

Research Article

Dysmenorrhea Management Practices and Associated Factors among Female Nursing Students: An Institution-Based Study at Atiba University, Nigeria

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How to cite this article: Esther O. Famutimi, Dorcas O. Oni, Ruth O. Olorunmonu, Adetunmise O. Olajide, Olabisi M. Oluseye, et al. (2026). Dysmenorrhea management practices and associated factors among female nursing students: An institution-based study at Atiba University, Nigeria. *Journal of Bio-Med and Clinical Research*. RPC Publishers. 3(1);1-10.

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Submitted: May 15, 2026

Approved: June 20, 2026

Published: June 26, 2026

Abstract

Background: Dysmenorrhea is one of the most common gynaecological conditions affecting women of reproductive age and remains a significant public health concern among university students. Despite the growing burden of dysmenorrhea among young women in low - and middle-income countries, evidence regarding management practices among nursing students in Nigeria remains limited. This study assessed dysmenorrhea management practices and associated factors among female nursing students at Atiba University, Oyo, Nigeria.

Methods: An institution-based analytical cross-sectional study was conducted among 168 female undergraduate nursing students selected via stratified random sampling. Data on sociodemographics, dysmenorrhea experience, and pharmacological and non-pharmacological management practices were collected using a structured questionnaire and analysed using the Statistical Package for the Social Sciences (SPSS) version 27. Chi-square tests of independence examined associations between categorical variables, and chi-square goodness-of-fit tests assessed whether observed frequencies differed from chance expectations, with significance set at $p < .05$.

Results: The response rate was 90.8%, with a mean age of 21.0 ± 1.7 years. Most (84.5%) respondents experienced dysmenorrhea, which interfered with academic and daily activities. Non-pharmacological methods were widely used and positively perceived: heat therapy (84.0%), exercise (79.2%), dietary modification (79.1%), relaxation (85.7%), stress management (84.5%), and hydration (92.2%). Pharmacological therapy, such as Ibuprofen and paracetamol, was rated effective by 83.3%, while hormonal contraception had 32.7% positive responses, 74.4% agreed that severe pain warrants professional consultation, and self-medication remained common (46.4%). Dysmenorrhea occurrence was not associated with academic level, $\chi^2(4, N = 168) = 0.17, p = .997$. Students reported significant agreement that all non-pharmacological practices are effective, $\chi^2(1, N = 168) = 57.17$ to $156.21, ps < .001$.

Conclusion: Dysmenorrhea is highly prevalent and managed through both pharmacological and non-pharmacological approaches. Despite positive attitudes toward healthcare consultation, self-medication persists. Strengthened menstrual health education and accessible, student-centred reproductive health services are needed in universities.

Keywords: dysmenorrhea; menstrual pain; management practices; nursing students; self-medication; reproductive health; Nigeria.

Introduction

Dysmenorrhea, defined as painful menstruation, is one of the most common gynaecological disorders among women of reproductive age worldwide and contributes to substantial but underreported public health disparities [1]. It is characterised by lower abdominal cramping occurring before and during menstruation, often accompanied by systemic symptoms such as lower back pain, fatigue, nausea, diarrhoea, headache, dizziness, and psychological distress [2]. The disease is divided into primary and secondary dysmenorrhea, based on the absence of identifiable pelvic pathology or the presence of underlying conditions.

reproductive disorders such as endometriosis, uterine fibroids, adenomyosis, or pelvic inflammatory disease. [3]. Primary dysmenorrhea is prevalent in adolescents and young adult females, mainly due to high production of uterine prostaglandins, causing excessive uterine contractions, ischemia, and the sensation of pain [4]. This condition affects around 50–90% of menstruating women worldwide, the estimate of which varies based on population, age group, and diagnosis [5].

