explored [25]. In Indian society, menstruation is still

surrounded by cultural taboos and misinformation [26]. While urban education has helped reduce some stigma, even educated young women may internalize negative beliefs about menstruation [27]. They may avoid discussing their symptoms with peers or educators, fearing social judgment [28]. This silence leads to underestimation of the actual prevalence and impact of menstrual disorders among college students [29]. In addition, the burden may be greater in professional colleges, like nursing institutes, where physical stamina and mental focus are essential to cope with the demands of training and patient care [30]. Furthermore, there is a gap in literature regarding the menstrual health of nursing students in semi-urban or rural settings, where healthcare access, privacy, and awareness may be even more limited [31]. The academic curriculum for nursing students may not prioritize their own reproductive health, despite their role in promoting public health in the future [32]. As a result, there is a strong need to generate localized data that reflects the ground reality of menstrual issues faced by nursing students and their effect on academic performance [33]. The importance of menstrual hygiene and management is now being recognized globally as a public health and human rights issue [34]. Organizations like the World Health Organization (WHO) and the United Nations International Children's Emergency Fund (UNICEF) have emphasized the need for menstrual health education and supportive environments in schools and colleges [35]. In India, initiatives such as the Menstrual Hygiene Scheme (MHS) and Rashtriya Kishor Swasthya Karyakram (RKSK) have begun addressing menstrual health among adolescent girls, yet the focus has not extended substantially into higher education, where the challenges are different and often more complex [36].

Given this backdrop, the present study aims to explore the prevalence of various menstrual disorders among nursing students and assess their impact on academic performance. It also seeks to understand the coping mechanisms adopted by students and their health-seeking behavior [37]. By identifying patterns and correlations, the study intends to offer recommendations for institutional policies and practices that support menstrual health among students [38]. This research is not only timely but essential for promoting a culture of awareness, empathy, and support within healthcare education systems [39]. Recognizing menstrual disorders as genuine health concerns that affect academic outcomes is the first step towards building a more inclusive, healthy, and supportive academic environment [40]. The findings of this study will contribute to the limited but growing body of literature in this area and will hopefully inspire further research, policy development, and student-centered interventions [41].

Materials and Methods

Study Design

This study was designed as a cross-sectional, questionnaire-based observational study. It was conducted over a period of six months at Rama Medical College Hospital and Research Centre, Kanpur. The research aimed to assess the prevalence of menstrual disorders among nursing students and their impact on academic performance.

Study Setting and Population

The study population included undergraduate nursing students from the first to final year who were enrolled at the Nursing College affiliated with Rama Medical College. The study was conducted within the campus premises during regular academic sessions.

Inclusion Criteria

1. Female students aged between 17 to 26 years.
2. Students who had attained menarche and were currently menstruating.
3. Students who gave informed consent to participate in the study.

Exclusion Criteria

1. Students with known gynecological conditions such as polycystic ovarian syndrome (PCOS), endometriosis, or thyroid disorders (unless specified for sub-group analysis).
2. Students on medications that could influence menstruation (e.g., hormonal therapy).
3. Non-consenting students.

Sample Size Calculation

The sample size was calculated using the formula for prevalence studies:

$$n = \frac{Z^2 \times p \times (1 - p)}{d^2}$$

Where:

- $Z = 1.96$ for 95% confidence level
- $p =$ estimated prevalence from previous studies = 0.60 (60%)
- $d =$ margin of error = 0.05

$$n = \frac{1.96^2 \times 0.6 \times 0.4}{0.05^2} \approx 369$$

Adjusting for 10% non-response rate:

$$n_{final} = 369 + (10\% \text{ of } 369) = 406$$

Thus, the final sample size targeted was **406 nursing students**.

Data Collection Tool

A structured, pre-validated, and self-administered questionnaire was used for data collection. The questionnaire was divided into three main sections:

1. **Socio-demographic details:** age, academic year, BMI, diet, physical activity, family history of menstrual issues.
2. **Menstrual history:** age of menarche, cycle length, duration of menstruation, flow pattern, pain, associated symptoms.
3. **Academic performance:** self-reported performance, exam scores, attendance record, concentration during classes, absenteeism during menstruation.

