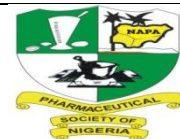


ORIGINAL PAPER

<https://dx.doi.org/10.4314/njpr.v21i2.14>



Nig. J. Pharm. Res. 2025, 21 (2) pp 184-196

ISSN 0189-8434

e-ISSN 2635-3555

Available online at

<http://www.nigjpharmres.com>

Prevalence, Pattern, and Socioeconomic Consequences of Menstrual Disorders Among Women of Reproductive Age in Ibadan, Nigeria

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A – research concept and design; B – collection and/or assembly of data; C – data analysis and interpretation; D – writing the article; E – critical revision of the article; F – final approval of the article.

Abstract

Background: Menstrual disorders, including dysmenorrhoea, amenorrhoea, abnormal vaginal bleeding, premenstrual syndrome (PMS), and menorrhagia, are major causes of gynaecological consultations and negatively affect women's health and productivity. Despite their significance, evidence from low- and middle-income countries remains limited.

Objectives: This study assessed the prevalence, pattern, and socioeconomic consequences of menstrual disorders among women of reproductive age in Ibadan, Nigeria.

Methods: A cross-sectional survey of 560 women attending three hospitals in Ibadan was conducted using a structured questionnaire. Descriptive statistics was used to summarise the findings. Associations were tested with Pearson's chi-square and, logistic regression identified sociodemographic predictors and impacts of menstrual disorders. Statistical significance was set at $p \leq 0.05$.

Results: A total of 89.0% of respondents reported at least one menstrual disorder. PMS was most prevalent (69.5%), followed by dysmenorrhoea (59.5%) and menorrhagia (13.6%). Although 84.5% reported regular cycles and 69.8% had 3–5 days of flow, pain from menstrual disorders disrupted daily activities in 61.4% and caused work absenteeism in 44.6%. Only 8.4% had ever been hospitalised, while 65.2% expressed reluctance towards menstruation. Being unmarried was significantly associated with lower odds of dysmenorrhoea compared to married women [AOR=0.68, 95% CI: 0.48–0.99]. Dysmenorrhoea was associated with lower odds of concentration disruption [AOR=0.52, 95% CI: 0.34–0.81] and approximately doubled the odds of work disability [AOR=2.04, 95% CI: 1.32–3.23]. Menorrhagia was significantly associated with increased odds of social isolation [AOR=2.50, 95% CI: 1.39–4.55].

Conclusion: Menstrual disorders are highly prevalent among women in Ibadan and substantially affect daily functioning, work productivity, and perceptions of menstruation. Targeted interventions are required to improve menstrual health and mitigate socioeconomic consequences.

Keywords: Menstrual disorders, Dysmenorrhoea, Premenstrual syndrome, Menorrhagia, Quality of life

Introduction

Menstrual disorders are emotional or physical conditions that interfere with the normal menstrual cycle, leading to discomfort, unusually light or heavy bleeding, or missed periods. They are among the most prevalent gynaecological problems worldwide, with a global prevalence estimated between 30–70%, and represent one of the most common reasons women of reproductive age seek medical care (Igbokwe and John-Akinola, 2021). The major types include amenorrhoea, menorrhagia, dysmenorrhoea, premenstrual syndrome (PMS), oligomenorrhoea, polymenorrhoea, hypomenorrhoea, and abnormal uterine bleeding (Igbokwe and John-Akinola, 2021). Dysmenorrhoea is characterised by uterine cramping during menstruation and is classified as primary, when no underlying disease is identified, or secondary, when associated with pelvic pathology (Burnett and Lemyre, 2017). PMS encompasses a cluster of physical and psychological symptoms occurring in the luteal phase, including breast tenderness, irritability, and mood disturbances, resolving with the onset of menstruation (Yesildere and Orsal, 2020). Menorrhagia refers to abnormally heavy or prolonged bleeding, while amenorrhoea denotes the absence of menstruation, either primary or secondary in origin (Munro et al., 2018; Gordon et al., 2017).