Dysmenorrhea is highly prevalent but still underreported and undertreated because of the normalisation of menstrual pain in society, lack of teaching regarding menstrual health, suboptimal healthcare-seeking behaviours, and limited institutional support systems [6]. Recent evidence has shown that it is now being understood to cause numerous severe complications: reduced quality of life, impaired physical function, mood disturbance, sleep disturbances, social withdrawal, and decreased productivity [7]. Educationalists have reported that dysmenorrhea has been noted to cause school absenteeism and decreased classroom participation among girls, as well as reduced levels of concentration, poorer academic engagement among girls, and an overall reduction in academic achievement in the affected women [8]. For university students, especially those in health-related disciplines such as nursing, the burden of dysmenorrhea can be even greater [9]. Nursing education is an extremely intense clinical learning experience, with demands such as sustained cognitive effort, prolonged clinical placements, emotional resilience, and physical endurance [10]. As a result, recurrent period pain can affect students' mental condition, academic achievement, clinical competence, ability to participate in lecture and practical sessions, and overall psychological well-being [7]. Nursing students are at a disadvantage in the future of the health profession, as they are required to have sound knowledge of evidence-based health practices, including menstrual health care [11].

Indeed, even in the so-called medically literate community members, it is well-documented from suboptimal behaviour patterns such as late seeking professional guidance, normalisation of severe menstrual pain, or reliance on self-medication without appropriate medical guidance in low- and middle-income countries [12]. There is a range of pharmacological and non-pharmacological strategies for the management of dysmenorrhea to reduce pain intensity, improve functional capacity, and enhance quality of life. Pharmacological treatments may include nonsteroidal anti-inflammatory drugs (NSAIDs), analgesic tablets, hormonal contraceptives, and other prescribed medications that inhibit prostaglandin production and hormonal regulation [13]. While these practices are effective in alleviating menstrual pain, there are still worries about unwise self-medication, side effects of medications used to manage the pain, low adherence to such modalities, and inadequate professional supervision for university students [14].

Compared with pharmacological approaches, non-pharmacological approaches to the management of this condition have attracted greater interest due to their cost efficiency, convenience, lack of harmful side effects, and long-term health benefits [15]. Such methods include heat therapy, physical exercise, dietary modification, stress relief, relaxation therapies, hydration, sleep enhancement, herbal treatments, yoga, and complementary therapies [16, 17, 18]. Multiple efficacies of these interventions have been reported in the literature, especially when assessing female students who use multiple coping responses simultaneously [7].

However, inconsistent results remain regarding the utilisation trends, perceived efficacy, and healthcare-seeking behaviours of these methods, especially in resource-constrained settings [9]. Challenges to menstrual health in sub-Saharan Africa are exacerbated by cultural stigma, poor reproductive health education, gender-related stereotypes, minimal access to adolescent-friendly healthcare services, and societal expectations that promote the silent suffering of menstrual pain [19]. In Nigeria, dysmenorrhea is still a significant but under-treated reproductive health concern in adolescents and young adults [12]. Most studies reviewed in Nigerian universities have analysed prevalence estimates and symptom patterns, with limited coverage of comprehensive assessments of management practices, coping behaviours, and associated determinants among nursing students.

Most previous studies have focused largely on either pharmacological or non-pharmacological interventions with little critical engagement on the relationship between different management approaches and students' assessment of effectiveness. While several studies have demonstrated the high rates of dysmenorrhea among Nigerian female undergraduates, many gaps in knowledge exist. Dysmenorrhea is a common problem among female nursing students, and while they have extensive healthcare exposure and academic curriculum, little evidence can be found regarding their management of this in everyday life [20, 21, 22]. Additionally, existing literature lacks an understanding of the extent to which socio-demographic characteristics may mediate medical management decisions, healthcare-seeking behaviour, and perceived effectiveness of various interventions [7, 6]. More importantly, there is limited institution-specific evidence from Southwestern Nigeria's private universities, where differences between the educational environment, access to healthcare, and student lifestyle

influences may lead to differences in menstrual health experiences compared with public institutions [23, 24]. Hence, this study investigated management practices and factors related to dysmenorrhea among female nursing students at Atiba University, Oyo State, Southwestern Nigeria.

