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Perception of Dysmenorrhea and Utilization of Healthy Menstrual Hygiene Practices Among Female Undergraduate Students in a Nigerian Private University

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ABSTRACT

Dysmenorrhea is the most prevalent gynecological complaint among women of reproductive age and constitutes a significant burden for female university students. Localized data from Nigerian private universities on students' perceptions and menstrual hygiene behaviors remain limited. This study assessed perceptions of dysmenorrhea and utilization of healthy menstrual hygiene practices among female undergraduates at Elizade University, Ilara-Mokin, Ondo State, Nigeria. A descriptive cross-sectional survey was conducted with 315 female undergraduates selected through stratified random sampling. A validated, structured self-administered questionnaire with six thematic sections was used; Cronbach's alpha was 0.83. Data were analyzed using descriptive statistics (frequencies, percentages). Dysmenorrhea was reported by 62.5% of respondents; 63.2% indicated that pain was severe enough to disrupt daily activities. A majority (67.9%) acknowledged its significant academic impact, and 70.0% supported academic accommodations for affected students. Sanitary pads were used by 80.0% of respondents; 39.0% changed products every 4-6 hours, while 32.0% changed products only when necessary. The leading factors influencing hygiene practices were clean water availability (66.7%), easy product access (66.0%), and product cost (65.7%). Primary barriers to effective management included academic stress (65.1%), lack of affordable pain relief (63.8%), and inadequate institutional privacy (61.6%). This study revealed that dysmenorrhea is highly prevalent and impairs academic functioning among female students at Elizade University. It is recommended that Universities should implement evidence-based menstrual health education, improve access to hygiene products and pain management, and develop inclusive campus policies to safeguard female students' reproductive health and academic wellbeing.

INTRODUCTION

Dysmenorrhea, painful menstrual cramps occurring in association with menstruation is the most common gynecological disorder among women of childbearing age, with a global estimated prevalence of 66.6% to 75.2% (Fernandez-Martinez *et al.*, 2021). Clinically, dysmenorrhea is classified into two subtypes: primary dysmenorrhea (PD), which occurs without identifiable pelvic pathology and is linked to excessive prostaglandin and vasopressin secretion; and secondary dysmenorrhea (SD), which arises from identifiable pelvic conditions such as endometriosis, fibroids, or pelvic inflammatory disease (American College of Obstetricians and Gynecologists [ACOG], 2023). The symptom burden extends beyond lower abdominal cramping to include sweating, tachycardia, headache, nausea, vomiting, diarrhea, and tremulousness (Poureslami & Osati-Ashtiani, 2020). Primary dysmenorrhea affects an estimated 50-90% of adolescents and young women globally (Lee *et al.*, 2023). Among university students, studies report prevalence rates of 60-84%: Grandi *et al.* (2020) found that 84.1% of young Italian women had dysmenorrhea, with 45% reporting moderate-to-severe pain; Kazama *et al.* (2021) documented that 62.8% of Japanese university students experienced interference with academic attendance and concentration; and Iacovides *et al.* (2021) quantified the condition's significant productivity and educational attainment losses at a global scale. In Nigeria, dysmenorrhea is among the leading causes of short-term school absenteeism (Irozulike *et al.*, 2023; Uzoechi *et al.*, 2023), with estimates suggesting that 10-15% of women experience pain severe enough to impair normal daily functioning.

For female university students, dysmenorrhea carries additional consequences such as impaired academic performance, absenteeism, and reduced concentration (Fernandez-Martinez *et al.*, 2018; Kazama *et al.*, 2021). Despite its high prevalence, many young women normalize menstrual pain as an inevitable physiological event, delay care-seeking, or rely exclusively on home remedies - often due to embarrassment, cultural taboos, and mistrust of healthcare providers (Chen *et al.*, 2021; Maalouf *et al.*, 2020). This normalization occurs mostly in low and middle income settings where health literacy, medication access, and menstrual hygiene infrastructure are constrained.

