



Knowledge and Use of Menstrual Management Materials Among Female Students in Public Secondary Schools in Nkpor, Anambra State, Nigeria

Akabuogu Augusta Adaku¹, Dr John Anieche², Mrs Nkeiru Okoroafor³

Centre of Excellence in Public Health and Toxicological Research, University of Port Harcourt

¹(akabuoguagusta3@gmail.com), ²(je.anieche@unizik.edu.ng), ³(njokorafor@gmail.com)

ABSTRACT

Menstrual hygiene management (MHM) is vital for adolescent girls' health, education, and social participation. This study assessed the knowledge and use of menstrual management materials among female students in public secondary schools in Nkpor, Anambra State, Nigeria. A descriptive cross-sectional survey was conducted with 250 female students, selected via multi-stage sampling from two public secondary schools. A structured questionnaire assessed knowledge levels and types of menstrual materials used, with data analyzed using SPSS version 25 through descriptive and inferential statistics. Results showed that 46% of students were aged 16–18 years, with a broad distribution across junior and senior secondary levels. Most students (81.2%) demonstrated good (46%) or excellent (35.2%) knowledge of menstrual hygiene, yet 14.8% had fair and 4% had poor knowledge. Disposable sanitary pads were the most used (74%), followed by reusable cloth pads (11.2%), tissue/rags (10.8%), tampons (2.8%), and menstrual cups (1.2%). Financial constraints and cultural factors contributed to the use of less hygienic alternatives. A chi-square test revealed a significant relationship between knowledge and material choice ($\chi^2 = 14.25$, $df = 2$, $p = 0.001$), indicating that higher knowledge correlates with safer product use. Targeted educational programs, affordable menstrual products, and improved school sanitation facilities are recommended to address knowledge gaps and promote safe MHM practices, enhancing students' health and academic engagement.

Keywords: Menstrual Hygiene Management, Menstrual Materials, Adolescent Girls, Public Secondary Schools, Nigeria

INTRODUCTION

Menstrual care is a vital aspect of adolescent health, influencing girls' well-being, academic performance, and participation in social life (UNICEF, 2019). It involves the use of appropriate materials and hygiene practices to manage menstruation safely and comfortably. However, in many parts of the world, including Nkpor in Anambra State, Nigeria, menstruation is still shrouded in stigma and misinformation, leading to poor hygiene practices, school absenteeism, and reduced self-esteem (Chandra-Mouli & Patel, 2017; Iliyasu et al., 2018). Limited access to sanitary products and inadequate facilities in schools further compound these challenges, particularly for girls in low-income households who often resort to unhygienic alternatives like rags or tissue paper (Grant et al., 2013). Addressing these issues requires both structural improvements—such as clean water and private sanitation in schools—and education that normalizes menstruation and equips girls with accurate information and safe practices (UNESCO, 2014; Sommer, 2015). This study examines the knowledge and use of menstrual management materials among female students in public secondary schools in Nkpor. It focuses on assessing their awareness of different products, including sanitary pads, tampons, menstrual cups, and reusable cloths, and identifying which materials they actually use. The study also explores whether students' level of knowledge influences their choice of products. In line with this, the central hypothesis tested is whether there is a significant relationship between knowledge of menstrual materials and the type of material used. By investigating these links, the study aims to provide insight into the factors shaping menstrual hygiene practices and inform targeted interventions to improve girls' health and educational experiences.

LITERATURE REVIEW

Menstrual hygiene management (MHM) has gained increasing attention in global health discourse due to its impact on adolescent girls' health, education, and dignity. Research shows that limited access to accurate menstrual health information and sanitary materials can lead to poor hygiene practices, infections, and emotional distress (Sommer et al., 2015; Dasgupta & Sarkar, 2008). Across low- and middle-income countries, girls often begin menstruation without adequate preparation, and many turn to unreliable sources or peers for information (Aniebue et al., 2009). These knowledge gaps are further exacerbated by sociocultural silence, myths, and taboos, which not only restrict open discussion but also perpetuate harmful beliefs about menstruation (Chandra-Mouli & Patel, 2017; Greenhalgh, 2021).