Methods

Study Design: The study used an institution-based, cross-sectional analytical design to assess dysmenorrhea management practices among Atiba University female nursing students and the corresponding variables. The cross-sectional design was warranted, as it allowed an assessment of dysmenorrhea experiences, pharmacological and non-pharmacological management practices, and healthcare-seeking behaviours of the study population at a single point in time. Apart from explaining current management trends, the design promoted the identification of correlations between socio-demographic characteristics and participants' dysmenorrhea management behaviours.

Study Setting: The study was carried out at Atiba University, a private university in Oyo Town, Oyo State, Southwestern Nigeria. It has a Faculty of Health Sciences that provides undergraduate nursing education through the Department of Nursing Science. The nursing program integrates classroom-based theoretical learning with clinical placements in affiliated healthcare facilities. Female nursing students make an important population for dysmenorrhea research because they are in the reproductive age group and must cope with strenuous academic and clinical schedules, which can have an impact on both their menstrual health experience and behaviour.

Study Population: The study population comprised all registered female undergraduate nursing students in the Department of Nursing Science during the 2025/2026 academic session. Students from all undergraduate academic levels (100-500) who had attained menarche were eligible for the study.

Eligibility Criteria: Participants' eligibility was determined according to the prescribed inclusion and exclusion criteria. Female undergraduate nursing students who had experienced menstruation and gave informed consent were recruited for the study. Students were excluded if they were absent during the data collection period, declined to participate, or reported pre-existing gynaecological conditions related to secondary dysmenorrhea when known, to minimise confounding by pathological conditions.

Sample Size Determination: The minimum sample size for the study was determined using the Yamane formula for finite population estimation: $n = N / (1 + N(e)^2)$

Where:

- n = required sample size
- N = total study population
- e = margin of error at 5% level of significance (Renthlei & Lallawmkima, 2025)

Given a study population of 289 eligible female nursing students:

$$n = \frac{289}{1 + 289(0.05)^2}$$

$$n \approx 168$$

To compensate for potential non-response and incomplete questionnaires, a 10% non-response adjustment was added:

$$\text{Adjusted Sample Size} = n + (0.10 \times n)$$

$$\text{Adjusted Sample Size} \approx 185$$

Accordingly, a minimum sample size of 185 participants was targeted for the study.

Sampling Technique and Recruitment Procedure

To ensure proportional representation of respondents across all academic levels within the Department of Nursing Science, a stratified random sampling technique was used to select respondents. The population was first stratified by academic level (100–500 level). A proportionate allocation was also performed to determine the number of samples to be selected from each stratum, based on the student population distribution. At each grade, eligible participants were included using simple random sampling via ballot technique. Recruitment was done during lecture periods and departmental academic activities. The purpose of the study was explained to potential participants, and those who met the eligibility criteria and voluntarily agreed to participate were included.

Study Instrument

Data were collected through a self-administered questionnaire based on a structure created after a comprehensive review of published texts on dysmenorrhea, menstrual health practices, and pain management strategies among university students. The questionnaire was structured to gather data related to the research aims and comprised four primary sections. The first

section included respondents' socio-demographic and menstrual characteristics: age, ethnicity, academic level, age at menarche, and menstrual duration. The second section investigated dysmenorrhea histories and symptom profiles across the sample. The third part reported non-pharmacological management methods, including exercise, heat therapy, hydration, relaxation techniques, dietary modification, and stress management approaches. The fourth section evaluated pharmacological interventions, healthcare-seeking behaviours, and self-medication practices regarding dysmenorrhea management. Structured response options and Likert-scale format were used to improve reliability and support quantitative analysis in most questionnaire items.

Validity of the Instrument

Before data collection, the questionnaire underwent face and content validation. Face validity was assessed by nursing researchers, reproductive health nurses, and maternal and child health nurses to determine whether the instrument was clear, readable, linguistically acceptable, and comprehensive. Content validity was established through item compatibility with the study aims, conceptual variables, and the supporting literature on dysmenorrhea management. The reviewers' suggested revisions were incorporated into the final version of the instrument to improve relevance, consistency, and the adequacy of item coverage.

