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Prevalence of dysmenorrhea and its impact on quality of life among female undergraduates of basic medical sciences

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ABSTRACT

Purpose: Dysmenorrhea is a common gynecological condition that significantly affects the physical, emotional, and academic functioning of young women. This study investigated the prevalence of dysmenorrhea and its impact on quality of life among female undergraduates in the Faculty of Basic Medical Sciences, University of Ilorin, Nigeria.

Methodology: A descriptive cross-sectional design was employed, and study conducted between January and February 2025. Using stratified random sampling, 229 female students from the Departments of Anatomy and Physiology participated in the study. Data were collected through a structured questionnaire incorporating the Women's Assessment of Life with Dysmenorrhea (WaLIDD) Score and the Short Form-36 (SF-36) Quality of Life Scale. Data were analyzed using SPSS version 25.0, with Chi-square tests used to examine associations between dysmenorrhea severity and quality-of-life domains at $p \leq 0.05$.

Results: The prevalence of dysmenorrhea was 95%, with 60% reporting moderate symptoms and 10% severe symptoms. Most respondents experienced pain lasting one to two days, commonly localized to a single site. Significant associations were found between dysmenorrhea severity and several quality-of-life domains, including physical functioning, role limitations (physical and emotional), pain, social functioning, energy/fatigue, and emotional well-being ($p < 0.05$). However, general health perception was not significantly associated with severity ($p > 0.05$). Dysmenorrhea substantially limited vigorous activities, reduced social participation, and negatively influenced academic productivity. Common coping strategies included analgesic use, rest, heat application, and exercise.

Conclusion: Dysmenorrhea is highly prevalent and exerts considerable negative effects on multiple domains of quality of life among female undergraduates. Institutional support systems, menstrual health education, and integrated pharmacological and non-pharmacological interventions are recommended to mitigate its impact and enhance students' well-being and academic performance.

Keywords: Dysmenorrhea, Prevalence, Quality of Life, Female Undergraduates, Academic Performance, Menstrual Pain, WaLIDD Score, SF-36.

1.0 Introduction

Dysmenorrhea is one of the most prevalent gynecological conditions affecting women of reproductive age and represents a significant public health concern worldwide. It is widely recognized as a leading cause of recurrent school and workplace absenteeism among adolescent girls and young women¹. Clinically, dysmenorrhea is characterized by cramp-like, episodic lower abdominal or pelvic pain occurring during menstruation. The pain may be accompanied by systemic symptoms such as nausea, vomiting, headache, dizziness, fatigue, diarrhea, and

sleep disturbances, all of which may substantially impair daily functioning². Dysmenorrhea is broadly classified into two types: primary and secondary. Primary dysmenorrhea refers to painful menstruation in the absence of identifiable pelvic pathology and is commonly associated with increased prostaglandin production leading to uterine contractions and ischemia. In contrast, secondary dysmenorrhea is linked to underlying gynecological conditions such as endometriosis, pelvic inflammatory disease, uterine fibroids, or adenomyosis^{3,4}. Primary dysmenorrhea is more common

among adolescents and young adults, particularly within the first few years after menarche, while secondary dysmenorrhea tends to present later in reproductive life.

The global prevalence of dysmenorrhea varies considerably across regions and populations. Systematic reviews indicate prevalence rates ranging from 16% to 91%, with approximately 2% to 29% of women reporting severe symptoms that significantly disrupt normal daily activities⁵. Among university students, prevalence estimates frequently exceed 60% to 85%, underscoring the magnitude of the condition within this demographic group^{1, 6}. Such high prevalence rates among students highlight dysmenorrhea as not merely a medical issue but also an educational and psychosocial concern.

Beyond its physical manifestations, dysmenorrhea has significant academic and psychosocial implications. Severe menstrual pain has been associated with reduced class attendance, diminished concentration, decreased academic productivity, and impaired quality of life¹. Recurrent pain episodes may also contribute to emotional distress, including irritability, anxiety, and mood disturbances, thereby affecting overall well-being. Given the substantial proportion of young women affected, particularly within academic settings, dysmenorrhea warrants increased research attention and

the development of effective management strategies.