Data Collection Procedure

Prior to administering the questionnaire, the participants were briefed about the purpose of the study, and written informed consent was obtained. Anonymity and confidentiality were ensured throughout the process. Data were collected in group settings (per batch/year) under the supervision of the research team. Participants were encouraged to complete the questionnaires independently and return them within the same session to minimize data loss.

Variables and Definitions

Primary Variables:

- **Menstrual disorders** were defined based on standard definitions and included dysmenorrhea, menorrhagia, oligomenorrhea, polymenorrhea, amenorrhea, and premenstrual syndrome (PMS).
- **Academic performance** was assessed based on:
 - Recent academic scores (last semester)
 - Number of missed classes due to menstrual symptoms
 - Subjective self-assessment of impact (mild, moderate, severe)

Operational Definitions:

- **Dysmenorrhea:** Painful menstruation interfering with daily activities.
- **Menorrhagia:** Excessive menstrual bleeding lasting more than 7 days or requiring frequent pad change (>5 pads/day).
- **Oligomenorrhea:** Infrequent menstruation with cycle length >35 days.
- **Polymenorrhea:** Frequent cycles <21 days.
- **PMS:** Emotional and physical symptoms occurring 5–10 days before menstruation and resolving with onset.

Statistical Analysis

Data were coded and entered into Microsoft Excel and later analyzed using SPSS version 26.0. Descriptive statistics such as mean, standard deviation, and percentage were used for continuous and categorical variables respectively.

- Chi-square test was used to assess the association between menstrual disorders and academic performance.

- Independent t-test was used for comparing mean academic scores between students with and without menstrual disorders.
- Logistic regression was performed to identify predictors of poor academic performance.

A p-value of less than 0.05 was considered statistically significant.

Ethical Considerations

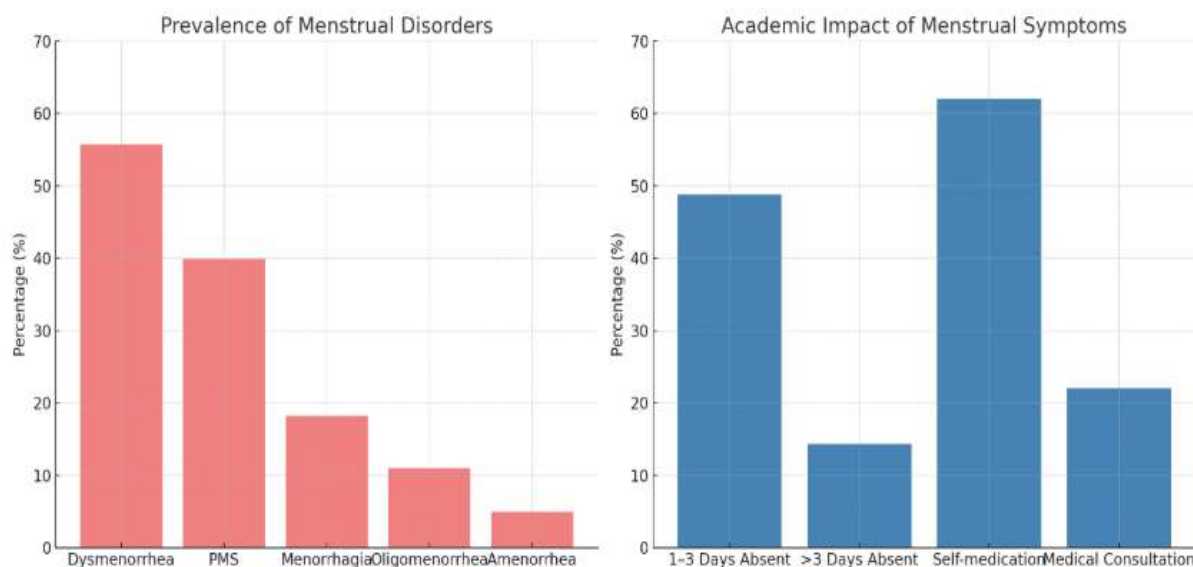
The study was approved by the Institutional Ethical Committee of Rama Medical College Hospital and Research Centre. Participation was voluntary, and students were allowed to withdraw at any time. Data confidentiality and privacy were maintained throughout.