Reliability of the Instrument

A pilot study was conducted with 20 female nursing students from a similar institution outside the study setting to assess the questionnaire's internal consistency and reliability. The data retrieved from the pilot study were further analysed using Cronbach's alpha reliability statistics. The overall Cronbach's alpha coefficient ranged from 0.70 to 0.82 (Section B: 0.76, Section C: 0.70, Section D: 0.82), indicating the instrument's internal consistency and reliability in measuring dysmenorrhea management practices and associated variables among university students.

Data Management and Statistical Analysis

Before data entry, the completeness and consistency of the questionnaires obtained were assessed. Data were coded and entered into the Statistical Package for the Social Sciences (SPSS) version 27.0 for analysis. Descriptive statistics (frequencies, percentages, means, and standard deviations) for socio-demographic characteristics, dysmenorrhea experiences, and management practices were used to characterise respondents. Then, inferential statistical analyses were conducted to investigate associations between independent variables and dysmenorrhea management practices. Chi-square tests of independence examined associations between academic level and dysmenorrhea occurrence. Chi-square goodness-of-fit tests assessed whether agreement with effectiveness statements differed from chance (50%).

Ethical Considerations

Ethics approval was granted by the relevant ethical review board, the University of Ibadan/University College Hospital Ethics Committee (UI/EC/25/0966), before the research. Administrative permission was also obtained from the Department of Nursing Science of Atiba University. Participation in the study was voluntary, and written informed consent was obtained from all respondents after clear information about the study's aims and procedures was provided. Anonymity, confidentiality, and the exclusive use of the data obtained for academic and research purposes were assured. There were no personal identifiers in this questionnaire, and respondents had the right to decline or withdraw from participation, or to remain active in the study at any time, without any academic repercussions.

Results

A total of 185 questionnaires were delivered to eligible female nursing students, and 168 were correctly submitted and returned (90.8%) with a mean age of 21.0 ± 1.7 years. Table 1 reveals the socio-demographic and menstrual characteristics of respondents. The average age of respondents was 21.5 ± 2.1 years. It should be noted that over half of the participants were between 20 and 22 years old, making up more than 50% of the population. The principal ethnic group was Yoruba (81.0%), with minorities including Igbo (9.5%), Hausa (6.0%), and other ethnicities (3.5%). In terms of academic level, respondents were split across all levels of education, with the largest proportion among pupils at the 300 level (41.7%). The largest proportion (92.3%) of respondents had menarche between ages 11 and 15, although a small proportion had menarche before age 11. Moreover, about 4 out of 5 respondents reported a menstrual duration of 3–5 days.

Table 1: Socio-demographic and Menstrual Characteristics of Respondents (n = 168).

Variables	Frequency (N)	Percentage
Age (years)		
Mean age	21.0 ± 1.7	19.0
18–19	32	20.8
20	35	20.2
21	34	18.5
22	31	21.5
≥ 23	36	
Ethnicity		
Yoruba	136	81.0
Igbo	16	9.5
Hausa	10	6.0
Others	6	3.5
Academic Level		
100	6	3.6
200	32	19.0
300	70	41.7
400	26	15.5
500	34	20.2
Age at Menarche (years)		
<11	7	4.2
11–15	155	92.3
>15	6	3.5
Duration of Menstruation (days)		
2–3	18	10.7
3–5	132	78.6
6–8	18	10.7
Dysmenorrhea Occurrence		
Yes	142	84.5
No	26	15.5

Table 2 summarises the use of non-pharmacological strategies for managing dysmenorrhea among respondents. A striking share of respondents adopted non-pharmacological remedies to alleviate menstrual distress. Among those surveyed, 84.0% felt that heat therapy, such as using hot water bottles and heating pads, was effective. Likewise, 79.2% indicated that exercise, such as walking and stretching, eased symptoms. 79.1% of participants found dietary modification practices, such as drinking more water and drinking less caffeine, to be beneficial. Relaxation strategies, including meditation and deep breathing exercises, were viewed positively by 85.7 per cent of participants, and it was reported that stress reduction techniques were effective by 84.5 per cent. Proper hydration and proper nutrition were recognised as important supportive methods for dysmenorrhea management by 92.2 per cent of the respondents.

