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PREMENSTRUAL SYNDROME AND ACADEMIC PERFORMANCE OF STUDENTS OF SELECTED TERTIARY INSTITUTIONS IN LAFIA LOCAL GOVERNMENT AREA, NASARAWA STATE, NIGERIA

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ABSTRACT
This study examines the impact of premenstrual syndrome (PMS) on the academic performance of female students in selected tertiary institutions in Lafia, Nasarawa State, Nigeria. PMS, a condition marked by emotional, physical, and behavioural symptoms, has been shown to disrupt cognitive functioning and academic engagement. The study aimed to examine the effects of premenstrual mood swings, fatigue, and cramps on students' academic performance. It was anchored on the hormonal imbalance theory, which links PMS symptoms to fluctuations in estrogen and progesterone that affect emotional regulation and cognitive ability. A descriptive survey research design was adopted, with a sample of 415 respondents selected using multistage sampling techniques. Data were collected through structured questionnaires and in-depth interviews and analysed using descriptive statistics and thematic analysis. Findings revealed that PMS significantly affects academic performance. Specifically, 68.4% of the respondents reported that anxiety from mood swings negatively affected their performance, 60.6% indicated that depression interfered with academic outcomes, and 63.4% experienced fatigue-related poor concentration. Additionally, 58.7% reported difficulty attending early lectures, while 63.4% indicated that cramps reduced their ability to focus, and 59.8% reported lower abdominal pain affecting their grades. The study concludes that PMS adversely impacts students' academic performance through reduced concentration, absenteeism, and low productivity. It recommends institutional support services, flexible academic policies, menstrual health education, and improved access to healthcare, alongside effective coping strategies by students.

Keywords: Premenstrual Syndrome (PMS), Academic Performance, Female Students, Tertiary Institutions, Menstrual Health

Introduction

Premenstrual syndrome is a cyclical disorder characterized by a constellation of emotional, physical, and behavioural symptoms that occur during the luteal phase of the menstrual cycle and typically resolve with the onset of menstruation. Globally, premenstrual syndrome affects approximately 30% to 40% of women of reproductive age, although prevalence rates vary depending on diagnostic criteria and population characteristics (American College of Obstetricians and Gynecologists, 2020). Common symptoms include fatigue, irritability, anxiety, mood swings, headaches, and difficulty concentrating, all of which can disrupt daily functioning (Rapkin & Mikacich, 2013). Among students, these symptoms are particularly consequential, as they directly interfere with cognitive processes such as attention, memory, and learning, which are essential for academic performance.

Yonkers et al. (2008) indicated that premenstrual syndrome has measurable implications for students' academic outcomes. Hormonal fluctuations, particularly in oestrogen and progesterone levels, have been associated with impairments in cognitive functioning and emotional regulation. Consequently, students experiencing moderate to severe premenstrual syndrome often report reduced classroom participation, increased absenteeism, and diminished academic achievement (Borenstein et al., 2013; Biggs & Demuth, 2021). While such patterns are documented across diverse contexts, most existing studies are concentrated in developed countries, where prevalence estimates suggest that up to 75% of menstruating women experience some form of premenstrual symptoms (ACOG, 2020). Comparable findings have also been reported in parts of Asia, where premenstrual syndrome has been linked to reduced academic engagement and performance among university students (Kamrul-Hasan et al., 2020; Park et al., 2019).

In African contexts, the burden of PMS is compounded by structural and socio-cultural constraints, including limited access to reproductive healthcare, inadequate menstrual health education, and persistent stigma surrounding menstruation (World Health Organization, 2020). Studies from countries such as Ethiopia, Ghana, and Kenya demonstrate high prevalence rates and significant academic disruption associated with premenstrual syndrome, particularly in relation to absenteeism and reduced participation (Tolossa & Bekele, 2014; Amu & Bamidele, 2014; McMahon et al., 2011). In Nigeria, similar patterns have been observed, with a substantial proportion of female students reporting premenstrual syndrome symptoms that negatively affect concentration, attendance, and overall academic performance (Iliyasu et al., 2018; Omokhodion, 2019). Evidence from tertiary institutions further suggests that severe premenstrual syndrome is associated with difficulties in meeting academic deadlines and maintaining consistent academic engagement (Olumide & Adeyemi, 2020).

