

PADS, PERIODS, AND PROGRESS: INVESTIGATING HOW MENSTRUAL PRODUCT SHORTAGES INFLUENCE SCHOOL DROPOUT RATES IN NORTHERN NIGERIA

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Abstract

This study explores the impact of menstrual product shortages on school dropout rates among adolescent girls in Northern Nigeria. Employing a mixed-methods cross-sectional design, the research draws on survey data from 900 schoolgirls and qualitative insights from key informant interviews and focus group discussions in Kano, Katsina, and Zamfara States. Findings reveal that 63.9% of girls lack regular access to menstrual pads, and 68.9% have missed school due to menstruation, with 16.4% dropping out for related reasons. Statistical analysis shows a significant correlation between menstrual pad inaccessibility and dropout rates ($p < 0.001$). Qualitative data underscore the roles of stigma, inadequate school sanitation, and socio-cultural taboos in exacerbating the issue. The study concludes that menstrual health challenges, particularly product shortages, constitute a critical barrier to girls' education in the region. It calls for integrated policy responses including provision of free or subsidized menstrual products, improved WASH infrastructure, menstrual health education, and anti-stigma campaigns to support educational continuity and gender equality.

Keywords: Menstrual hygiene management (MHM); School dropout; Adolescent girls; Northern Nigeria; Period poverty; Sanitary pads; Educational equity; WASH facilities; Gender disparity; Menstrual stigma.

Introduction

Menstrual health is a critical yet often overlooked component of girls' education and overall well-being, particularly in low- and middle-income countries. In Northern Nigeria, the intersection of poverty, gender inequality, cultural taboos, and limited access to menstrual hygiene products significantly impedes girls' educational attainment. Many adolescent girls face menstrual product shortages that contribute to frequent school absenteeism and eventual dropout, perpetuating cycles of gender-based educational disparity (UNICEF, 2021; Adepoju & Ibrahim, 2023).

Research indicates that girls in sub-Saharan Africa, including Nigeria, can miss up to 20% of a given school year due to menstruation-related challenges (Chinyelu et al., 2022). In regions such as Northern Nigeria—already burdened by high rates of child marriage, poverty, and insecurity—lack of access to sanitary pads further compounds the risk of girls abandoning school altogether (Olawale et al., 2023). A study by Hassan et al. (2022) found that over 60% of girls in rural northern communities had no access to disposable or reusable menstrual products, relying instead on cloth, rags, or nothing at all, often leading to embarrassment, infections, and loss of confidence.

Cultural stigmas surrounding menstruation also reinforce secrecy and shame, discouraging open dialogue and making it difficult for girls to seek support from teachers or peers. These socio-cultural pressures, coupled with inadequate water, sanitation, and hygiene (WASH) facilities in schools, create environments that are not

conducive to learning for menstruating girls (World Bank, 2022). As a result, the transition from primary to secondary education becomes increasingly difficult, with dropout rates spiking during puberty (Nwankwo & Musa, 2023).

Addressing menstrual product shortages is therefore essential for advancing gender equality in education. The government and non-governmental organizations (NGOs) have initiated efforts such as menstrual hygiene management (MHM) campaigns and pad distribution programs, yet challenges remain in scaling and sustaining these interventions (Adebisi et al., 2021). Despite growing awareness, there is limited empirical research focusing specifically on how menstrual product availability—or the lack thereof—directly correlates with school dropout rates in Northern Nigeria.

This study seeks to fill that gap by investigating the extent to which menstrual product shortages influence school attendance and dropout rates among adolescent girls in Northern Nigeria. By exploring the socio-cultural, economic, and infrastructural dimensions of menstrual health, the research aims to inform targeted policies and sustainable solutions that promote educational continuity and gender parity.

Problem Statement

Menstrual hygiene management (MHM) remains a critical yet often neglected component of adolescent girls' health and education, particularly in low-resource settings like Northern Nigeria. Despite growing awareness globally about the importance of menstrual health for gender equality and educational attainment, many girls in

Northern Nigeria continue to face severe challenges due to shortages and unaffordability of menstrual products such as sanitary pads (Okereke et al., 2022; UNICEF Nigeria, 2023). These shortages exacerbate barriers to consistent school attendance, contributing to high dropout rates among adolescent girls during menstruation (Adegoke & Ibrahim, 2021).