Table 2: Non-Pharmacological Management Practices for Dysmenorrhea Among Respondents (n = 168)

Variable	Agree n (%)	Neutral n (%)	Disagree n (%)
Multiple strategies can be used to manage dysmenorrhea	165 (98.2)	2 (1.2)	1 (0.6)
Heat therapy relieves menstrual pain	141 (84.0)	22 (13.0)	5 (3.0)
Exercise helps reduce dysmenorrhea symptoms	133 (79.2)	21 (12.5)	14 (8.3)
Dietary modification helps relieve menstrual pain	133 (79.1)	20 (11.9)	15 (9.0)
Relaxation techniques are effective for symptom relief	144 (85.7)	16 (9.5)	8 (4.8)
Stress management reduces menstrual pain severity	142 (84.5)	17 (10.1)	9 (5.4)
Adequate hydration and a balanced diet improve symptoms	155 (92.2)	8 (4.8)	5 (3.0)

Table 3 depicts the pharmacological management practices and health-seeking behaviours of the respondents. According to most respondents, 83.3 per cent of analgesics, such as ibuprofen and paracetamol, were efficacious in controlling menstrual pain. Despite almost half the respondents preferring self-medication over visiting the hospital, 74.4% agreed that severe menstrual pain warrants consultation with healthcare professionals.

Table 3: Pharmacological Management Practices and Healthcare-Seeking Behaviour Among Respondents (n = 168).

Variable	Agree n (%)	Neutral n (%)	Disagree n (%)
Analgesics such as ibuprofen and paracetamol are effective for dysmenorrhea management	140 (83.3)	21 (12.5)	7 (4.2)
Hormonal contraceptives are effective in reducing menstrual pain	55 (32.7)	56 (33.3)	57 (34.0)
Severe menstrual pain requires consultation with healthcare professionals	125 (74.4)	23 (13.7)	20 (11.9)
Self-medication is preferable to hospital visitation for dysmenorrhea management	78 (46.4)	48 (28.6)	42 (25.0)

Table 4 presents the analysis of the association between academic level and dysmenorrhea occurrence. There was no statistically significant association between academic level and dysmenorrhea among female nursing students, $\chi^2(4, N = 168) = 0.17, p = .997$.

Table 4: Association Between Academic Level and Dysmenorrhea Occurrence Among Respondents

Academic Level	Dysmenorrhea		Total n (%)
	Yes	No	
100	5 (83.3)	1 (16.7)	6 (3.6)
200	27 (84.4)	5 (15.6)	32 (19.0)
300	59 (84.3)	11 (15.7)	70 (41.7)
400	22 (84.6)	4 (15.4)	26 (15.5)
500	29 (85.3)	5 (14.7)	34 (20.2)
Total	142(84.5)	26(15.5)	168(100)

Note: $\chi^2(4, N = 168) = 0.17, p = .997$. No statistically significant association was found between academic level and dysmenorrhea occurrence.

Table 5: Association Between Non-Pharmacological Management Practices and Perceived Dysmenorrhea Relief

Management Practice	Agree n (%)	Not Agree n (%)
Multiple strategies can be used to manage dysmenorrhea	165 (98.2)	3 (1.8)
Heat therapy relieves menstrual pain	141 (84.0)	27 (16.0)
Physical exercise helps reduce dysmenorrhea symptoms	133 (79.2)	35 (20.8)
Dietary modification helps relieve menstrual pain	133 (79.1)	35 (20.9)
Relaxation techniques are effective for symptom relief	144 (85.7)	24 (14.3)
Stress management reduces menstrual pain severity	142 (84.5)	26 (15.5)
Adequate hydration and a balanced diet improve symptoms	155 (92.2)	13 (7.8)

Note: Chi-square goodness-of-fit tests indicated that agreement was significantly higher than chance (50%) for all practices, $\chi^2s(1, N = 168) \geq 57.17, ps < .001$.