Within North Central Nigeria, Okeke et al. (2022) indicated a high prevalence of premenstrual syndrome among female students, with a significant proportion reporting symptoms severe enough to disrupt both academic and social activities. In Lafia Local Government Area, socio-cultural norms that discourage open discussion of menstrual health may further exacerbate the challenges faced by affected students. Despite these contextual realities, institutional responses remain limited, and premenstrual syndrome continues to be insufficiently addressed within student support systems.

Despite extensive global and regional works on premenstrual syndrome, there is a notable lack of localized, empirical studies that specifically examine its multidimensional impact on academic performance within tertiary institutions in Lafia Local Government Area. Most studies in Nigeria largely adopt broad national or regional perspectives, thereby overlooking context-specific socio-cultural and institutional dynamics that may shape students' experiences. Furthermore, limited attention has been given to the differential effects of key premenstrual syndrome symptoms such as mood swings, fatigue, and cramps on distinct dimensions of academic performance. This study addressed these gaps by providing a context-

specific, data-driven analysis of the relationship between PMS and academic performance among students in selected tertiary institutions in Lafia. In doing so, it contributed to knowledge by generating evidence that can inform targeted institutional interventions and reproductive health policies within tertiary institutions in Lafia Local Government Area.

Research Objectives

The general objective of this research work was to find out the effect of premenstrual syndrome on academic performance of students of selected tertiary institutions in Lafia Local Government Area, Nasarawa State, Nigeria. Specifically, the objectives of the research were to:

1. examine the effects of premenstrual mood swings on the academic performance of students in selected tertiary institutions in Lafia Local Government Area, Nasarawa State.
2. assess the effects of premenstrual fatigue on academic performance of students in selected tertiary institutions in Lafia Local Government Area, Nasarawa State.
3. investigate the effects of premenstrual cramps on the academic performance of students in selected tertiary institutions in Lafia Local Government Area, Nasarawa State.

Conceptual Clarifications

Premenstrual syndrome

Premenstrual syndrome is a recurring condition involving physical, emotional, and behavioural symptoms that appear during the luteal phase of the menstrual cycle and resolve with the onset of menstruation (Steiner, Macdougall & Brown, 2013). Common symptoms include mood swings, irritability, fatigue, bloating, breast tenderness, anxiety, and cognitive changes, with severity varying across individuals (American College of Obstetricians and Gynaecologists, 2015). The condition can significantly disrupt normal functioning in personal, social, educational, and work environments (Pearlstein and Steiner, 2018). Hormonal fluctuations, particularly changes in oestrogen and progesterone levels, are believed to contribute to its development. Rapkin and Mikacich (2013) confirms that mood related symptoms are predominant and often interfere with wellbeing and daily activities.

Academic performance

Academic performance denotes the extent to which students attain success in their educational pursuits, typically evaluated through grades, test scores, participation, time management, and study practices. It represents a multifaceted construct encompassing cognitive ability, learning engagement, and institutional support. According to Pritchard and Wilson (2013), academic performance reflects the degree to which students, teachers, and institutions achieve their educational goals, indicating a collective responsibility in the learning process. Latif and Miles (2013) further conceptualize it as the mastery of course content and skills, highlighting competence and understanding as central measures of achievement. Galiher (2016) broadens this view, describing academic performance as the capacity to retain information and effectively communicate knowledge, either verbally or in writing. Similarly, Hughes and Barrie (2010) define it as the extent to which students meet institutional standards, often measured through grades or grade point averages. Yusuf, Adeola, and Babatunde (2021) adopts a more holistic perspective, emphasizing that academic performance results from the interaction between students' efforts, teachers' instructional quality, and the broader learning environment.

Literature Review

Premenstrual mood swings and academic performance of students

Premenstrual syndrome is a prevalent condition affecting women globally and is characterized by a range of emotional, psychological, and physical symptoms that emerge during the luteal phase of the menstrual cycle. Among these, premenstrual fatigue is one of the most common and debilitating symptoms, significantly impairing normal daily functioning,

including academic performance. Studies conducted in Nigeria by Ijarotimi, Alake and Olaoluwa (2021) have revealed that a majority of female students experience severe fatigue during the premenstrual phase, which adversely affects their cognitive functioning, concentration, and academic outcomes. Premenstrual fatigue contributes to memory lapses, inattentiveness, and reduced participation in academic activities, resulting in missed classes and lower grade point averages (Oluwole, Ifeanyi & Ojo, 2022). Cultural taboos surrounding menstruation in Nigerian society further exacerbate this problem, as many students avoid discussing menstrual-related challenges or seeking institutional support due to fear of stigmatization. Consequently, students are left to cope independently with symptoms that undermine both their physical and academic wellbeing (Osei, Danso & Okonjo, 2021).