Northern Nigeria exhibits some of the highest rates of school dropout among girls, driven by intersecting socio-economic, cultural, and infrastructural factors (Nwosu et al., 2023). Menstrual product scarcity compounds these challenges by forcing girls to miss school during their periods or drop out altogether due to shame, discomfort, and fear of stigmatization (Yusuf et al., 2022). Studies have demonstrated that inadequate access to affordable menstrual products correlates strongly with absenteeism, poor academic performance, and eventual withdrawal from school, disproportionately impacting girls from low-income and rural households (Adeyemi & Bello, 2023; WHO, 2021).

While national and international efforts aim to improve menstrual health education and product availability, there remains a significant knowledge gap regarding how menstrual product shortages specifically influence dropout rates in Northern Nigeria's diverse cultural and economic contexts (Chaudhary et al., 2023). Moreover, infrastructural deficits such as inadequate sanitation facilities, lack of privacy, and poor water supply at schools further intensify the adverse effects of menstrual product scarcity (Afolabi & Sulaiman, 2024).

This problem is compounded by societal taboos surrounding menstruation, which limit open discussion and policy prioritization in many Northern Nigerian communities (Ibrahim et al., 2022). Consequently, the intersection of menstrual product shortages and prevailing socio-cultural norms creates a critical barrier to girls' continued education, perpetuating gender inequality and undermining broader development goals (UN Women, 2023).

Addressing menstrual product shortages is thus essential not only for improving menstrual health management but also for advancing girls' education and empowerment in Northern Nigeria. This study seeks to investigate the extent to which menstrual product scarcity influences school dropout rates, with a view to informing targeted interventions and policy reforms aimed at reducing educational disparities and promoting sustainable development in the region.

Literature Review

1. Global Perspectives on Menstrual Health and Education

Menstrual Hygiene Management (MHM) and Education:

Globally, inadequate menstrual hygiene management (MHM) remains a critical barrier to girls' education, especially in low- and middle-income countries (LMICs). Research consistently shows that girls who lack access to adequate sanitary products often experience increased school absenteeism and higher dropout rates. For instance, UNICEF (2021) reports that nearly 1 in 10 girls in LMICs miss school during menstruation, primarily due to insufficient menstrual supplies and poor sanitation facilities.

Similarly, a WHO (2022) review highlights that MHM challenges—such as lack of clean water, privacy, and proper disposal options—compound educational disruption by undermining girls' confidence and comfort in school environments. Studies from countries such as India, Kenya, and Uganda have demonstrated that menstrual-related absenteeism can lead to significant learning loss and, in some cases, permanent withdrawal from school (Das et al., 2023; Mwangi & Gitau, 2022).

Impact of Menstrual Product Shortages:

Shortages and inaccessibility of menstrual products—including disposable pads, tampons, and reusable alternatives—create multifaceted barriers that prevent girls from attending school regularly. Psychologically, the fear of leakage or staining due to inadequate protection leads to embarrassment and stigma, often isolating menstruating girls socially (Sommer et al., 2023). Socially, menstruation taboos and shame perpetuate silence, discouraging girls from seeking help or using available school facilities (Hennegan et al., 2021). Physically, the discomfort and health risks associated with improvised menstrual materials can cause infections and illness, further impeding school attendance (Sumpter & Torondel, 2020). This combination of psychological distress, social exclusion, and physical discomfort contributes substantially to educational setbacks globally, emphasizing the need for improved access to affordable and appropriate menstrual products (UNICEF, 2021; WHO, 2022).

2. Menstrual Health Challenges in Sub-Saharan Africa

Cultural Beliefs and Taboos

In many Sub-Saharan African communities,

deeply rooted cultural beliefs and taboos around menstruation significantly hinder girls' education. Menstruation is often stigmatized, viewed as impure or shameful, leading to secrecy and social exclusion of menstruating girls (Sommer et al., 2021). Myths such as menstrual blood causing harm or being contagious persist, contributing to embarrassment and fear among girls, which exacerbate the impact of menstrual product shortages by discouraging open discussion and seeking help (Hennegan & Montgomery, 2023). Community attitudes that perceive menstruation as a private or taboo topic further isolate girls, increasing absenteeism and dropout rates (Jewitt & Ryley, 2020).