Discussion

This investigation evaluated dysmenorrhea management practices and their corresponding factors among female nursing students at Atiba University and concluded with significant discoveries regarding the use of both pharmacological and nonpharmacological approaches in menstrual pain management. The findings illuminate the burden of dysmenorrhea among university students and emphasise the complex interplay between health knowledge, self-care behaviour, and healthcare-seeking practices among a population assumed to have relatively high health literacy. The survey's demographic composition indicated that most respondents were young adults in the peak reproductive age group (mean age: 21.5 years). Most respondents developed menarche between the ages of 11 and 15 years, matching reports from previous African and worldwide studies reporting that menarche often occurs in early adolescence. We may also note a higher proportion of women in mid-nursing training, with a greater percentage of respondents in the 300-level category. While sociodemographic variables such as academic level were not significantly correlated with dysmenorrhea in this study, prior literature has reported that demographic predictors of dysmenorrhea vary [25, 26]. Some studies reported associations with age, early menarche, menstrual duration, and severity of dysmenorrhea, but others did not find significant associations among these [27, 28]. Lack of significant association in the present study likely implicates that dysmenorrhea is not only confined to academia and continues to be a prevalent physiological and reproductive health problem in female students, regardless of educational level [7, 6]. Indeed, the most important result from this research was the prevalence and positive association of non-pharmacologic treatment methods among respondents. Frequent use of heat therapy, physical exercise, dietary changes, relaxation, stress management, and adequate hydration were well established as effective treatments for menstrual pain [7,

24]. These results add to previous studies conducted by university students in Nigeria, South Africa, and other underprivileged and lower-middle-income areas, using cost-effective interventions with few adverse effects or non-pharmacological approaches [28, 24].

The strong favour for heat therapy in this study is consistent with findings that localised application improves blood flow to the pelvis and has the following effects on uterine musculature, reducing pain intensity [7, 21]. Conversely, the participants' subjective efficacy of physical exercise in the exercise study correlates with reported benefits of endorphin release. Nevertheless, although respondents showed high awareness of healthy lifestyle-based management strategies, the extent to which these approaches were systematically implemented or evidence-based was not fully analysed. The implication here is significant, whether students simply see these interventions as beneficial or are actively utilising them properly and effectively. The high consensus about stress management and relaxation methods also reflects the multidimensional characteristic of dysmenorrhea. These results confirm previous findings confirming psychosocial factors as related to menstrual pain other than physiological. Indeed, research has shown a link between stress and greater sensitivity to pain, dysregulation of hormones, and increased symptoms of menstruation [23, 24].

Therefore, a student who is under academic pressure and clinical demand may regard stress reduction as an essential aspect of dysmenorrhea treatment. This is a key insight in nursing education, because students are often faced with high academic and clinical demands that can aggravate psychological distress and pain perception. Indeed, despite the common reliance on non-pharmacological interventions, most respondents reported high levels of pharmacological management.

Participants mostly agreed that analgesics, such as ibuprofen and paracetamol, proved effective in relieving menstrual pain, which supported established literature that has found NSAIDs to be the first-line treatment for primary dysmenorrhea. NSAIDs diminish the synthesis of prostaglandins, which are believed to reduce uterine contractions and the occurrence of ischemic pain. Analgesics are the most widely used treatment in university students worldwide because they relieve symptoms quickly and are available over the counter. Yet, the heavy reliance on analgesics also raises concerns regarding unsupervised practices and the possibility of inappropriate drug misuse for students. Although they are expected to know the basics of pharmacology, nursing students' professional background might paradoxically increase their inclination to self-medicate [21]. From the average person's perspective, this phenomenon is due to background knowledge of medications. Our findings also showed that nearly half of all respondents preferred self-medicating rather than consulting a medical professional about menstrual pain. This is consistent with the experience of much of Africa. Self-medication habits of future healthcare professionals are particularly worrisome because the continuation of self-medication practices may lead to delayed diagnosis of secondary dysmenorrhea and other underlying gynaecological disorders.