The absence of structured institutional support and menstrual health policies in Nigerian universities worsens the impact of premenstrual fatigue on students' academic success. Despite evidence suggesting that accommodations such as flexible deadlines, health counselling, and menstrual cycle tracking can mitigate academic disruptions, such provisions remain rare (Afolabi, Omotayo & Olufunmilayo, 2022). According to Akinola and Adesina (2021) many students resort to self-management strategies such as rest, pain medication, or dietary adjustments, though these measures often provide limited relief. Furthermore, premenstrual fatigue has been linked to depression and anxiety, which compound academic difficulties and reduce motivation. Effective management requires a holistic approach, including improved nutrition, physical activity, sleep hygiene, and access to gender-sensitive health education (Olatunde, Lawal & Mustapha, 2021). Integrating menstrual health awareness into university curricula and establishing supportive academic policies would not only enhance students' academic performance but also contribute to gender equity and wellbeing within Nigerian higher education institutions.

Premenstrual fatigue and academic performance of students

Premenstrual syndrome is a widespread condition characterized by emotional, physical, and psychological symptoms that occur during the luteal phase of the menstrual cycle. Among these symptoms, premenstrual fatigue has been identified as one of the most common and disruptive, impairing cognitive functioning, concentration, and overall academic performance. Ijarotimi, Alake and Olaoluwa (2021) have shown that fatigue affects up to 80% of female students in Nigeria, significantly influencing their ability to engage in cognitively demanding academic activities such as reading, completing assignments, and participating in class discussions. The resulting cognitive decline, coupled with absenteeism linked to fatigue, has been correlated with lower grade point averages among affected students (Olayemi & Adewale, 2022). Moreover, cultural taboos surrounding menstruation in Nigeria discourage open discussions about menstrual health, causing many students to endure symptoms silently without seeking academic or medical support (Osei, Danso & Okonjo, 2021). This lack of dialogue perpetuates misunderstanding and exacerbates the impact of premenstrual syndrome-related fatigue on students' educational experiences.

Institutional responses to menstrual health challenges in Nigerian universities remain inadequate, with few institutions offering specialized support services for students experiencing premenstrual syndrome. Many students rely on self-management strategies such as rest, medication, or diet adjustments, which often provide limited relief (Akinola & Adesina, 2021). Premenstrual fatigue also has mental health implications, with studies like Okafor, Ibeh and Anekwe (2021) linking it to depression and anxiety, further compounding academic stress. Effective mitigation strategies include menstrual cycle tracking, improved nutrition, regular physical activity, and better sleep hygiene. Furthermore, gender-sensitive health education and institutional accommodations, such as flexible academic schedules, are critical in reducing stigma and supporting affected students (Afolabi, Omotayo & Olufunmilayo, 2022). Osei, Danso and Okonjo (2021) suggested that incorporating menstrual health education into

university curricula and strengthening healthcare systems within tertiary institutions would foster a more inclusive and supportive learning environment, ultimately improving academic outcomes for female students in Nigeria.

Premenstrual cramps and academic performance of students

Menstrual cramps, also known as dysmenorrhea, represent a prevalent health challenge affecting a large proportion of female students globally, with significant implications for academic performance. Afolabi, Omotayo and Olufunmilayo (2022) indicate that approximately 70% of female students experience menstrual cramps, which can range from mild discomfort to severe pain that disrupts concentration, attendance, and participation in academic activities. The severity of dysmenorrhea often leads to absenteeism, poor focus during lectures, and reduced productivity, as reported by Adeyemo, Oyetola and Oyewole (2021). Beyond the physical burden, menstrual cramps can also provoke emotional distress, including anxiety and stress, which further compromise academic engagement and performance. The stigma associated with discussing menstrual health contributes to underreporting and limited institutional support, reinforcing the academic disadvantages faced by affected students (Olaleye, Odetola & Ojo, 2022). Female students often adopt self-management strategies such as the use of over-the-counter medications or herbal remedies, but these measures may not adequately address the pain or underlying causes (Afolabi et al., 2022).