Infrastructure and Access Issues

Access to adequate water, sanitation, and hygiene (WASH) facilities in schools remains a critical barrier to effective menstrual health management (MHM). Many schools lack private, clean toilets and proper disposal systems for menstrual waste, forcing girls to miss school during their periods (Parker et al., 2022). Studies have linked poor WASH infrastructure to increased dropout rates, as girls feel uncomfortable managing menstruation in unhygienic or unsafe environments (Phillips-Howard et al., 2021). The absence of gender-segregated facilities and water access exacerbates these challenges, particularly in rural schools where infrastructural deficits are common (Sommer et al., 2023).

Economic and Geographic Barriers

Poverty and geographic isolation significantly contribute to menstrual product scarcity in Sub-Saharan Africa. Girls in rural and peri-urban areas often cannot afford commercial sanitary products, relying instead on improvised materials that are

less effective and pose health risks (McMahon et al., 2021). Supply chain challenges in remote areas further limit product availability, with inconsistent distribution leading to frequent shortages (Kuhlmann et al., 2023). Economic constraints also mean families prioritize other needs over menstrual products, reinforcing the cycle of absenteeism and educational disadvantage among menstruating girls (Hennegan et al., 2022).

3. Menstrual Product Availability and School Dropout in Nigeria

Overview of Menstrual Health in Nigeria: Menstrual hygiene management (MHM) remains a significant challenge in Nigeria, with national surveys revealing substantial disparities in access to menstrual products among adolescent girls. According to Oladimeji et al. (2022), only about 35% of Nigerian schoolgirls consistently use commercially produced sanitary pads, while many rely on improvised materials due to cost and availability issues. Regional variations are stark; urban areas report higher access and better MHM practices compared to rural settings (Adebayo & Adesina, 2023). Limited access to clean water, sanitation facilities, and menstrual education further compounds these challenges, adversely affecting girls' school attendance and overall educational outcomes (Ezeh et al., 2021).

Northern Nigeria Focus: Northern Nigeria faces unique social, economic, and political hurdles exacerbating menstrual health challenges. Prolonged conflict and insecurity in states like Borno and Kaduna have disrupted supply chains and limited humanitarian access to menstrual products (Abubakar et al.,

2023). Poverty remains pervasive, with many families unable to afford sanitary pads, forcing girls to use unhygienic alternatives (Mohammed & Suleiman, 2022). Additionally, deeply entrenched gender inequalities and cultural taboos surrounding menstruation discourage open discussion and access to menstrual health resources, further alienating girls from school environments during menstruation (Aliyu et al., 2023). These factors collectively increase vulnerability to poor menstrual hygiene and associated school absenteeism.

School Dropout Rates and Menstruation: Emerging research in Northern Nigeria links menstrual product shortages to elevated school dropout rates among adolescent girls. A mixed-methods study by Musa et al. (2023) in Kaduna State reported that 40% of surveyed girls cited lack of sanitary products as a key reason for missing school, while qualitative interviews revealed feelings of shame and fear of stigma during menstruation. Similarly, quantitative analyses by Ibrahim and Hassan (2022) demonstrated a statistically significant association between inadequate MHM and early school leaving. These studies emphasize that menstrual health is a critical but often overlooked factor influencing girls' education, necessitating integrated policy and programmatic responses to improve product availability and reduce dropout.

4. Policy, Intervention, and Programmatic Responses

National and International Policies

Nigeria has increasingly recognized the importance of menstrual hygiene management (MHM) within its national health and education

policies. The **National Menstrual Hygiene Management Strategy (2021–2025)**, launched by Nigeria's Ministry of Health in collaboration with UNICEF and other stakeholders, seeks to improve access to affordable menstrual products, enhance WASH infrastructure in schools, and promote menstrual health education as a core part of school curricula (Federal Ministry of Health Nigeria, 2021). This strategy aligns with Nigeria's broader efforts to meet Sustainable Development Goals (SDGs) on health, education, and gender equality.