Menstrual hygiene management (MHM) is an equally critical dimension of reproductive health. Globally, an estimated 500 million women and girls lack access to adequate menstrual hygiene products and facilities (Marcatili *et al.*, 2020). Inadequate MHM is associated with reproductive tract infections (RTIs), urinary tract

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infections (UTIs), psychosocial distress, and educational exclusion (Agarwal *et al*., 2021; Stoilova *et al*., 2022). Cultural stigma and socioeconomic barriers further compound these risks in Nigerian university environments (Akinyemi *et al*., 2021; Nwankwo *et al*., 2020). Perceptions of dysmenorrhea are shaped by cultural frameworks, health literacy, and social norms. In many settings, menstrual pain is viewed as an inevitable physiological inconvenience, deterring formal care-seeking (Nguyen *et al*., 2023). Maalouf *et al.* (2020) demonstrated that Lebanese adolescent girls frequently opted for home remedies due to pain normalization. Alghamdi *et al.* (2022) found persistent misconceptions linking severe dysmenorrhea to future infertility among educated Saudi women. Johnson and Lee (2024) identified societal norms as primary drivers of menstrual health stigma and underreporting. Farahmand *et al.* (2023) showed that digital health education significantly improved care-seeking willingness among Iranian university students, demonstrating the potential of technology-mediated health literacy.

Sanitary pads are the most commonly used menstrual product in urban settings, while cloth remains prevalent in rural areas due to economic constraints (Sharma *et al*., 2023). Inadequate MHM is associated with higher rates of RTIs and UTIs (Agarwal *et al*., 2021; Das *et al*., 2022). Nigerian studies identify affordability, cultural attitudes, and inadequate sanitation infrastructure as primary determinants of product choice and hygiene behavior (Akinyemi *et al*., 2021; Nwankwo *et al*., 2020). Intervention studies, including peer-led education (Olufunmilayo *et al*., 2021) and community outreach programs (Okafor *et al*., 2022), have demonstrated meaningful improvements in MHM when socioeconomic and knowledge barriers are systematically addressed.

This study is informed by the Health Belief Model (HBM) and Bandura's (1986) Social Cognitive Theory. The HBM posits that health-promoting behaviors are more likely when individuals perceive personal susceptibility, view the condition as serious, believe benefits of action outweigh barriers, and receive appropriate cues to action. Social Cognitive Theory additionally emphasizes self-efficacy and the influence of peer modeling on health behavior adoption which constructs is directly applicable to the menstrual hygiene practices examined in this study.

This study will provide valuable insights into the challenges that female students face in managing their menstrual health by assessing the prevalence, knowledge, perception, and healthcare-seeking practices associated with dysmenorrhea, as well as the factors influencing the adoption of healthy menstrual hygiene practices. Despite the high prevalence, dysmenorrhea is often poorly treated and even disregarded by health professionals, pain researchers and the women themselves, who may accept it as a normal part of the menstrual cycle. Sometimes the pain is so bad that psychological treatment is considered. This may include talks with a psychotherapist and learning techniques that can reduce pain such as relaxation and mindfulness exercises. This study's findings will help us better understand female students' special needs and concerns around dysmenorrhea and menstrual hygiene. Previous studies have revealed limited knowledge and wrong perception of menstruation and dysmenorrhea among Nigerian adolescents. Affected women may therefore seek help from wrong sources, leading to wrong advice and inappropriate treatment, hence the timeliness and significance of this study.

Despite growing international evidence, localized data on how female students in Nigerian private universities perceive dysmenorrhea and practice menstrual hygiene remain sparse. Understanding context-specific perceptions, prevalence estimates, and barriers is essential for designing effective interventions. This study therefore aimed to assess perceptions of dysmenorrhea, self-reported prevalence, associated menstrual hygiene practices, and barriers to effective management among female undergraduates at Elizade University, Ilara-Mokin, Ondo State, Nigeria. The specific objectives were to: (1) assess perceptions of dysmenorrhea among female students; (2) determine the prevalence of dysmenorrhea and its functional impact; (3) examine prevailing menstrual hygiene practices; (4) identify factors influencing healthy menstrual hygiene practices; and (5) determine barriers to effective dysmenorrhea management and menstrual hygiene utilization

MATERIALS AND METHODS

Research Design

A descriptive cross-sectional survey design was employed to capture perceptions, prevalence estimates, and practices at a single point in time. This design is appropriate for generating prevalence estimates and identifying associations among variables without experimental manipulation.