Institutional and sociocultural factors play a critical role in shaping the experiences of students suffering from dysmenorrhea. Despite its high prevalence, many educational institutions have yet to implement comprehensive menstrual health programmes or supportive policies to assist students in managing menstrual pain effectively (Ogundipe et al., 2021). The absence of awareness initiatives and counselling services perpetuates stigma and limits access to appropriate care. Socioeconomic status further influences the ability to manage menstrual pain, with students from lower-income backgrounds facing greater challenges due to limited access to healthcare and pain relief resources. Cultural taboos surrounding menstruation, as observed in Nigeria and other societies, discourage open dialogue, preventing students from seeking timely support (Ajayi, Akinpelu & Ugbaja, 2022). Comparative studies from countries such as India and the United States revealed similar challenges, underscoring the universal nature of the issue and the need for coordinated global and local interventions to enhance menstrual health management and academic success among female students (Das, Choudhury & Kumar, 2021; Hill, Watson & Clarke, 2022).

Theoretical Framework

The study was guided by hormonal imbalance theory

Hormonal imbalance theory, rooted in early endocrinological scholarship and widely attributed to the clinical observations of Frank (1931), posits that premenstrual syndrome arises from cyclical fluctuations in ovarian hormones, particularly estrogen and progesterone, and their interaction with neurotransmitters such as serotonin. The central tenet of the theory is that an imbalance or heightened sensitivity to normal hormonal changes during the luteal phase disrupts neurochemical stability, leading to physical, emotional, and cognitive symptoms. Empirical studies have demonstrated that such hormonal fluctuations can impair concentration, memory retention, mood stability, and overall cognitive functioning, which are critical determinants of academic performance (Rapkin & Winer, 2009; Yonkers & Simoni, 2018). Within the context of tertiary institutions in Lafia Local Government Area, where academic demands are often intense and institutional support systems for menstrual health remain limited, the theory provides a biologically grounded explanation for variations in students' academic engagement and performance during the premenstrual phase. It is particularly applicable in explaining periodic absenteeism, reduced classroom participation, and diminished academic productivity among female students.

However, hormonal imbalance theory has been critiqued for its reductionist orientation, as it tends to prioritize biological determinism while underestimating the role of psychosocial, cultural, and environmental factors that also shape the experience of premenstrual symptoms. Scholars argue that factors such as stress, diet, cultural perceptions of menstruation, and access to healthcare services significantly mediate the severity and expression of symptoms, thereby limiting the explanatory sufficiency of a purely hormonal framework (Ussher, 2013). Additionally, the theory does not adequately account for inter individual variability, as not all women experiencing similar hormonal changes report premenstrual distress. Despite these limitations, the theory remains analytically useful for this study because it establishes a foundational physiological mechanism linking PMS symptoms to cognitive and behavioral outcomes that directly influence academic performance. Its adoption is justified on the grounds that it complements sociological analysis by incorporating biological insights, thereby enabling a more holistic understanding of students' academic experiences.

Methodology

The study adopted a descriptive survey research design, which enabled the collection of data from a large population within a relatively short period without the need for follow up. A multistage sampling technique was employed to systematically select respondents from selected tertiary institutions in Lafia Local Government Area, Nasarawa State, including the Federal University of Lafia, College of Nursing Sciences Lafia, and Isa Mustapha Agwai I Polytechnic. The target population comprised female students, given their direct experience with premenstrual syndrome and their capacity to provide reliable self-reports. Using the Yamane formula, a sample size of 400 respondents was derived from a population of 37,732 female students, alongside 15 participants selected for qualitative interviews, resulting in a total sample of 415. Proportional and purposive sampling techniques ensured adequate representation across institutions, faculties, departments, and levels of study.

Data collection involved both quantitative and qualitative methods. Structured questionnaires with close ended items were administered to 400 respondents to capture data on socio demographic characteristics and the effects of premenstrual mood swings, fatigue, and cramps on academic performance. In addition, in depth interviews were conducted with 15 participants, including students, academic staff, and health personnel, to obtain contextual and experiential insights. Data collection was facilitated by trained research assistants using face to face administration to enhance response rates. The instruments were subjected to face and content validity through expert review, while reliability analysis produced a Cronbach alpha coefficient of 0.82, indicating good internal consistency of the instrument, while the test retest correlation coefficient of 0.79 confirmed a high level of stability of responses over time. These results demonstrate that the instrument was sufficiently reliable for assessing premenstrual syndrome and its impact on academic performance among the respondents.