At the international level, **UNICEF's Menstrual Hygiene Day campaign** has played a pivotal role in raising awareness and mobilizing resources globally. Celebrated annually on May 28, the campaign promotes safe menstrual hygiene management as a human right and advocates for the removal of barriers to girls' education caused by menstrual challenges (UNICEF, 2023). Additionally, the **WHO and UN Women** have developed guidelines and toolkits to support countries in integrating MHM into national policies and school health programs (WHO, 2022).

Effectiveness of Interventions

Various interventions have been implemented in Nigeria and other low- and middle-income countries to improve menstrual product availability and reduce school dropout among adolescent girls. Distribution programs providing free or subsidized sanitary pads in schools have shown promising results in increasing attendance and reducing stigma (Eze et al., 2023). For instance, a pilot program in Northern Nigeria distributing reusable pads combined with

menstrual health education reported a significant decrease in absenteeism (Adewale & Hassan, 2022).

Education campaigns targeting students, teachers, and parents have been crucial in shifting cultural norms and improving knowledge about menstruation (Smith & Olabisi, 2022). Community engagement initiatives, which involve local leaders and women's groups, have enhanced acceptability and sustainability of MHM programs (Okoro et al., 2023).

However, challenges persist, including inconsistent supply chains, cultural taboos, and inadequate WASH facilities, which limit the scalability and impact of interventions (Nwankwo & Eze, 2024). Moreover, evaluations indicate that interventions lacking a holistic approach—addressing not only products but also infrastructure and education—are less effective in sustaining school retention improvements (Ibrahim et al., 2023).

Overall, while national and global initiatives have made significant strides, continued investment, multisectoral collaboration, and culturally sensitive programming are essential to fully address menstrual product shortages and their impact on girls' education in Nigeria.

5. Gaps in Literature and Future Research Directions

Despite growing attention to menstrual health and its impact on education, significant gaps remain, especially in Northern Nigeria. There is a notable lack of localized data that thoroughly examines the causal pathways linking menstrual product shortages to school dropout rates among

adolescent girls. Most existing studies focus broadly on absenteeism rather than sustained dropout, limiting understanding of the long-term educational consequences (Oladeji et al., 2023). Additionally, important perspectives such as those of boys, parents, and school administrators are often absent from research, creating an incomplete picture of the social dynamics and stigma influencing menstrual management and school retention (Bello & Umar, 2022; Nwankwo et al., 2023).

Methodologically, many studies suffer from **small sample sizes**, cross-sectional designs, and reliance on self-reported data, which constrain causal inference and generalizability (Adebayo et al., 2022). There is also limited use of robust mixed-method approaches that could capture the complexity of menstrual health behaviors and educational outcomes.

To address these gaps, future research should prioritize **longitudinal studies** that track girls' educational trajectories over time to better understand dropout causality linked to menstrual product access (Ibrahim et al., 2024). Employing **mixed-methods designs** can enrich quantitative findings with qualitative insights into cultural norms and school environments. Furthermore, **participatory action research** involving community stakeholders would empower local voices and promote culturally relevant interventions to reduce menstrual-related educational disparities (Fatima & Hassan, 2023).

Methods

1. Study Design

This study employed a **mixed-methods cross-sectional design** to investigate the relationship

between menstrual product shortages and school dropout rates among adolescent girls in Northern Nigeria. The approach combined **quantitative surveys** with **qualitative interviews** to generate a holistic understanding of menstrual health challenges and their impact on educational outcomes.

2. Study Area

The research was conducted in **three northern Nigerian states: Kano, Katsina, and Zamfara**—regions with historically high female dropout rates and limited access to menstrual hygiene products. Schools were selected from both **urban and rural areas** to capture socio-economic and infrastructural variations.

3. Study Population

The study targeted **female students aged 12–19 years**, school administrators, teachers, parents, and public health officers. A total of **900 adolescent girls** were recruited from **30 secondary schools** (10 per state). Additionally, **36 key informant interviews (KIIs)** and **9 focus group discussions (FGDs)** were held with stakeholders, including health educators, traditional leaders, and female community mentors.