The consequences of menstrual disorders extend well beyond physical discomfort and have significant implications for women's daily functioning, academic performance, occupational productivity, and quality of life. Dysmenorrhoea and PMS, in particular, are consistently associated with school and work absenteeism, reduced concentration, and limitations in physical activity (Chia et al., 2013; Kho and Shields, 2020). Studies have reported that menstrual pain disrupts daily activities in over half of affected women, and that work disability related to menstrual disorders imposes a substantial economic burden on individuals and healthcare systems (Abreu-Sánchez et al., 2020). Beyond productivity, menstrual disorders are associated with social withdrawal and negative

attitudes towards menstruation, further affecting women's psychological wellbeing (Andualem et al., 2024). Despite this burden, affected individuals rarely seek medical care, often normalising symptoms or resorting to self-medication, a pattern driven by sociocultural taboos, perceived stigma, and limited awareness of available interventions (Igbokwe and John-Akinola, 2021).

Several factors influence the occurrence and severity of menstrual disorders, including age, family history, ethnicity, stress, weight changes, poor nutrition, substance use, and lifestyle practices such as smoking, alcohol intake, and physical activity (Zhou et al., 2010). Stress, in particular, has been consistently linked to menstrual irregularities including dysmenorrhoea, menorrhagia, and PMS (Zhou et al., 2010).

Menstrual abnormalities significantly impact women's daily functioning, including reduced concentration, impaired academic performance, and limitations in physical activity (Chia et al., 2013). Despite causing activity restrictions and absenteeism, affected individuals rarely seek medical care, often resorting to potentially harmful self-medication practices instead. These disorders frequently emerge at menarche and persist throughout adolescence, with symptoms often intensified by concurrent academic, relational, and life stressors. Although menstrual disorders are highly prevalent, patterns of information-seeking and support utilisation among affected individuals remain poorly understood (Chia et al., 2013). Many women perceive menstrual problems as normal variations that can be managed without professional intervention, with only a minority seeking medical attention when symptoms become intolerable (Igbokwe and John-Akinola, 2021). This lack of medical engagement reflects multiple barriers, including the perception of menstruation as a private matter and persistent cultural taboos surrounding public discussion of menstrual health issues.

Despite the high prevalence and significant impact of menstrual disorders globally, research

in low- and middle-income countries remains limited. Existing Nigerian studies have documented menstrual disorders among specific subgroups such as undergraduate students (Bello et al., 2017; Ezebialu et al., 2021; Ayamolowo et al., 2024), yet population-level data on women of reproductive age across different socioeconomic groups remain scarce. Furthermore, the socioeconomic consequences of menstrual disorders, including their impact on work productivity and quality of life, have received limited attention in the Nigerian context. In Nigeria, where sociocultural factors may influence health-seeking behaviours, there is a need to better understand the prevalence, patterns, and socioeconomic consequences of menstrual disorders among women of reproductive age. This study addresses this gap by providing evidence from Ibadan, a major urban centre in southwest Nigeria. Specifically, this study aimed to assess the prevalence, pattern, and socioeconomic consequences of menstrual disorders among women of reproductive age attending secondary hospitals in Ibadan, Nigeria.

Material and Methods

Study Design and Setting

This was a hospital-based, cross-sectional survey conducted to assess the prevalence, pattern, management, and socioeconomic consequences of menstrual disorders among women of reproductive age in Ibadan, Nigeria. Ibadan, the capital of Oyo State in southwest Nigeria, is a major urban centre with federal and state government hospitals, primary health facilities, and numerous private clinics. Three secondary-level hospitals were purposively selected as study sites namely: Jericho Specialist Hospital, Ring Road Specialist State Hospital, Adeoyo Maternity Teaching Hospital.

Study Population and Data Collection

Eligible participants were women of reproductive age attending the selected hospitals during the study period. Recruitment was carried out using consecutive sampling. The researcher explained the study objectives to nurses at each site and obtained permission to approach potential participants. Women were invited to participate while waiting for consultation, and

verbal informed consent was obtained.

Inclusion criteria: All consenting women of reproductive age who were patients of any of the three selected hospitals during the study period were eligible to participate.

Exclusion criteria: Women were excluded if they declined to provide informed consent; if they were pregnant at the time of the study; if they were menopausal; or if they had been diagnosed with any hormonal disorder or related illness that could independently affect menstrual patterns.

Data were collected using a structured, self-administered questionnaire, completed once by each participant without follow-up. To prevent duplicate participation, respondents were asked to confirm prior involvement. For participants with limited English proficiency, a Yoruba translation of the questionnaire was provided, and back-translation was performed to ensure accuracy. Anonymity and confidentiality were assured throughout the process.