Study Setting

The study was conducted at Elizade University, a private institution established in 2013 in Ilara-Mokin, Ondo State, Nigeria. The university comprises five faculties - Allied Health Sciences, Basic and Applied Sciences, Engineering, Humanities/Social and Management Sciences, and Law - across 24 departments. At the time of the study, total enrollment was approximately 2,132, with 1,048 female undergraduates.

Sample Size Determination and Sampling Technique

The target population comprised all 1,048 female undergraduates enrolled across all five faculties. Sample size was calculated using Slovin's formula: n = N / (1 + Ne^2). With N = 1,048 and a margin of error of 0.05, the minimum calculated sample was 290. Adjusting for a 10% non-response rate yielded a target of 319 participants. Stratified random sampling was applied, with strata defined by faculty and year of study, ensuring proportional representation across all subgroups and minimizing sampling bias.

Inclusion and Exclusion Criteria

Eligible participants were female undergraduates aged 18-24 years enrolled in any of the five faculties. Postgraduate students were excluded, as their experience managing dysmenorrhea and menstrual health was expected to differ substantively from that of undergraduates. Male students were also excluded given the study's focus on menstrual health.

Research Instrument

Data were collected using a structured self-administered questionnaire comprising six sections: (A) demographic information; (B) perception of dysmenorrhea - 8 Likert-scale items (Strongly Agree to Strongly Disagree); (C) prevalence of dysmenorrhea - 5 dichotomous items; (D) menstrual hygiene practices - 7 items; (E) factors influencing healthy MHM - 10 dichotomous items; and (F) barriers to dysmenorrhea management - 10 dichotomous items. Reliability was assessed via a test-retest pilot with 20 students at the Federal University of Technology, Akure (FUTA); Cronbach's alpha was 0.83, exceeding the conventional reliability threshold of 0.70.

Data Collection and Analysis

Questionnaires were distributed and self-administered in the university environment. Of 319 distributed, 315 were returned and fully complete (response rate: 98.7%). Data were entered and analyzed using IBM SPSS Statistics Version 27. Descriptive statistics (frequencies and percentages) were used to characterize the sample and summarize responses. Chi-square tests were applied to assess associations between categorical variables; statistical significance was set at $p < 0.05$.

Ethical Considerations

The study was conducted in accordance with the Declaration of Helsinki. Ethical clearance was obtained from the institutional research ethics committee. Informed consent was obtained from all participants prior to data collection. Participation was entirely voluntary, data were anonymized, and strict confidentiality was maintained throughout.

RESULTS AND DISCUSSION

Socio-Demographic Characteristics of Respondents

A total of 315 respondents completed the survey. Socio-demographic characteristics are presented in Table 1.

Table 1: Socio-demographic profile of respondents (N = 315)

Age Group	**Frequency (n)**	**Percentage (%)**
16-18 years	82	26.0
19-21 years	96	30.5
22-24 years	98	31.1
25 years and above	39	12.4
Total	315	100.0
Religious Affiliation		
Islam	25	7.9
Christianity	290	92.1
Total	315	100.0
Year of Study		
100 Level	75	23.8
200 Level	86	27.3
300 Level	54	17.1
400 Level	68	21.6
500 Level	32	10.2
Total	315	100.0
Marital Status		
Single	300	95.2
Married	15	4.8
Total	315	100.0
Faculty		
Allied Health Sciences	97	30.8
Basic and Applied Sciences	59	18.7
Engineering	74	23.5
Humanities, Social & Management Sciences	69	21.9
Law	16	5.1
Total	315	100.0

Note. Data are presented as frequencies and percentages. The majority of respondents were aged 22-24 years (31.1%), closely followed by those aged 19-21 years (30.5%). Almost all participants were single (95.2%) and Christian (92.1%). Allied Health Sciences comprised the largest faculty cohort (30.8%), and second-year students (200 Level) formed the largest academic cohort (27.3%). This demographic distribution confirms that the sample was drawn from within the target age bracket of reproductive-age female undergraduates.