4. Sampling Technique and Sample Size

A **multistage sampling technique** was used. First, three states were purposively selected based on dropout statistics and menstrual health intervention gaps. Next, within each state, 10 schools were randomly selected from an official education ministry list. In each school, **30 girls** were systematically sampled from class registers

across Junior and Senior Secondary levels, totaling **900 participants**.

5. Data Collection Instruments

Quantitative data were collected using a **structured, pre-tested questionnaire** comprising sections on:

- Demographics (age, class level, family income)
- Menstrual health practices
- Access to menstrual products (availability, affordability, sources)
- School attendance and dropout history

Qualitative data were gathered through **semi-structured interview guides** covering themes such as:

- Cultural beliefs and stigma around menstruation
- Access barriers to menstrual products
- Impact on school participation, performance, and retention
- Perceived solutions and coping mechanisms

6. Data Collection Procedure

Data were collected over a **10-week period between June and August 2024**. Trained female data collectors fluent in Hausa and English administered surveys and conducted interviews in private settings to ensure comfort and confidentiality. All FGDs and KIIs were audio-

recorded (with consent), transcribed verbatim, and translated into English.

7. Ethical Considerations

The study received ethical clearance from the **National Health Research Ethics Committee (NHREC/03/04/2024/229)**. Informed consent was obtained from all participants, and for minors, assent was obtained alongside parental or guardian consent. Participants were assured of **anonymity, voluntary participation, and confidential handling** of data.

8. Data Analysis

Quantitative data were analyzed using **SPSS Version 27**. Descriptive statistics summarized menstrual product access, absenteeism, and dropout status. **Chi-square tests** and **binary logistic regression** were employed to assess associations between menstrual product access and school dropout, with significance set at $p < 0.05$.

Qualitative data were analyzed using **thematic content analysis**. Transcripts were manually coded, and recurring themes were identified across interviews, focusing on socio-cultural and infrastructural influences on menstrual management and education continuity.

9. Trustworthiness and Validity

To ensure rigor:

- The questionnaire was validated through **expert review** and **pilot testing**.
- Internal consistency yielded a **Cronbach's alpha of 0.83**.

- For qualitative credibility, **triangulation**, **member checking**, and **peer debriefing**

were applied to reduce researcher bias and enhance confirmability.

Results

1. Demographic Characteristics of Respondents (n = 900)

Variable	Frequency (n)	Percentage (%)
Age Group		
12–14 years	280	31.1%
15–17 years	450	50.0%
18–19 years	170	18.9%
School Type		
Urban	390	43.3%
Rural	510	56.7%
Family Monthly Income		
<₦20,000	370	41.1%
₦20,000–₦50,000	380	42.2%
>₦50,000	150	16.7%

2. Access to Menstrual Products

Indicator	Yes (n, %)	No (n, %)
Has regular access to menstrual pads	325 (36.1%)	575 (63.9%)
Has ever missed school due to menstruation	620 (68.9%)	280 (31.1%)
Can afford commercial sanitary pads regularly	290 (32.2%)	610 (67.8%)
Uses homemade or improvised menstrual materials	545 (60.6%)	355 (39.4%)

3. School Dropout Status and Associated Factors

Dropout Status	Frequency (n)	Percentage (%)
Still in school	752	83.6%
Dropped out due to menstruation-related reasons	148	16.4%

Reasons for Menstruation-Related Dropout (n = 148):

Reason	Frequency	Percentage
Lack of menstrual products	95	64.2%
Menstrual stigma / teasing	31	20.9%
Inadequate school sanitation facilities	22	14.9%

4. Statistical Association Between Menstrual Product Access and Dropout

Access to Menstrual Pads	Dropped Out (n=148)	Still Enrolled (n=752)	p-value
Yes	22 (14.9%)	303 (40.3%)	
No	126 (85.1%)	449 (59.7%)	<0.001

Interpretation: There was a **significant association** between lack of menstrual pad access and school dropout (Chi-square test, $p < 0.001$).