Sample Size Determination

Monthly patient volumes were obtained from the records departments of the three hospitals. Based on the average attendance in the three months preceding the study, Jericho Specialist Hospital (400), Ring Road Specialist State Hospital (300), and Adeoyo Maternity Teaching Hospital (200), totalling 900. The sample size for each hospital was calculated separately using the Yamane (1967) formula: $n = N / (1 + Ne^2)$, where N is the total population (estimated monthly patient attendance), e is the margin of error (0.05), and n is the minimum required sample size. For Jericho Specialist Hospital: $n = 400 / (1 + 400 \times 0.05^2) = 400 / 2 = 200$. For Ring Road Specialist State Hospital: $n = 300 / (1 + 300 \times 0.05^2) = 300 / 1.75 \approx 171$. For Adeoyo Maternity Teaching Hospital: $n = 200 / (1 + 200 \times 0.05^2) = 200 / 1.5 \approx 133$. To adjust for a 10% attrition rate using the formula $n / (1 - \text{attrition rate})$, the adjusted figures were: $200 / 0.90 \approx 222$ (Jericho), $171 / 0.90 \approx 190$ (Ring Road), and $133 / 0.90 \approx 148$ (Adeoyo Maternity), yielding a total final sample size of 560.

Data Collection Instrument

The questionnaire was adapted from a previous study on menstrual disorders and health-seeking behaviours among undergraduates (Igbokwe and

John-Akinola, 2021). The final instrument contained five sections: Section A: Socio-demographic characteristics (age, religion, marital status, education, employment, menarche, and economic status). Section B: Medical history (general health, sexual activity, pregnancies, menstrual cycle type, flow pattern and duration, and history of menstrual disorders). Section C: Menstrual disorder characteristics (type and severity of pain, associated symptoms, history of hospital admissions). Section D: Socioeconomic consequences (effect on daily activities, concentration, work/school attendance, social isolation, and attitudes towards menstruation). Section E: Management strategies (self-medication, healthcare consultation, and coping practices).

Pre-test and Validation

Two clinical pharmacists reviewed the questionnaire for clarity and content validity. A pre-test was conducted among eight women of reproductive age not included in the main study. Feedback from both reviewers and participants was used to refine the instrument. Data from the pre-test were excluded from the main analysis. The reliability of the instrument was assessed using Cronbach's alpha coefficient, which measures internal consistency across items within each section. A Cronbach's alpha value of 0.70 or above was considered acceptable, consistent with established thresholds for health-related research instruments. Items that reduced the overall alpha were reviewed and revised prior to administration of the final questionnaire.

Statistical Analysis

Completed questionnaires were checked for completeness, coded, and assigned serial numbers. Data were entered and cleaned in SPSS version 26. Descriptive statistics (frequency distributions and percentages) were used to summarise findings. Pearson's chi-square test was employed to assess associations between categorical variables, with statistical significance set at $p < 0.05$. Binary logistic regression was performed to identify sociodemographic factors associated with different menstrual disorders (Table 5) and to examine menstrual disorders as predictors of socioeconomic consequences (Table 6). Each predictor variable was examined

separately against each binary outcome in a univariable approach. For Table 5, the reference category for each predictor was its complementary binary group (e.g., married women as the reference for marital status; lower socioeconomic class as the reference for economic class). For Table 6, the reference category for each menstrual disorder predictor was the absence of that disorder. Bold values in both tables indicate statistical significance at $p < 0.05$. Key variables were operationalised as follows: socioeconomic class was assessed using participants' self-reported employment status and educational level as proxy indicators; work/school absenteeism was defined as self-reported absence from work or school on at least one occasion due to menstrual pain; and social isolation was defined as self-reported avoidance of social activities during menstruation due to menstrual disorder symptoms. All menstrual disorder diagnoses were based on participant self-report.

Ethical Considerations

Ethical approval was obtained from the Oyo State Research Ethics Review Committee, Ministry of Health Secretariat, Ibadan (Approval Number: AD/13/479/603B). Participation was voluntary, and informed consent was obtained from all respondents.