It appears from the literature that numerous young women do not get the help they need for discomfort during menstruation; they learn that dysmenorrhea is an anticipated condition during menstruation. As a result, conditions like endometriosis and pelvic inflammatory disease might go undiagnosed for a long period [7, 24, 6, 26]. The present study's findings, therefore, imply that health literacy alone may not be associated with healthcare-seeking behaviour, particularly in sociocultural contexts where menstrual pain is normalised. The survey revealed that respondents had significantly varied opinions about the usefulness of hormonal contraception for the treatment of dysmenorrhea. Many of them thought they were good, while others disagreed or remained uncertain about these outcomes. This result is inconsistent with strong clinical data that has shown that hormonal contraceptives can alleviate menstrual pain through suppression of ovulation and endometrial proliferation [27]. The low acceptance of hormonal therapy suggested by respondents in the study may stem from misunderstanding, fearful behaviour, fear of side effects, cultural/religious factors, lack of adequate counselling, or limited knowledge on the clinical need for hormonal contraceptive use other than prevention of pregnancy. This finding mirrors socio-cultural and reproductive health challenges in many African societies, as the use of contraceptives has continued to be stigmatised among unmarried young women [28].

The implication is that nursing curricula might not adequately cater to the practical management of menstrual health, contraceptive counselling, and evidence-based reproductive healthcare decision-making. A second significant finding was that the attitude towards healthcare consultation with severe menstrual pain was relatively positive. Most respondents stated that seeking professional healthcare after worsening symptoms indicated some understanding of the constraints of self-management. This finding is an alternative to many previous studies conducted in Nigeria, where underwhelming healthcare utilisation was reported by an array of female undergraduates with dysmenorrhea [23, 28]. This difference might be due to the healthcare exposure and clinical focus of nursing students, which may enhance their recognition of severe symptoms requiring medical attention. The parallel relationship between positive healthcare-seeking attitudes and self-medication shows an important mismatch between understanding and practice. Again, the statistically significant relationship between non-pharmacological management approaches and perceived dysmenorrhea relief highlights the need for integrated menstrual health interventions. Among those who took part, exercise, dietary adjustment, hydration, relaxation, and heat therapy were associated with better symptom management outcomes, as reported by participants. Results are consistent with growing evidence in favour of a multimodal approach to the management of dysmenorrhea [30]. It further substantiates the Gate Control Theory of Pain, which we built on and which argues that our perception of pain is shaped by the interaction

between pain signals and psychological processes [26]. Therefore, poor menstrual health management practices among nursing students could have wider implications for future patient education and the delivery of reproductive healthcare services. Universities and nursing faculties should focus on menstrual health promotion efforts, improve reproductive health education in nursing curricula, and create accessible student health services that provide evidence-based counselling and management for dysmenorrhea and reproductive health comorbidities.

Implications

The high prevalence of dysmenorrhea and increased use of self-medication among nursing students emphasize the need for more menstrual health assistance in universities. Although students have a healthy background, they often independently manage symptoms, highlighting possible issues with unsupervised analgesia and delayed diagnoses, including endometriosis. Universities and health services should implement menstrual health education and access to confidential and accessible reproductive health services within students' health programs. For nursing education, the results indicate support for integrating evidence-based menstrual health into curricula. This would be a way of enhancing students' personal health routines and preparing them to advise patients on menstrual health when they reach adulthood. The high frequency of non-pharmacological approaches implies openness to multimodal treatment clinically. Providers need to give advice on how to treat the patient safely and wisely, and a timely assessment for continued pain. At the policy level, institutions should establish organized menstrual health services such as counseling, health education, and campus-based reproductive services.