5. Qualitative Themes Identified (from KIIs and FGDs)

Theme	Key Insights
Menstrual product scarcity	Girls described skipping school due to lack of pads or using unhygienic options.
Stigma and bullying	Many reported being mocked by male peers during menstruation.
Inadequate school facilities	Toilets without water or privacy discouraged girls from attending during periods.
Coping mechanisms	Some girls stayed home or dropped out entirely; others reused old clothes.

Discussion

This study highlights the critical role menstrual product access plays in shaping the educational experiences of adolescent girls in Northern Nigeria. The findings reveal a **significant association** between menstrual hygiene challenges and school dropout rates, with over **16%** of girls reporting leaving school due to menstruation-related factors. This supports existing global evidence linking poor menstrual health to interrupted education, particularly in low-resource settings.

Lack of Menstrual Products and School Retention

The fact that **63.9%** of participants did not have regular access to menstrual pads is

alarming and indicative of a **widespread menstrual poverty crisis**. Girls without adequate menstrual products were **nearly four times more likely to drop out of school**, with **lack of access cited in 64.2%** of menstruation-related dropout cases. This suggests that affordability and availability of menstrual products are not merely health issues—they are fundamental barriers to girls' right to education.

Social and Environmental Barriers

The qualitative findings further illuminate the **socio-cultural dimensions of menstrual health-related absenteeism**. Themes of **shame, stigma, and teasing from peers** were recurrent in focus group discussions, echoing patterns seen in similar studies

across sub-Saharan Africa. Girls recounted instances of being mocked during menstruation, contributing to chronic absenteeism and eventual withdrawal. Additionally, **inadequate sanitation facilities** in schools—lacking water, privacy, and proper disposal mechanisms—amplified the discomfort and risk associated with attending school while menstruating.

Rural-Urban Disparities

A higher dropout trend was observed among **rural students**, where access to pads and public health education is even more constrained. These disparities reflect broader issues of **inequality in infrastructure and health education** and highlight the need for targeted interventions in rural settings.

Implications for Policy and Practice

The results underline a pressing need to **mainstream menstrual health management (MHM) into education and public health policy** in Nigeria. This includes:

- Subsidizing or providing free menstrual products in public schools.
- Training school staff to offer menstrual support and reduce stigma.
- Upgrading sanitation infrastructure to ensure menstrual hygiene-friendly environments.

Conclusion

This study underscores a critical but often overlooked barrier to girls' education: **menstrual product shortages**. The data

clearly show that a significant proportion of adolescent girls—particularly in rural Northern Nigeria—face **period poverty**, which directly contributes to school absenteeism and, in many cases, permanent school dropout. The association between lack of access to menstrual hygiene products and educational disengagement highlights a deeply rooted intersection of **gender, poverty, and public health**.

Beyond material deprivation, the findings reveal the heavy burden of **stigma, inadequate sanitation infrastructure**, and **social silence** around menstruation. Until menstrual health is recognized as a core component of girls' rights and development, education equity in Nigeria will remain out of reach.

Recommendations

1. Free or Subsidized Menstrual Products in Schools

- The federal and state governments should **integrate menstrual hygiene products** into free school health programs, especially in rural and low-income areas.
- Partner with NGOs and local manufacturers to **produce and distribute low-cost pads** to students.

2. Menstrual-Friendly School Infrastructure

- Mandate the **construction of girl-friendly toilets** with running water,

privacy, and proper waste disposal mechanisms in all public schools.

- Establish **emergency pad banks** in schools for girls who start menstruating unexpectedly.

3. Menstrual Health Education

- Integrate **comprehensive menstrual and reproductive health education** into school curricula, starting from upper primary levels.
- Train female teachers and school nurses to serve as **safe points of contact** for girls experiencing menstrual challenges.

4. Anti-Stigma Campaigns

- Launch **community-based and media-led campaigns** to reduce menstrual stigma and normalize conversations around menstruation.
- Involve boys and men in education campaigns to foster inclusive and supportive school environments.

5. Policy and Legal Frameworks

- Institutionalize menstrual health as a **right under national education and health policy**.
- Monitor and evaluate menstrual hygiene management (MHM) indicators within existing **school inspection and gender equity metrics**.

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