In Nigeria, dysmenorrhea remains a significant reproductive health concern among adolescents and young women, particularly within academic institutions. Recent studies continue to report high prevalence rates across tertiary institutions. For instance, Irozulike et al.,⁷ reported an 81.5% prevalence of dysmenorrhea among female undergraduates at the University of Port Harcourt, with common accompanying symptoms including fatigue, nausea, irritability, and headache. Similarly, Njelita et al.,⁸ documented an 82.7% prevalence among clinical medical students in Anambra State, with 53.8% describing their pain as severe and 69.2% reporting class absenteeism due to menstrual symptoms. Esan et al.,⁹ further reported a 69.8% prevalence among students in a private Nigerian university, highlighting significant disruptions to academic performance, sleep quality, and daily functioning.

The burden of dysmenorrhea extends beyond physical discomfort, significantly affecting students' academic engagement and psychosocial wellbeing. Studies conducted in different populations have shown that menstrual pain frequently leads to school absenteeism, reduced classroom participation, diminished academic performance, and limited involvement in physical and social activities^{10,11}. More

recent evidence also indicates that dysmenorrhea is associated with impaired concentration, lower productivity, and academic underperformance among university students¹². These findings suggest that dysmenorrhea represents not only a gynecological issue but also an educational and public health concern. Management strategies for dysmenorrhea typically include both pharmacological and non-pharmacological approaches. Non-steroidal anti-inflammatory drugs (NSAIDs) remain the first-line pharmacological treatment due to their effectiveness in inhibiting prostaglandin synthesis, which is implicated in uterine contractions and pain¹³. Complementary and alternative approaches such as herbal remedies, nutritional therapy, exercise, yoga, acupuncture, and relaxation techniques are also widely utilized. However, treatment effectiveness is often compromised by self-medication practices, delayed healthcare seeking behavior, and inadequate professional consultation. Despite its high prevalence and documented academic implications, dysmenorrhea remains underreported and inadequately addressed within Nigerian healthcare and educational systems. Cultural stigma surrounding menstruation, insufficient menstrual health education, and limited access to youth-friendly healthcare services contribute to delayed diagnosis and suboptimal management. Additionally, the

lack of robust institutional data linking dysmenorrhea to measurable academic outcomes in Nigerian universities has limited the development of targeted policies and structured support systems for affected students. Addressing these gaps is essential for promoting menstrual health awareness, improving academic participation, and enhancing overall quality of life among female students. This study therefore intends to investigate the prevalence of dysmenorrhea and its effect on quality of life of undergraduates in faculty of basic medical sciences, university of Ilorin.

2.0 Materials and Methods

This study employed a descriptive cross-sectional survey design to determine the prevalence of dysmenorrhea and its impact on health-related quality of life among female undergraduates in the Faculty of Basic Medical Sciences, University of Ilorin, College of Health Sciences, Ilorin, Kwara State, Nigeria. Cross-sectional designs are appropriate for estimating prevalence and examining associations between health conditions and related factors within a defined population¹³.

2.1 Participants

The study population comprised female undergraduate students enrolled in the Departments of Anatomy and Physiology (200–400 level). Students aged 16 years and

above who provided informed consent were eligible to participate. Inclusion criteria were restricted to full-time female undergraduates in the Faculty of Basic Medical Sciences. Students outside the faculty, postgraduate or part-time students, and those below 16 years of age were excluded.

2.2 Sample and Sampling Technique

The sample size was calculated using Fischer's formula for populations less than 10,000. The calculated sample size was 331.76. Applying finite population correction for the estimated population ($N = 1,374$), the adjusted sample size (nf) was 208. A 10% attrition rate was added, resulting in a final sample size of 229 participants. A stratified random sampling technique was used to ensure proportional representation of both departments. Based on allocation, 116 students were selected from Anatomy ($n = 285$) and 113 from Physiology ($n = 277$). Only consenting students meeting inclusion criteria were recruited.

2.3 Instrumentations

Data were collected using two validated instruments:

1. **WaLIDD Score (Women's Assessment of Life with Dysmenorrhea):** This multidimensional tool assesses dysmenorrhea severity across working

ability, pain location, intensity, days of pain and overall impact. Scores range from 0–12, categorized as mild (0–3), moderate (4–6), and severe (7–12) dysmenorrhea.

2. **SF-36 Questionnaire (Short Form-36):** A widely validated instrument for assessing health-related quality of life across eight domains including physical functioning, bodily pain, mental health, and general health perception¹⁵. Domain scores range from 0–100, with higher scores indicating better quality of life.