Perceptions of dysmenorrhea.

While a combined 43.1% agreed or strongly agreed that dysmenorrhea should be endured stoically as part of womanhood, the majority (57.0%) rejected this view. A combined 67.9% acknowledged that dysmenorrhea significantly affects academic performance, and 72.1% disagreed that menstrual pain is often exaggerated. Regarding treatment, 58.1% endorsed professional medical management over exclusive home remedy use. Notably, 70.0% supported academic accommodations (e.g., flexible deadlines, attendance leniency) for affected students, and 72.1% identified stress and emotional factors as dysmenorrhea aggravators.

Table 2: Perceptions of dysmenorrhea among respondents (N = 315)

Statement / Response	n	%
Dysmenorrhea is a normal part of womanhood (endured without complaint)		
Strongly Agree	57	18.1
Agree	79	25.1
Disagree	107	34.0
Strongly Disagree	72	22.8
Dysmenorrhea significantly affects academic performance		
Strongly Agree	110	34.9
Agree	104	33.0
Disagree	66	21.0
Strongly Disagree	35	11.1
Stress and emotional factors worsen dysmenorrhea severity		
Strongly Agree	126	40.0
Agree	101	32.1
Disagree	57	18.1
Strongly Disagree	31	9.8
Dysmenorrhea should always be treated by a medical professional		
Strongly Agree	95	30.2
Agree	88	27.9
Disagree	79	25.1
Strongly Disagree	53	16.8
Female students with dysmenorrhea deserve special academic consideration		
Strongly Agree	123	39.0
Agree	98	31.1
Disagree	63	20.0
Strongly Disagree	31	9.9

Prevalence of dysmenorrhea and management approaches

Nearly two-thirds of respondents (62.5%) reported experiencing menstrual pain, and a similar proportion (63.2%) indicated that pain severity disrupted daily activities. Pain intensity variation across cycles was reported by 62.2% of respondents. Sixty percent had personal strategies for pain management (e.g., heat therapy, analgesics, herbal remedies), and 58.1% reported having previously received a prescription specifically for dysmenorrhea.

Table 3: Prevalence and Self-Management of Dysmenorrhea (N = 315)

Question	Yes	No
Do you experience menstrual pain?	197 (62.5%)	118 (37.5%)
Has menstrual pain interfered with your daily activities?	199 (63.2%)	116 (36.8%)
Does menstrual pain intensity vary between cycles?	196 (62.2%)	119 (37.8%)
Do you have a means of managing menstrual pain?	190 (60.3%)	125 (39.7%)
Have you been prescribed medication specifically for dysmenorrhea?	183 (58.1%)	132 (41.9%)

Note. Figures represent self-reported affirmative responses.

Menstrual Hygiene Practices

Sanitary pads were the most widely used menstrual product (80.0%), followed by tampons (7.0%), cloth (6.0%), tissue paper (5.0%), and menstrual cups (2.0%). Most respondents (39.0%) changed products every 4-6 hours; however, 32.0% changed products only when necessary, potentially beyond 8 hours and 4.0% changed once daily. Disposal methods included: trash disposal (43.0%), flushing (35.0%), burning (15.0%), and burying (7.0%). The majority (80.0%) felt they had adequate access to menstrual hygiene products. Virtually all respondents (98.0%) reported hand washing before and after product changes, and 95.0% increased shower frequency during menstruation. Fifty-three percent used a dedicated product for nighttime protection.