Data analysis used descriptive techniques with qualitative content analysis. Quantitative data were processed using the Statistical Package for Social Sciences, with univariate analysis employing frequencies, and percentages. Qualitative data from interviews were transcribed, translated, and analysed manually to identify recurring themes and patterns. Ethical standards were strictly observed, including informed consent, anonymity, and confidentiality.

Data Presentation

Out of a total of 400 questionnaires administered, 383 were successfully returned, indicating a high overall response rate. Consequently, the analysis was based on the 383 successfully completed questionnaires

Table 1: Distribution of respondents by socio- demographic characteristics

Variables	Frequency	Percentage	Mean	Std
Age				
16-19	94	24.5	23.0	4.29
20-23	105	27.4		
24-27	113	29.5		
28-30	71	18.5		
Marital Status				
Single	265	69.2		
Married	95	24.8		
Separated	10	2.6		
Widowed	9	2.3		
Divorced	4	1.0		
Current academic level				
100 Level	37	9.7		
200 Level	60	15.7		
300 Level	75	19.6		
400 Level	44	11.5		
500 Level	48	12.5		
600 Level	27	7.0		
ND	55	14.4		
HND	37	9.7		
Religion				
Christianity	242	63.2		
Islam	141	36.8		
Africa Traditional Religion	0	0.0		
Location				
Hostel	107	27.9		
Off-campus	276	72.1		

Source: Field work, 2025

The socio-demographic characteristics of respondents indicate several contextual factors shaping the relationship between premenstrual syndrome and academic performance among female students in selected tertiary institutions in Lafia. Most respondents were between 20 and 27 years old (56.9%), with a mean age of 23.0 years, representing the typical reproductive and tertiary education age group where premenstrual syndrome symptoms are most prevalent and potentially disruptive to academic activities. The majority were single (69.2%), suggesting limited emotional and social support compared to their married counterparts, which may influence their coping strategies. Academically, 300-level students constituted the largest group (19.6%), followed by 200-level (15.7%) and ND students (14.4%), implying that varying academic workloads and stress levels could affect the extent to which premenstrual syndrome influences performance. Religiously, 63.2% of the respondents were Christians, while 36.8% were Muslims, reflecting cultural and spiritual differences that may shape perceptions and management of premenstrual syndrome. Furthermore, most students (72.1%) resided off-campus, facing additional responsibilities such as transportation and domestic tasks, which may intensify the academic challenges associated with premenstrual syndrome.

Table 2: Distribution of respondents on effects of premenstrual mood swings on the academic performance of students

Questions	Yes	No	Not sure
Does irritability during the premenstrual phase affect your test score?	237 (61.9%)	101 (26.4%)	45 (11.7%)
Does anxiety cause by premenstrual mood swings affects your academic performances negatively?	262 (68.4%)	70 (18.3%)	51 (13.3%)
Does premenstrual depression interfere with your academic scores?	232 (60.6%)	98 (25.6%)	53 (13.8%)
Does premenstrual anxiety contribute to your poor academic grades?	171 (44.6%)	131 (34.2%)	81 (21.1%)
Does mood fluctuation prior to menstruation lower your test scores?	201 (52.5%)	142 (37.1%)	40 (10.4%)
Does experiencing emotional disturbance during the premenstrual phase leads to lower test scores?	178 (46.5%)	127 (33.2%)	78 (20.4%)
Does restlessness during your premenstrual period affects your grades?	232 (60.6%)	129 (33.7%)	22 (5.79%)
Does premenstrual moodiness result in missed assignment deadlines?	221 (57.7%)	126 (32.9%)	36 (9.4%)

Source: Fieldwork 2025

The findings presented in table 2 revealed that premenstrual mood swings exert a considerable influence on the academic performance of female students in selected tertiary institutions in Lafia. A significant proportion (61.9%) of respondents reported that irritability during the premenstrual phase affects their test scores, while 68.4% indicated that anxiety associated with mood swings undermines their academic performance. Similarly, 60.6% stated that premenstrual depression interferes with their academic outcomes, suggesting that emotional instability contributes to poor study habits, reduced concentration, and lower academic productivity. Additionally, 44.6% of the students linked premenstrual anxiety to poor academic grades, while 52.5% attributed lower test scores to general mood fluctuations, underscoring the broad emotional disruptions caused by PMS. Emotional disturbances and restlessness were also highlighted by 46.5% and 60.6% of respondents, respectively, as factors affecting academic grades. Furthermore, 57.7% of respondents acknowledged missing assignment deadlines due to moodiness during the premenstrual period. Collectively, these findings demonstrate that premenstrual mood swings adversely impact cognitive performance, emotional regulation, and academic engagement, thereby establishing a clear relationship between premenstrual syndrome-related psychological symptoms and academic underachievement among female students in tertiary institutions. During the interview session, some of the interviewees stated that:

> When I feel irritable, my focus during exams reduces. Last semester, I took a statistics test while on my premenstrual phase, and I found myself struggling with basic calculations that I normally solve easily. As a result, I scored 10 points over 30 below my usual average **(Age, 22 years; Federal University of Lafia).**

Another 27 years engineering student from Isa Mustapha Agwai I Polytechnic narrated that:

> During my thermodynamics exam, I was so irritated that I could not think clearly. I kept second-guessing myself and changed correct

answers to wrong ones. My score was 48% instead of my usual 65% and above. The irritability made me lose confidence in my knowledge.

A 47 years female academic staff from College of Nursing Sciences stated that:

I have noticed that some female students seem more agitated during certain weeks. They make careless errors, seem impatient with complex problems, and their performance can drop significantly. It is not consistent across all students, but it is noticeable in many of my female students.

A 47 years female health personnel from FULafia stated that;

Hormonal fluctuations, particularly dropping progesterone levels, affect neurotransmitter balance. This impacts the prefrontal cortex's ability to regulate emotions and maintain attention. Students experiencing severe irritability are essentially trying to perform academically while their brain chemistry is disrupted. Students report significant cognitive disruption during severe premenstrual syndrome episodes. Irritability interferes with executive function, making it difficult to regulate emotions and maintain focus during high-stress situations like exams. We see this as a legitimate medical concern affecting academic success.

Table 3: Distribution of respondents on premenstrual fatigue and academic performance of students

Questions	Yes	No	Not sure
Do you experience physical exhaustion before your menstrual period that has affected your academic grades?	199 (52.0%)	143 (37.3%)	41 (10.7%)
Does sleep disturbances during your premenstrual period affect your scores?	226 (59.0%)	118 (30.8%)	39 (10.2%)
Does premenstrual muscle weakness affect your school performances?	210 (54.8%)	95 (24.8%)	78 (20.4%)
Do you find it difficult to wake up for early lectures due to premenstrual symptoms, which affect your scores?	225 (58.7%)	84 (21.9%)	74 (19.3%)
Do premenstrual symptoms make it difficult for you to attend early lectures, affecting your scores?	200 (52.2%)	94 (24.5%)	89 (23.2%)
Do you feel sluggish making it difficult to focus in class, which may affect your scores?	243 (63.4%)	97 (25.3%)	43 (11.2%)
Do frequent premenstrual headaches affect your academic scores?	187 (48.8%)	120 (31.3%)	76 (19.88%)
Do you feel unusually drowsy during the day in your premenstrual phase that affects your grades?	172 (44.9%)	127 (33.2%)	84 (21.9%)

Source: Fieldwork 2025

The results presented in table 3 indicate that premenstrual fatigue significantly affects the academic performance of female students in selected tertiary institutions in Lafia. More than half of the respondents (52.0%) reported that physical exhaustion before menstruation negatively influenced their grades, while 59.0% noted that sleep disturbances during the

premenstrual phase impaired their academic performance. Similarly, 54.8% experienced muscle weakness that limited participation in academic activities, and 58.7% stated that premenstrual symptoms made it difficult to wake up early for lectures, leading to poor attendance and reduced academic engagement. In addition, 63.4% of students reported sluggishness that hindered concentration, while 48.8% identified frequent premenstrual headaches as a factor affecting their academic outcomes. Furthermore, 44.9% experienced unusual daytime drowsiness that negatively impacted learning efficiency and task completion. Collectively, these findings suggest that premenstrual fatigue has a multifaceted influence on students' academic performance by disrupting energy levels, sleep patterns, and cognitive focus, ultimately diminishing productivity and classroom participation during the premenstrual phase. Some of the participants made mention of the fact that:

> About 3-4 days before my period, I feel like I have been drained of all energy. Last semester, I had a chemistry exam during that time, and I could barely stay awake while studying. I scored a C instead of my usual A. It was frustrating because I knew the material well, but my body just couldn't cooperate **(Age, 26 years; College of Nursing Sciences Lafia).**

Another interviewee aged 39 years from Isa Mustapha Agwai I Polytechnic stated that:

> It is like carrying heavy weights on my shoulders. I remember during my final year project defense preparation, I was so exhausted that I could not concentrate on my research for more than 30 minutes. I had to request an extension because I knew I was not presenting my best work.