Results

Socio-demographic characteristics of participants

A total of 560 women of reproductive age participated in the study. The majority of respondents (53.0%) were between 21 and 25 years, followed by 15.0% aged 15–20 years, while only 3.8% were above 45 years. Christianity was the predominant religion (63.9%), with Islam accounting for 35.2% and a small proportion (0.9%) identifying with other religions. Most participants were single (68.0%), while 29.8% were married and 2.1% were separated or divorced. In terms of education, nearly half (44.5%) had completed SSCE, 33.9% had a bachelor's degree, while 6.6%, 5.0%, and 6.1% attained OND, NCE, and HND respectively. A smaller proportion had only primary education (2.9%) or a master's degree

(1.1%). Employment status revealed that 45.5% were unemployed, 36.8% were self-employed, and 17.1% were in paid employment. The majority (81.4%) were classified as middle class, while 10.2% were lower class and 8.4% upper

class. Regarding age at menarche, more than half (55.5%) attained menarche between 13 and 15 years, 28.9% between 9 and 12 years, and 15.5% after 15 years.

Table 1. Socio-demographic characteristics of participants (n = 560)

Characteristics	Category	Frequency	Percent (%)
Age (years)	15–20	84	15.0
	21–25	297	53.0
	26–30	74	13.2
	31–35	45	8.0
	36–40	25	4.5
	41–45	14	2.5
	>45	21	3.8
Religion	Christianity	358	63.9
	Islam	197	35.2
	Others	5	0.9
Marital status	Single	381	68.0
	Married	167	29.8
	Separated/Divorced	12	2.1
Education level	Primary school	16	2.9
	SSCE	249	44.5
	OND	37	6.6
	NCE	28	5.0
	HND	34	6.1
	B.Sc	190	33.9
	M.Sc	6	1.1
Employment status	Employed	99	17.1
	Unemployed	255	45.5
	Self-employed	206	36.8
Economic status	Upper class	47	8.4
	Middle class	456	81.4
	Lower class	57	10.2
Age at menarche	9–12	162	28.9
	13–15	311	55.5
	>15	87	15.5

Prevalence of menstrual disorders

The prevalence of menstrual disorders among participants is presented in Table 2. Overall, 89.0% of respondents

reported experiencing at least one menstrual disorder. Premenstrual symptoms (PMS) were the most common, affecting 69.5% of the women. Dysmenorrhoea was the second most

frequently reported disorder, with a prevalence of 59.5%. Menorrhagia was reported by 13.6% of participants, while amenorrhoea and abnormal vaginal

bleeding were less common, with prevalence rates of 5.5% and 4.8%, respectively.

Table 2. Prevalence of menstrual disorders among women of reproductive age (n = 560)

Menstrual disorder	Yes	No	Prevalence (%)
Amenorrhoea	31	529	5.5
Dysmenorrhoea	333	227	59.5
Abnormal vaginal bleeding	27	533	4.8
Premenstrual symptoms (PMS)	389	171	69.5
Menorrhagia	76	484	13.6

Pattern of menstrual disorders

The pattern of menstrual disorders is shown in Table 3. The majority of respondents (84.5%) reported having regular menstrual cycles, while 15.5% experienced irregular cycles. In terms of flow, most women (70.4%) described their menstrual flow as moderate, 15.7% as heavy, and 13.9% as light. The duration of menstrual bleeding was most

frequently 3–5 days (68.8%), followed by 5–7 days (29.5%), while only 0.7% reported bleeding lasting more than 7 days. Regarding pain intensity, which was reported by multiple respondents, 43.0% experienced moderate pain, 30.5% reported mild pain, and 26.4% experienced severe menstrual pain.

Table 3. Pattern of menstrual disorders among women of reproductive age (n = 560)

Pattern	Category	Frequency	Percent (%)
Type of cycle	Regular	473	84.5
	Irregular	87	15.5
Nature of flow	Light	78	13.9
	Moderate	394	70.4
	Heavy	88	15.7
Duration of flow	3–5 days	391	69.8
	5–7 days	165	29.5
	>7 days	4	0.7
Pain intensity*	Mild	171	30.5
	Moderate	241	43.0

Pattern	Category	Frequency	Percent (%)
	Severe	148	26.4

Socioeconomic consequences of menstrual disorders

The socioeconomic consequences of menstrual disorders on the participants' quality of life is presented in Table 4. More than half of the respondents (61.4%) reported that pain from menstrual disorders interfered with their daily activities. Concentration was also affected, with 60.9% of women reporting reduced concentration during

menstruation, while 34.8% reported no change and 4.3% reported improved concentration. Nearly half of the women (44.6%) reported being absent from work or school due to menstrual pain. Social isolation during menstruation was experienced by 19.5% of participants, whereas the majority (80.5%) did not report isolation. In terms of attitudes toward menstruation, most respondents (65.2%) expressed reluctance or negative feelings towards menstruation, while only 34.8% reported a positive attitude.