Factors Influencing Healthy Menstrual Hygiene Practices

The most commonly endorsed factors were clean water availability (66.7%), easy product access (66.0%), and product cost (65.7%). Family and peer support (64.1%) and personal attitude (62.9%) were also highly cited. Cultural or religious beliefs were acknowledged as influential by 58.7%, and media and social networks by 59.0%. Institutional facility adequacy (62.2%) and health worker guidance (60.0%) were further identified as significant determinants.

Barriers to Dysmenorrhea Management and Menstrual Hygiene

The leading barrier was stress, academic workload, and poor nutrition (65.1%), followed by lack of affordable pain relief (63.8%), and inadequate institutional privacy (61.6%). Sixty-one percent avoided health facilities due to cost or confidentiality concerns. Stigma-related barriers embarrassment (59.7%) and fear of judgment (55.9%) were prominent. Poor knowledge of pain relief options was cited by 58.1%, and limited institutional policies on menstrual health were identified by 55.2% of respondents. The prevalence of dysmenorrhea in this study (62.5%) aligns with estimates reported across sub-Saharan Africa (Fernandez-Martinez *et al.*, 2021; Irozulike *et al.*, 2023). The finding that 63.2% of respondents experienced pain severe enough to disrupt daily activities mirrors data from

Table 4: Factors Influencing Healthy Menstrual Hygiene Practices (N = 315)

Factor	Yes n (%)	No n (%)
Cost of sanitary products affects menstrual hygiene	207 (65.7%)	108 (34.3%)
Inadequate school/hostel facilities hinder proper hygiene	196 (62.2%)	119 (37.8%)
Cultural or religious beliefs influence product choice	185 (58.7%)	130 (41.3%)
Limited knowledge affects menstrual hygiene practices	191 (60.6%)	124 (39.4%)
Family or peer support promotes healthy hygiene practices	202 (64.1%)	113 (35.9%)
Easy access to products encourages healthy hygiene	208 (66.0%)	107 (34.0%)
Availability of clean water is essential for hygiene	210 (66.7%)	105 (33.3%)
Health worker guidance positively influences practices	189 (60.0%)	126 (40.0%)
Personal attitude and discipline determine hygiene quality	198 (62.9%)	117 (37.1%)
Media and social networks influence menstrual hygiene views	186 (59.0%)	129 (41.0%)

Note. Figures represent affirmative responses (Yes).

Smith *et al.* (2023), who documented that approximately 60% of university students suffered moderate to severe symptoms leading to absenteeism and academic productivity losses. The variation in pain intensity across

Table 5: Barriers to Menstrual Hygiene and Dysmenorrhea Management (N = 315)

Barrier	Yes n (%)	No n (%)
Lack of affordable pain relief makes management difficult	201 (63.8%)	114 (36.2%)
Embarrassment or stigma prevents help-seeking	188 (59.7%)	127 (40.3%)
Inadequate privacy in school/ hostel environment	194 (61.6%)	121 (38.4%)
Irregular product availability is a challenge	180 (57.1%)	135 (42.9%)
Stress, workload, and poor nutrition worsen management	205 (65.1%)	110 (34.9%)
Fear of judgment discourages help-seeking	176 (55.9%)	139 (44.1%)
Students avoid health facilities due to cost/confidentiality	192 (61.0%)	123 (39.0%)
Poor knowledge of pain relief options hinders management	183 (58.1%)	132 (41.9%)
Limited institutional policies create challenges	174 (55.2%)	141 (44.8%)
Absence of supportive environment increases coping difficulty	187 (59.4%)	128 (40.6%)

Note. Figures represent affirmative responses (Yes).

cycles reported by 62.2% reflects the complex, cycle-dependent pathophysiology of primary dysmenorrhea and underscores the need for individualized management strategies.

While a majority of respondents rejected the normalization of menstrual pain as a stoic expectation, a non-trivial minority (43.1%) still held this view. This finding is consistent with Maalouf *et al.* (2020) and Nguyen *et al.* (2023), who identified normalization as a key driver of delayed care-seeking. The strong consensus (72.1%) that stress exacerbates dysmenorrhea is clinically significant, aligning with evidence linking psychosocial stressors to enhanced prostaglandin production and heightened pain sensitivity (Sharma *et al.*, 2024). The majority support for academic accommodations (70.0%) indicates growing institutional awareness among students fertile ground for policy advocacy within the university ecosystem.