The structured questionnaire comprised four sections: socio-demographic characteristics, dysmenorrhea prevalence (WaLIDD), quality of life (SF-36), and management practices (pharmacological and non-pharmacological interventions). Completion time was approximately 15–20 minutes.

2.4 Data Collection and Ethical Considerations

Ethical approval was obtained from the Health Research Ethics Committee of the University of Ilorin Teaching Hospital. Written informed consent was secured from all participants. Confidentiality and anonymity were maintained, and data were securely stored in compliance with research ethics standards.

Data Analysis

Data were analyzed using SPSS version 25.0. Descriptive statistics (means, standard

deviations, frequencies, and percentages) were computed. Associations between dysmenorrhea severity and quality-of-life domains were assessed using Chi-square (χ^2) tests. Statistical significance was set at $p \leq 0.05$.

3.0 Results

3.1 Prevalence of dysmenorrhea among female undergraduates in Basic Medical Sciences, University of Ilorin?

Table 1 presents the distribution of dysmenorrhea characteristics among the respondents. Findings indicate that dysmenorrhea considerably affects functional capacity, as 30.8% and 21.3% of participants reported that their working ability was “almost always” and “always” affected, respectively, while 33.5% indicated that their activities were “almost never” affected. Regarding pain localization, nearly half of the respondents (48.0%) experienced menstrual pain confined to a single anatomical site, whereas 26.7% reported pain occurring in two to three sites. Pain intensity varied among participants, with 36.2% describing their pain as mild and 25.3% reporting severe pain. Concerning duration, the majority (64.7%) experienced menstrual pain lasting between Furthermore, as illustrated in Figure 1, only 5% of respondents reported no experience of dysmenorrhea. In contrast, 25% experienced mild dysmenorrhea, 60% reported moderate dysmenorrhea, and 10%

one and two days, while a smaller proportion (4.1%) reported pain persisting for five days or more.

Table 1: Participants responses on the Prevalence of Dysmenorrhea

Variables	Frequency (n)	Percentage (%)
Working ability		
None	32	14.5
Almost never	74	33.5
Almost always	68	30.8
Always	47	21.3
Location		
None	41	18.6
1 site	106	48.0
2-3 sites	59	26.7
> 3 sites	15	6.8
Intensity		
Doesn't hurt	34	15.4
Hurt a little bit	80	36.2
Hurt a little more	51	23.1
Hurt a whole lot	56	25.3
Days of pain		
None	31	14.0
1-2 days	143	64.7
3-4 days	38	17.2
≥ 5 days	9	4.1

experienced severe dysmenorrhea. These findings demonstrate that dysmenorrhea is highly prevalent among the study population, with the majority experiencing moderate to

severe symptoms that may adversely affect daily functioning and academic productivity.

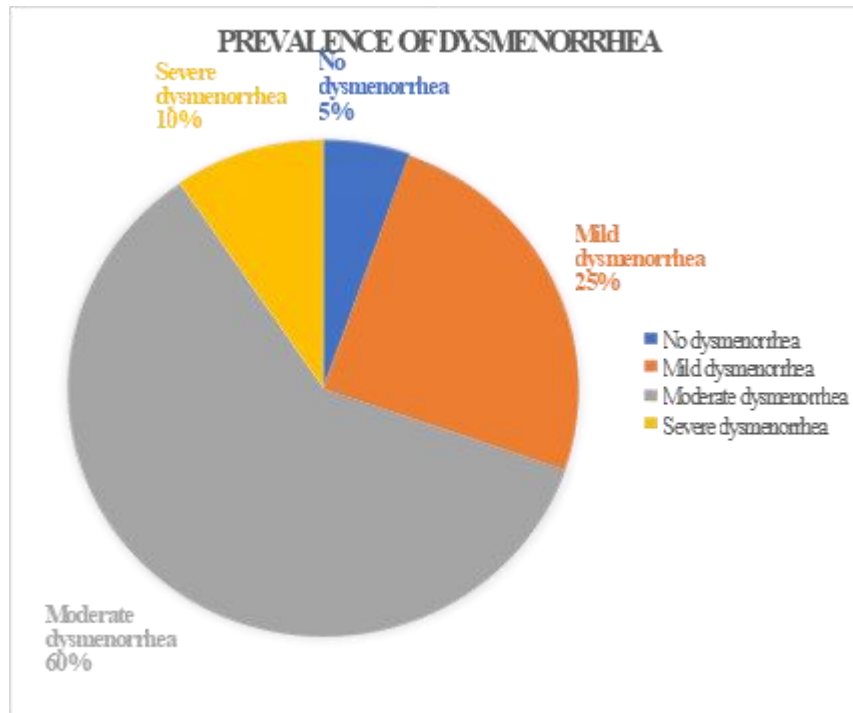


Figure 1: Pie chart showing the prevalence of dysmenorrhea

3.2 Effect of dysmenorrhea on quality of life among female undergraduate in basic medical Sciences, University of Ilorin.