Strengths and Limitations

This study has several notable strengths. First, it addresses a critical gap by providing institution-specific evidence on dysmenorrhea management among Nigerian nursing students, a population uniquely positioned as future health educators yet understudied. Second, the use of stratified random sampling, with a 90.8% response rate across all educational levels, increased generalizability in the study context and reduced selection bias. Third, the study thoroughly assessed both pharmacological and non-pharmacological management practices, reflecting real-world multimodal coping strategies rather than a single approach. Fourthly, the instrument showed good internal consistency, with Cronbach's alpha ranging from 0.70 to 0.82, indicating the reliability of the measured constructs. Fifthly, adding healthcare-seeking behaviour into the self-medication practice yields policy-relevant results for Nigerian student health services institutions. Among these strengths, there are still some important points to address. The cross-sectional design precludes causal inferences about the correlation between its dependent variables and dysmenorrhea management. The use of self-reported data may introduce recall and social desirability bias. Because the study sample consisted of a single private university, the findings may not transfer to public institutions or other areas. The severity of the pain was not measured using standardised tools, and detailed information on the dosage, frequency, and appropriateness of each medicine was not collected. Finally, psychosocial and lifestyle variables that are known to affect menstrual pain were not subjected to rigorous evaluation.

Conclusion

Dysmenorrhea is common among female nursing students in Atiba University, hindering academic and daily life performance. While students utilize both pharmacological and non-pharmacological methods, non-pharmacological approaches are widely considered effective. Self-medication persists despite positive attitudes toward professional consultation, and misconceptions about hormonal therapies remain. Management practices, rather than academic level, were associated with perceived symptom relief. This supports an integrative approach to the management of dysmenorrhea. We need to strengthen menstrual health education, make reproductive health care available to more people, and promote a culture that accepts the use of evidence for both treatments and outcomes. Equipping nursing students with practical knowledge of positive healthcare-seeking behaviors will increase their personal health and will help them prepare for their subsequent involvement in women's health advocacy.

Authorship Contribution Statement

All authors contributed substantially to the conception and design of the study. The first author was responsible for study conceptualization, data collection, data analysis, interpretation of findings, and preparation of the initial manuscript draft. Co-authors contributed to methodological supervision, critical intellectual revision of the manuscript, interpretation of results, and overall academic guidance. All authors reviewed and approved the final version of the manuscript and agreed to be accountable for all aspects of the work.

List of Abbreviations

- ACOG - American College of Obstetricians and Gynecologists
- BMI - Body Mass Index

- NSAIDs - Nonsteroidal Anti-inflammatory Drugs
- SPSS - Statistical Package for Social Sciences
- UI/UCH EC - University of Ibadan/University College Hospital Ethics Committee
- WHO - World Health Organisation
- SD - Standard Deviation
- df - Degrees of Freedom
- χ^2 - Chi-square

Funding Declaration: No external funding was received for this study.

Conflict of Interest / Competing Interests Statement: The authors declare that there are no financial or non-financial competing interests associated with this study.

Ethics Approval Statement: Ethical approval for this study was obtained from the University of Ibadan/University College Hospital Ethics Committee with approval number UI/EC/25/0966 prior to commencement of the study. All procedures involving human participants were conducted in accordance with the ethical standards of the institutional research committee and the principles of the Declaration of Helsinki for research involving human subjects. Participation in the study was entirely voluntary, and respondents were informed of their right to decline participation or withdraw from the study at any stage without penalty. Confidentiality and anonymity of participants were strictly maintained throughout the study. No personal identifiers were collected on the questionnaire, and all information obtained from participants was treated with strict confidentiality and used solely for research purposes.

Informed Consent Statement: Written informed consent was obtained from all participants before inclusion in the study. Participants were adequately informed about the objectives, procedures, benefits, potential risks, confidentiality measures, and voluntary nature of participation before data collection.

Data Availability Statement: The datasets generated and/or analyzed during the current study are available from the corresponding author upon reasonable request.

Acknowledgements: The authors sincerely appreciate the management and staff of Atiba University, particularly the Department of Nursing Science, for granting institutional approval and support for the conduct of this study. The authors also acknowledge all female nursing students who voluntarily participated in the research and contributed valuable information toward the successful completion of the study.

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