Table 4. Socioeconomic consequences of menstrual disorders on quality of life (n = 560)

Impact	Category	Frequency	Percent (%)
Effect of pain on daily activities	Yes	344	61.4
	No	216	38.6
Concentration during menstruation	Same as before	195	34.8
	Increased	24	4.3
	Decreased	341	60.9
Work/school absenteeism	Yes	250	44.6
	No	310	55.4
Social isolation	Yes	109	19.5
	No	451	80.5
Positive attitude towards menstruation	Yes	195	34.8
	No	365	65.2

Sociodemographic predictors of menstrual disorders

The results of binary logistic regression examining sociodemographic factors as predictors of menstrual disorders is presented in Table 5. Marital status was significantly associated with dysmenorrhea, with unmarried women

having 32% lower odds compared to married women (OR=0.68, 95% CI: 0.48-0.99, p=0.04). Age of menarche was also a significant predictor of dysmenorrhea, as women with late menarche (>15 years) had 39% higher odds compared to those with early menarche (OR=1.39, 95% CI: 1.05-1.84, p=0.02). Economic status showed a

marginally significant association with amenorrhea, with higher socioeconomic class associated with 2.26 times higher odds (OR=2.26, 95% CI: 0.99-5.18, p=0.05). Educational level was not significantly associated with any of the

menstrual disorders examined. The Hosmer-Lemeshow test indicated adequate model fit for all disorders except premenstrual symptoms (p=0.01), suggesting additional unmeasured variables may influence this condition.

Table 5. Sociodemographic predictors of menstrual disorders

Variables	Amenorrhea OR (95% CI)	Dysmenorrhea OR (95% CI)	Abnormal Vaginal Bleeding OR (95% CI)	Premenstrual Symptoms OR (95% CI)	Menorrhagia OR (95% CI)
Marital Status	1.37 (0.61-3.06)	0.68 (0.48-0.99)	1.06 (0.45-2.48)	1.17 (0.81-1.69)	1.17 (0.68–2.02)
Level of Education	1.01 (0.83-1.23)	0.97 (0.88-1.06)	0.88 (0.72-1.08)	0.98 (0.89-1.08)	1.06 (0.93–1.20)
Age of Menarche	0.70 (0.39-1.26)	1.39 (1.05-1.84)	1.21 (0.64-2.31)	1.13 (0.84-1.52)	1.31 (0.87–1.98)
Economic Class	2.26 (0.99-5.18)	1.06 (0.71-1.58)	1.60 (0.65-3.96)	1.19 (0.78-1.82)	1.09 (0.61–1.94)

OR = Odds Ratio; CI = Confidence Interval. Bold values indicate statistical significance (p<0.05). Models used univariable binary logistic regression; each sociodemographic variable was examined separately against each menstrual disorder outcome. Reference categories: marital status (married), level of education (primary), age of menarche (9–12 years), economic class (lower class).

Menstrual Disorders as Predictors of Socioeconomic Consequences.

The associations between menstrual disorders and their socioeconomic consequences are presented in Table 6. Dysmenorrhoea was significantly associated with lower odds of concentration changes during menstruation (OR=0.52, 95% CI: 0.34–0.81, p<0.001), suggesting that women with dysmenorrhoea may develop coping strategies or pain normalisation that reduce perceived concentration difficulties relative to unaffected women. Dysmenorrhoea was also associated with approximately twice the odds of work

disability (OR=2.04, 95% CI: 1.32–3.23, p<0.001), consistent with its debilitating nature. Abnormal vaginal bleeding was associated with over three times the odds of work disability (OR=3.23, 95% CI: 1.10–9.09, p=0.03). Menorrhagia was significantly associated with increased odds of social isolation (OR=2.50, 95% CI: 1.39–4.55, p<0.001). No significant associations were observed between any menstrual disorder and effect of pain on daily activities or eagerness regarding menstruation. Premenstrual symptoms were not significantly associated with any of the impact domains examined. The Hosmer-Lemeshow tests indicated good model fit for all analyses (p>0.05).