Sample Table

Variable	Category	Frequency (n=406)	Percentage (%)
Age	17–19 years	120	29.6
	20–22 years	202	49.8
	23–26 years	84	20.6
BMI	Underweight (<18.5)	78	19.2
	Normal (18.5–24.9)	255	62.8
	Overweight (25–29.9)	61	15.0
Type of Menstrual Disorder	Dysmenorrhea	226	55.7
	Menorrhagia	74	18.2
	PMS	162	39.9
Average Absenteeism (days)	<1 day/month	150	36.9
	1–3 days/month	198	48.8
	>3 days/month	58	14.3

Results

Out of the 406 nursing students surveyed, 76% reported experiencing at least one type of menstrual disorder. The most commonly reported disorder was dysmenorrhea (55.7%), followed by premenstrual syndrome (PMS) (39.9%), menorrhagia (18.2%), and oligomenorrhea (11%). A smaller proportion (5%) reported amenorrhea. The prevalence of menstrual disorders varied by academic year, with first-year students reporting the highest frequency of symptoms, while third-year students demonstrated improved coping mechanisms. In terms of academic impact, 48.8% of students reported absenteeism of 1–3 days per month due to menstrual symptoms, while 14.3% missed more than 3 days. A significant number of students (62%) managed symptoms using self-medication or home remedies, and only 22% had sought professional medical consultation. Emotional and physical symptoms such as irritability, fatigue, and anxiety were frequently cited as contributing factors to difficulty in concentration, lower academic confidence, and missed practical training sessions. The chi-square test showed a statistically significant association ($p < 0.05$) between the presence of menstrual disorders and indicators of poor academic performance, including lower test scores, reduced class participation, and frequent absenteeism. Students with severe dysmenorrhea and PMS exhibited the highest levels of academic stress.



The study also highlighted differences in awareness and coping strategies across academic years. Third-year students reported better self-management practices, likely due to increased exposure to medical training. In contrast, first-year students showed a higher rate of unmanaged symptoms and missed educational opportunities. These findings indicate a strong link between menstrual health and academic performance, emphasizing the need for institutional support mechanisms, including menstrual health

education, accessible medical services, and psychosocial counseling within nursing colleges.

Discussion

This study corroborates the high prevalence of menstrual disorders among nursing students, with dysmenorrhea and PMS being most common. These findings are consistent with previous studies, such as Abreu & Penna (2021) and Singh & Kiran (2020), which report similarly high rates among university-going females. The impact of menstrual disorders on academic performance, particularly absenteeism and concentration issues, aligns with global literature.

Despite being healthcare students, many participants lacked adequate health-seeking behavior, with only 22% consulting a physician. This highlights a concerning gap in reproductive health education and awareness even among future healthcare providers. The tendency for self-medication and the persistence of stigma may explain underreporting and reluctance to seek help.

Interestingly, third-year students demonstrated better coping strategies, potentially due to increased maturity and knowledge. This trend suggests that timely education and support systems in the initial years could substantially alleviate the academic burden caused by menstrual health issues.

The statistically significant association between menstrual disorders and poor academic indicators underscores the urgency for colleges to implement menstrual hygiene management programs, provide academic flexibility, and ensure access to medical care.

Conclusion

Menstrual disorders are highly prevalent among nursing students and are significantly associated with reduced academic performance. The findings underscore a pressing need for educational institutions to recognize menstrual health as a key factor in student welfare and learning outcomes. Integrating menstrual health education into the curriculum, ensuring timely access to medical care, promoting open discussions, and implementing supportive academic policies can collectively enhance student well-being and academic success. Future research should explore intervention-based studies to evaluate the impact of these measures on menstrual health management and academic performance in the long term.

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