A 41 years nurse from Federal University of Lafia also posited that:

> I see many female students in our clinic complaining about this exhaustion. They tell me they could not attend lectures or complete assignments on time. Some students report dropping from A grades to C grades during their premenstrual week. It is a real concern that needs more attention in our academic system.

A male medical personal aged 53 years from Federal University of Lafia narrated that:

> Students often request medical documentation to support their absence from early classes during severe PMS episodes. Some experience such intense symptoms that attending early morning lectures becomes physically impossible. We are seeing more requests for academic accommodations related to menstrual health.

Table 4: Distribution of respondents on premenstrual cramps and academic performance of students

Questions	Yes	No	Not sure
Does lower abdominal pain affects your academic grades?	229 (59.8%)	117 (30.5%)	37 (9.7%)
Does pelvic pressure during your premenstrual phase affect your ability to focus on academic tasks, which may lead to poor grade?	243 (63.4%)	91 (23.8%)	49 (12.8%)
Does lower back pain during menstruation interfere with your ability to sit through lectures which may lead to poor score?	236 (61.6%)	110 (28.7%)	37 (9.7%)
Do you experience leg pain during your premenstrual phase?	167 (43.6%)	132 (34.5%)	84 (21.9%)
Do sharp stabbing pains during your menstrual cycle affect your ability to attend classes resulting to poor grade?	226 (59.0%)	123 (32.1%)	34 (8.9%)
Do painful muscle contractions during your premenstrual period make it difficult to engage in academic work, resulting to poor test score?	199 (52.0%)	119 (31.11%)	65 (17.0%)
Do you experience fatigue-linked cramps that hinder your concentration on class assignments?	240 (62.7%)	99 (25.8%)	44 (11.5%)
Does pain during bowel movements before menstruation affect your academic grade?	195 (50.9%)	81 (21.1%)	107 (27.9%)

Source: Fieldwork 2025

The data presented in table 4.4 revealed that premenstrual cramps exert a substantial negative influence on the academic performance of female students in selected tertiary institutions in Lafia. A significant proportion of respondents (59.8%) reported that lower abdominal pain adversely affected their grades, while 63.4% indicated that pelvic pressure during the premenstrual phase reduced their ability to concentrate on academic tasks. Similarly, 61.6% experienced lower back pain that interfered with their capacity to sit through lectures, thereby limiting participation and learning engagement. Leg pain was reported by 43.6% of the respondents as hindering class attendance, and 59.0% stated that sharp stabbing pains during menstruation contributed to poor academic outcomes. Additionally, 52.0% experienced painful muscle contractions that made studying difficult, while 62.7% linked fatigue-associated cramps to reduced focus on class assignments. Furthermore, 50.9% reported that pain during bowel movements before menstruation negatively impacted their academic performance. These findings demonstrate that premenstrual cramps, through their multifaceted physical manifestations, substantially impair students' focus, attendance, participation, and overall academic productivity. The views expressed by interviewees during the interviews stated that:

> The pain is so severe sometimes that I cannot concentrate during exams. Last semester, I had to leave my Organic Chemistry exam halfway because the cramps were unbearable. I scored low. The pain makes it impossible to think clearly, and I end up making careless mistakes even on topics I know well **(Age, 20 years; College of Nursing Sciences Lafia).**

Similarly, a medical personnel aged 49 years from Isa Mustapha Agwai I Polytechnic posited that:

> Lower abdominal pain triggers the body's stress response, releasing cortisol which impairs memory formation and recall. Students experiencing severe cramping often have difficulty processing new information and maintaining focus for extended periods, directly impacting their ability to perform academically.

A 23year student from Federal University of Lafia narrated that:

> During my 300-level first semester, I had five continuous days of severe abdominal cramps coinciding with my final exams. I could not study effectively and had to take painkillers every four hours. My GPA dropped from 4.2 to 3.8 that semester. I particularly struggled with courses requiring analytical thinking like Statistics and Research Methods.