Table 6. Menstrual Disorders as Predictors of Socioeconomic Consequences.

Socioeconomic Consequences variable	Dysmenorrhea OR (95% CI)	Abnormal Vaginal Bleeding OR (95% CI)	Premenstrual Symptoms OR (95% CI)	Menorrhagia OR (95% CI)
Effect of Pain on Daily Activities	1.06 (0.66–1.69)	0.46 (0.15–1.45)	1.30 (0.80–2.13)	1.37 (0.63–2.94)
Concentration during Menstruation	0.52 (0.34–0.81)	0.42 (0.13–1.33)	0.70 (0.44–1.11)	0.72 (0.36–1.47)
Disability from going to work	2.04 (1.32–3.23)	3.23 (1.10–9.09)	0.93 (0.59–1.49)	1.69 (0.88–3.23)
Isolated due to Menstrual Disorder	1.45 (0.84–2.44)	1.45 (0.58–3.70)	1.54 (0.88–2.70)	2.50 (1.39–4.55)
Eagerness getting Period (barring Pregnancy)	0.98 (0.67–1.43)	1.85 (0.82–4.17)	1.06 (0.72–1.56)	1.05 (0.62–1.82)

OR = Odds Ratio; CI = Confidence Interval. Bold values indicate statistical significance ($p < 0.05$). Models used univariable binary logistic regression; each menstrual disorder was examined separately against each socioeconomic outcome. Reference category for all predictors: absence of the respective menstrual disorder.

Discussion

The present study examined the prevalence of menstrual disorders and found that the majority of participants experienced at least one type of disorder. Among the five disorders assessed, premenstrual symptoms were the most common, consistent with a previous meta-analysis in Africa that reported a pooled prevalence of PMS of 57.3% (Andualem et al., 2024). Dysmenorrhoea was the next most prevalent, followed by menorrhagia. This finding aligns with the study by Ju et al. (Ju et al., 2014), which highlighted that dysmenorrhoea is one of the most common gynaecological complaints across age and ethnic groups and a major cause of pelvic pain. Similarly, Chia et al. 2013 reported that menstrual disorders frequently affect concentration, academic performance, and normal physical activity, which was also observed in this study population. Our findings are also consistent with previous evidence that menstrual disorders are associated with absenteeism and limitations in daily activities (Kim et al. 2011). However, only a minority of

affected women seek medical attention, with most resorting to self-medication. This aligns with reports from other studies, which emphasise that menstrual problems are often normalised and not regarded as medical conditions requiring professional care (Igbokwe and John-Akinola, 2021). In our study, fewer than one in ten women reported hospitalisation due to menstrual disorders, which may be explained by the reliance on home-based remedies and informal management approaches to alleviate symptoms.

Although Chia et al (Chia et al., 2013) previously reported an association between menstrual disorders and irregular cycles, most women in this study had regular cycles, yet still experienced disorders. This suggests that a regular cycle does not preclude menstrual morbidity. Pain due to menstrual disorders significantly affected daily activities, and nearly half of participants reported being unable to attend work or school because of pain.

A striking finding was the generally negative attitude towards menstruation, with most women expressing reluctance or lack of eagerness to menstruate except when pregnancy was a concern. This reflects broader sociocultural perceptions and entrenched norms shaping how menstruation is viewed. Severe pain, heavy bleeding, or irregular cycles may contribute to stress, anxiety, and discomfort, which in turn foster negative attitudes. Fear of embarrassment due to leaks or discomfort may further discourage social participation, reinforcing perceptions of menstruation as a burden rather than a natural process. The finding that unmarried women had lower odds of dysmenorrhoea compared to married women (OR=0.68) resonates with a widely held sociocultural belief in Nigeria that menstrual pain reduces or resolves following marriage and childbirth. This belief has a partial biological basis: pregnancy and vaginal delivery are associated with changes in uterine innervation and reduced prostaglandin sensitivity, which can genuinely alleviate primary dysmenorrhoea in some women. However, the association observed here more likely reflects differences in parity, hormonal profiles, and health-seeking patterns between married and unmarried women rather than marriage per se. It is important that this finding not be misconstrued as validating the idea that marriage is a remedy for dysmenorrhoea, as this perception may discourage unmarried women from seeking appropriate treatment while they remain symptomatic. Women with late menarche also had higher odds of dysmenorrhoea, suggesting that developmental timing influences hormonal regulation and menstrual pain susceptibility. These associations may be further mediated by stress and lifestyle factors linked to marital status and menarcheal age, and further research is needed to clarify these mechanisms.