Table 2 illustrates the extent to which dysmenorrhea affected various domains of physical functioning. Vigorous activities, such as running, were notably impacted, with 24.0% of respondents reporting being

“limited a lot” and 43.4% “limited a little,” while only 32.6% experienced no limitation. Similarly, climbing several flights of stairs posed considerable difficulty, as 18.1% were “limited a lot” and 45.2% were “limited a little.”

Table 2: Summary of participants responses indicating the effect of dysmenorrhea on quality of Life

Questions	Yes, limited a lot n(%)	Yes, limited a little n(%)	No, not limited n(%)
Vigorous activities such as running	53 (24.0)	96 (43.4)	72 (32.6)
Moderate activities such as moving a table, Sweeping	18 (8.1)	80 (36.2)	123 (55.7)
Lifting or carrying groceries	19 (8.6)	77 (34.8)	125 (56.6)
Climbing several flights to stair	40 (18.1)	100 (45.2)	81 (36.7)
Climbing one flight to stairs	19 (8.6)	88 (39.6)	114 (51.6)
Bending kneeling and stooping	28 (12.7)	105 (47.5)	88 (39.8)
Walking more than a mile	41 (18.6)	108 (48.9)	72 (32.6)
Walking several blocks	38 (17.2)	106 (48.0)	77 (32.6)
Walking one block	14 (6.3)	81 (36.7)	126 (57.0)
Bathing or dressing yourself	6 (2.7)	56 (25.3)	159 (71.9)

In contrast, activities involving moderate exertion, such as moving a table or lifting groceries, were less affected. More than half of the participants (55.7% and 56.6%, respectively) reported no limitations in these tasks. However, activities requiring bending,

kneeling, or stooping presented greater challenges, with 12.7% indicating they were “limited a lot” and 47.5% “limited a little.” Walking-related functions demonstrated varying levels of restriction. Nearly half of the respondents (48.9%) were “limited a

little” when walking distances greater than one mile, and 18.6% reported being “limited a lot.” Shorter distances, such as walking one block, were less problematic, as 57.0% affected, with 71.9% of participants indicating no restriction.

4.0 Discussion

The present study revealed a high prevalence of dysmenorrhea among female undergraduates in the Faculty of Basic Medical Sciences, University of Ilorin. The prevalence observed is comparable to findings reported in other university-based studies. For instance, Vlachou et al.,¹⁶ reported an 89.1% prevalence among undergraduate nursing students, while Ezebialu et al.,¹⁷ documented an 82.2% prevalence among Nigerian female undergraduates. These consistently high rates across different settings suggest that dysmenorrhea remains a common reproductive health concern among young women in tertiary institutions. The findings underscore the need for structured health education and institutional support systems to address menstrual health challenges within university environments. Although the intensity of dysmenorrhea varied among respondents, the majority reported mild to moderate symptoms, with a smaller proportion experiencing severe pain. This distribution aligns with earlier findings indicating that while most

reported no limitations. Basic self-care activities, including bathing and dressing, were minimally

students experience menstrual discomfort, severity levels differ significantly¹⁸. The duration of pain was relatively short for most participants, typically lasting one to two days, which is consistent with prior Nigerian studies¹⁸. However, despite the relatively brief duration, the functional impact was considerable, as a substantial proportion of respondents reported limitations in working ability. This finding supports Cook and Van Den Hoek¹⁹, who observed that menstrual discomfort frequently disrupts routine academic and work activities among young women.

The predominantly localized nature of pain, commonly confined to a single anatomical site, suggests primary dysmenorrhea rather than widespread musculoskeletal pathology. Nevertheless, the functional implications were evident in reported restrictions in vigorous activities and reduced social engagement. Consistent with Nagy et al.,²⁰, dysmenorrhea was found to affect multiple domains of quality of life, including physical functioning, emotional well-being, and social interactions. Emotional symptoms such as nervousness and low mood were also reported, corroborating evidence that menstrual pain is associated with increased

stress response and depressive symptoms^{14, 21}.