Sanitary pad dominance (80.0%) mirrors urban Nigerian patterns documented by Sharma *et al.* (2023) and is substantially higher than figures reported for rural populations (Nwankwo *et al.*, 2020). However, the finding that 32.0% of respondents change products only when necessary - potentially exceeding the recommended maximum of 6-8 hours represents a public health concern, given the established association between infrequent product changes and RTI/UTI risk (Agarwal *et al.*, 2021). The near-universal practice of hand washing before and after product changes (98.0%) is an encouraging indicator of baseline hygiene awareness. Low menstrual cup adoption (2.0%) likely reflects limited awareness and cultural unfamiliarity rather than unavailability a dimension warranting targeted educational attention given cups' cost-effectiveness and environmental sustainability.

The identification of product cost, clean water availability, and facility adequacy as primary determinants of MHM quality corroborates findings from Akinyemi *et al.* (2021) and Ogunyemi *et al.* (2023) in Nigerian contexts. The substantial role attributed to family and peer support (64.1%) and personal attitude (62.9%) aligns with Social Cognitive Theory's emphasis on self-efficacy and behavioral modeling: students observing healthy hygiene practices among peers and receiving family encouragement are more likely to adopt these behaviors independently (Bandura, 1986). The influence of cultural and religious beliefs (58.7%) indicates that culturally sensitive health communication strategies are essential for behavior change particularly important in a predominantly Christian institutional setting.

The leading barrier academic stress, workload, and poor nutrition (65.1%) highlights the compounding effect of university demands on dysmenorrhea management,

consistent with Schoep (2021)'s findings on menstrual-related presenteeism and productivity loss. The high proportion (61.0%) of students avoiding health facilities due to cost or confidentiality concerns reflects structural failures in campus health service design that require urgent policy redress. Stigma-related barriers (embarrassment: 59.7%; fear of judgment: 55.9%) are consistent with Al-Matouq *et al.* (2021) and Marcatili *et al.* (2020), who identified shame as a significant deterrent to care-seeking in developing-country settings. Poor knowledge of pain relief options (58.1%) reinforces the need for accessible, evidence-based dysmenorrhea education, while limited institutional policy recognition (55.2%) calls for university-level structural responses.

CONCLUSION

Dysmenorrhea affects nearly two-thirds of female undergraduates at Elizade University and imposes meaningful academic and functional burdens. Although most students demonstrate adequate basic hygiene awareness, critical gaps persist in product change frequency, knowledge of dysmenorrhea management options, and utilization of campus health services. Multiple intersecting barriers; affordability, stigma, inadequate institutional privacy, academic stress, and limited policy support compound these deficits. A comprehensive, multi-pronged institutional response is urgently needed: integrating menstrual health content into campus health education curricula; improving infrastructure for hygiene and clinical access; establishing confidential, low-cost student health services; and developing inclusive academic policies that accommodate students experiencing severe dysmenorrhea. These evidence-based interventions have meaningful potential to improve female students' reproductive health, academic engagement, and overall wellbeing, and may serve as a replicable model for similar institutions across Nigeria and sub-Saharan Africa. From the findings of this study the following recommendations are made:

i. There's a need for targeted psychoeducation sessions addressing dysmenorrhea pathophysiology, evidence-based self-management strategies, and appropriate care-seeking thresholds - thereby reducing pain normalization and harmful delays in treatment.

ii. Active advocation for student-centered campus health services that guarantee confidential, affordable gynecological consultations and pain management.

iii. A holistic care approach integrating psychological support, lifestyle counseling (nutrition, exercise, stress reduction), and pharmacological guidance that addresses the multidimensional dysmenorrhea experience.

iv. Destigmatization of menstrual health discourse within institutional settings through peer education programs and interdisciplinary faculty partnerships.

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