Dysmenorrhoea was significantly associated with lower odds of concentration disruption (OR=0.52, 95% CI: 0.34–0.81), which may reflect the development of coping mechanisms and pain normalisation behaviours among women who chronically experience menstrual pain, rather than a true absence of impact on cognition. Notably, dysmenorrhoea was associated with approximately twice the odds of work disability (OR=2.04, 95% CI: 1.32–3.23), and this is consistent with finding from an earlier study (Abreu-Sánchez et al., 2020). This highlights its debilitating nature, with consequences not only for women's health but also for their productivity and socioeconomic wellbeing. Chronic pain can also contribute to psychological distress, anxiety, and depression, further worsening attitudes toward menstruation. Similarly, menorrhagia was significantly associated with increased odds of social isolation (OR=2.50, 95% CI: 1.39–4.55). Heavy bleeding often results in embarrassment, frequent product changes, and social withdrawal. Such experiences may reinforce stigma and negative perceptions, further marginalising affected women.

The implications of these findings are substantial. Healthcare providers should be proactive in assessing and managing menstrual disorders, given their wide-ranging impacts on women's daily functioning, quality of life, and productivity. Tailored treatment approaches, combining pharmacological and non-pharmacological strategies, are needed to address individual symptoms and reduce the socioeconomic burden of menstrual disorders.

This study has several strengths. First, it represents one of the few hospital-based investigations in Nigeria assessing the prevalence, pattern, and socioeconomic consequences of menstrual disorders among women of reproductive age. By including participants from three major

secondary hospitals in Ibadan, the study was able to capture experiences across different socioeconomic groups, thereby improving generalisability within an urban Nigerian context. The relatively large sample size of 560 women also enhanced the statistical power of the analysis. In addition, the questionnaire was carefully developed, translated into Yoruba, and back-translated to ensure cultural appropriateness and comprehension, while pretesting and expert review strengthened its validity. The study also applied robust statistical methods, including logistic regression, to identify predictors of menstrual disorders and their impact, allowing for more nuanced insights beyond simple prevalence estimates.

Nonetheless, certain limitations must be acknowledged. The hospital-based design may limit generalisability to women who do not routinely access healthcare facilities, particularly those in rural areas or from lower socioeconomic groups, who may have different experiences with menstrual disorders. Data collection relied on self-report, which is subject to recall bias and social desirability bias, especially on sensitive issues such as reproductive health and attitudes towards menstruation. The cross-sectional design precludes establishing causal relationships between sociodemographic factors and menstrual disorders. Furthermore, the study did not assess the severity of specific symptoms in detail using validated clinical scales, which could have provided a more standardised measure of burden. Finally,

the reliance on consecutive sampling may have introduced selection bias, as women who sought care during the study period may differ systematically from those who did not.

Despite these limitations, the study provides valuable evidence on the burden of menstrual disorders in Nigeria and highlights the need for integrated healthcare and policy interventions to address their health and socioeconomic consequences.

Conclusion

This study demonstrates that menstrual disorders are highly prevalent among women of reproductive age in Ibadan and are associated with pain, work absenteeism, and negative attitudes towards menstruation. These conditions significantly disrupt daily activities and contribute to socioeconomic loss. Factors such as age, marital status, and economic class influence both the occurrence and impact of menstrual disorders, while specific disorders, such as dysmenorrhoea and menorrhagia, are linked to distinct consequences including absenteeism and social isolation. Given their wide-ranging effects on health and productivity, menstrual disorders require greater clinical and public health attention. Vigilant assessment, early intervention, and tailored management strategies—both pharmacological and non-pharmacological—are essential to improve quality of life and reduce the socioeconomic burden among affected women.

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Conflict of Interest: None declared

Received: December 05, 2025

Accepted: April 11, 2026