Despite the high prevalence and associated discomfort, most respondents rated their general health positively, reflecting resilience and adaptive coping mechanisms. This perception aligns with findings by Iwuoha²², where students reported good overall health despite experiencing episodic menstrual pain. In terms of management, the majority relied on analgesics, while others adopted physiotherapy-based or herbal remedies, consistent with patterns observed in Nigerian populations^{7,14}.

The findings of this study demonstrate that dysmenorrhea exerts a substantial impact on multiple domains of quality of life, particularly among individuals with moderate to severe symptoms. Only a small proportion (19.9%) of respondents with dysmenorrhea maintained full physical functioning, while more than half reported role limitations due to physical health challenges. This aligns with previous research indicating that menstrual pain significantly interferes with physical activities and academic productivity among university students^{2,9}. Emotional difficulties were also prevalent, and pain emerged as a dominant concern, with the majority experiencing moderate to severe levels, corroborating findings that dysmenorrhea is associated with

heightened psychological distress and functional impairment²¹.

Social functioning declined with increasing severity, as nearly half of those severely affected reported noticeable restrictions in social participation. Similar findings have been reported in recent studies demonstrating that menstrual pain contributes to reduced social engagement, absenteeism, and decreased overall participation in daily activities^{2,19}.

Further analysis revealed that dysmenorrhea severity had a statistically significant association with several quality-of-life domains, including physical functioning, role limitations (both physical and emotional), pain, social functioning, energy/fatigue, and emotional well-being ($p \leq 0.050$). These findings indicate that increasing severity of dysmenorrhea is directly linked to greater disruption in daily activities, academic performance, and psychological stability. This observation is consistent with recent evidence showing that moderate-to-severe dysmenorrhea significantly impairs functional capacity, academic engagement, and psychosocial outcomes among young women^{2,9}. Similarly, Varshney and Kimport²¹ reported that menstrual pain is strongly associated with emotional distress, reduced concentration, and decreased productivity, particularly in academic settings.

However, no statistically significant difference was observed in general health perception across severity levels ($p = 0.064$), suggesting that participants may evaluate their overall health beyond menstrual-related symptoms or may normalize dysmenorrhea as part of routine experience. This finding aligns with Cook and Van Den Hoek study¹⁹, who noted that despite substantial menstrual-related limitations, many women still rate their overall health positively, possibly due to adaptive coping mechanisms or sociocultural normalization of menstrual pain. This contrasts with the findings of Unsal et al.,⁶, who reported a significant association between dysmenorrhea severity and general health perception, indicating that individuals with severe symptoms were more likely to report poorer overall health status. The discrepancy may be attributed to differences in study population, sociocultural context, measurement tools, or access to coping resources and health services.

5.0 Conclusion

This study concludes that dysmenorrhea is highly prevalent and significantly impairs multiple domains of quality of life, particularly among individuals with moderate to severe symptoms. Increasing severity was strongly associated with

reduced physical functioning, role limitations, pain, emotional distress, social restrictions, and decreased energy levels, all of which negatively affect academic performance and daily productivity. Although most respondents maintained a generally positive perception of their overall health, the significant disruptions observed across key functional domains indicate that dysmenorrhea constitutes a substantial health burden rather than a routine menstrual experience. These findings highlight the need for effective pain management strategies, menstrual health education, psychosocial support, and institutional accommodations to improve well-being and functional outcomes among affected students.

Recommendations

1. Institutions should establish structured menstrual health education programs that provide accurate information on dysmenorrhea, its management, and when to seek medical care. Such programs can improve awareness, reduce normalization of severe pain, and promote early intervention.
2. Schools and healthcare facilities should ensure access to appropriate pain management options, including medical consultation, physiotherapy interventions, and counseling services. Integrating psychological support can

help address the emotional and social challenges associated with moderate to severe dysmenorrhea.

3. Academic institutions should adopt supportive policies such as flexible attendance, assignment deadlines, and rest spaces for students experiencing severe symptoms. These accommodations can help minimize productivity loss and enhance overall quality of life among affected individuals.

Declaration of competing interest

The authors declare that they have no competing financial interests or personal relationships that could have appeared to influence the work reported in this paper

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