A 52 years health personal from Federal University of Lafia noted that:

> I recommend compression stockings, leg elevation during study breaks, gentle stretching exercises, and staying hydrated to reduce fluid retention. Students should also plan their study schedules to include more frequent breaks during symptomatic periods and communicate with their teachers about their need for movement during classes or exams.

Discussion of Findings

Premenstrual mood swings were found to significantly impair academic performance among many female students, with irritability and emotional instability reducing concentration and test outcomes, consistent with Olayemi and Adewale (2022) and Nwosu and Eze (2021). Some respondents, however, reported little academic disruption when using coping strategies, supporting Bello's (2020) argument on the benefits of time management and relaxation. Moodiness and emotional disturbance also contributed to missed assignments and reduced classroom participation, in line with Ibrahim and Musa (2023) observations. Interpreted through the biopsychosocial model, hormonal changes, coping skills, and available social support jointly determine academic effects. The findings also align with stress and coping theory, which explains how students' appraisal of premenstrual stressors influences academic outcomes.

The study shows that premenstrual fatigue significantly undermines academic performance through physical exhaustion, reduced classroom engagement, and impaired concentration, consistent with Okereke and Nwankwo (2022) and Akinyemi, Oladele and Johnson (2021). Sleep disturbances further weaken attention and academic efficiency, supporting Bello and Musa (2020), while Adewale and Ige (2019) highlight individual differences in coping with sleep related difficulties. Muscle weakness, difficulty attending early classes, and daytime drowsiness also limit learning, reflecting the findings of Chukwuemeka and Onyekachi (2021). However, structured planning and supportive environments can reduce academic disruption, as argued by Eze and Nnamdi (2018). Interpreted through the biopsychosocial model, biological fatigue, psychological motivation, and social support collectively shape academic outcomes, while stress and coping theory explains how resilience and effective strategies can lessen the impact of premenstrual fatigue.

The study shows that premenstrual cramps significantly impair academic performance by causing lower abdominal, pelvic, and back pain that reduce concentration and lecture attendance, consistent with Afolabi and Adeoye (2021). Some respondents experienced symptoms that did not always disrupt academic activities, contrasting Bello and Musa (2019)

but supporting Nwankwo, Udeh and Chukwu (2022), who linked outcomes to pain tolerance and coping strategies. Fatigue related cramps further limited attention and productivity, aligning with Eze and Okafor (2023). These variations indicate that while biological pain is a major factor, psychological resilience and social support moderate its academic impact. The biopsychosocial model explains the interaction of physical discomfort, emotional coping, and social environments. Stress and coping theory further clarifies that adaptive coping strategies can reduce the academic consequences of menstrual cramps.

Conclusion

The study concluded that premenstrual syndrome has a significant negative impact on the academic performance of female students in selected tertiary institutions in Lafia Local Government Area, Nasarawa State. Specifically, symptoms such as mood swings, fatigue, and cramps were found to impair concentration, reduce classroom participation, increase absenteeism, and contribute to lower academic achievement. Premenstrual mood disturbances affected emotional stability and cognitive functioning, while fatigue disrupted energy levels and learning efficiency, and cramps caused physical discomfort that limited students' ability to engage effectively in academic activities. The findings further revealed that the absence of adequate institutional support systems, coupled with sociocultural stigma surrounding menstruation, exacerbates these challenges.

Recommendations

1. Tertiary institution management should establish campus-based counseling and psychological support services specifically addressing PMS-related emotional challenges. Lecturers should provide flexible academic arrangements (e.g., deadline extensions and continuous assessment options) for affected students upon verified need. Health units should organize regular awareness programs on emotional regulation, stress management, and menstrual health literacy. Students should adopt coping strategies such as time management, relaxation techniques, and early academic planning during premenstrual periods.
2. University authorities should introduce flexible lecture schedules and allow reasonable accommodations for students experiencing severe fatigue. Campus health services should provide routine screening, guidance on sleep hygiene, nutrition, and physical activity to manage fatigue. Lecturers should make lecture materials accessible (e.g., recordings or notes) to support students who miss classes due to fatigue. Students should practice adequate rest, maintain balanced diets, and track their menstrual cycles to plan academic tasks effectively.
3. Institutional management should strengthen campus health facilities to provide accessible and effective treatment for menstrual pain, including medication and medical consultation. Lecturers should permit short breaks during lectures or examinations for students experiencing severe cramps. Government and school authorities should implement menstrual health policies that ensure access to affordable sanitary products and pain relief resources.

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