Several studies have documented the consequences of inadequate menstrual health education and poor access to hygienic materials. For instance, Grant et al. (2013) linked menstruation-related absenteeism to insufficient school facilities, such as private toilets and disposal systems. Similarly, House et al.

(2012) emphasized that lack of access to sanitary products forces girls to use improvised materials like rags or tissue, which pose health risks and can lead to discomfort, infections, or embarrassment. Socioeconomic factors are often at the root of these challenges, as girls from low-income households are more likely to lack both knowledge and resources to manage menstruation safely (Cameron & Quinn, 2019). The reliance on disposable pads remains dominant due to ease of use, but alternatives like reusable cloth pads, menstrual cups, and tampons remain underutilized due to cultural resistance and limited awareness (MacRae et al., 2019).

Effective responses require multi-pronged strategies. Evidence from countries including Nigeria, Kenya, and India highlights the value of integrating menstrual education into school curricula and improving WASH (Water, Sanitation, and Hygiene) infrastructure (UNESCO, 2014; Mahon & Fernandes, 2010). Awareness campaigns and teacher-led sessions have proven effective in demystifying menstruation and building confidence among schoolgirls (Mulvale et al., 2019). However, long-standing cultural perceptions and socioeconomic disparities continue to shape knowledge and practices. As emphasized by Das et al. (2015), overcoming these challenges calls for sustained engagement at the school, community, and policy levels to promote access to information and materials while challenging stigma. In the Nigerian context, particularly in areas like Nkpor, local studies remain limited, underscoring the need for context-specific research that can inform interventions tailored to adolescent girls' lived experiences.

METHODOLOGY

This study adopted a descriptive cross-sectional survey design and was conducted in two public secondary schools in Nkpor, Anambra State: Government Technical College, Nkpor, and Urban Secondary School, Nkpor. These schools were selected from the list provided by the Anambra State Ministry of Education. The study population consisted of female students enrolled in these institutions. Using Cochran's formula for sample size determination, a total of 250 participants were selected. A multi-stage sampling technique was employed to ensure representativeness across different class levels and age groups.

Data were collected using a structured, self-administered questionnaire designed to assess students' knowledge and use of menstrual hygiene materials. The questionnaire was pilot-tested in a similar school setting, and its reliability was confirmed with a Cronbach's alpha coefficient of 0.82, indicating strong internal consistency. The instrument included items on menstrual practices, awareness of different menstrual materials, and usage patterns. Data were analyzed using SPSS version 25. Descriptive statistics such as frequencies, percentages, means, and standard deviations were used to summarize the responses. Inferential statistics, including chi-square tests and logistic regression, were conducted to explore associations between knowledge levels and the types of menstrual products used, with statistical significance set at $p < 0.05$.

RESULTS

Demographic Characteristics of Respondents

Table 1: Socio-Demographic Characteristics of the Respondents

Variable	Group	Frequency (n=250)	Percentage (%)
Age Group	10–12 years	25	10.0
	13–15 years	95	38.0
	16–18 years	115	46.0
	19 years and above	15	6.0
Class Level	JSS 1	30	12.0
	JSS 2	35	14.0
	JSS 3	45	18.0
	SS 1	50	20.0
	SS 2	55	22.0
	SS 3	35	14.0

The demographic distribution of the respondents shows a concentration of participants in the middle adolescent age bracket. Among the 250 students surveyed, the majority (46%) were between 16 and 18 years old, followed by 38% in the 13–15 age range. A smaller proportion, 10%, were between 10 and 12 years old, while only 6% were 19 years and above. This suggests that most of the respondents were in their mid to late teenage years, which aligns with the typical age for students in the senior secondary school level. In terms of class distribution, students were relatively evenly spread across junior and senior secondary levels, with a slight dominance in the senior classes. SS2 had the highest representation with 22%, followed by SS1 (20%) and JSS3 (18%). JSS2 and SS3 each had 14% of the respondents, while JSS1 had the smallest group at 12%. These figures indicate that the sample included a broad mix of class levels, with a tilt toward students in the upper secondary segment, which may influence the maturity and learning experiences reflected in the study.

Knowledge of Menstrual Management Materials**Table 2: Knowledge of Menstrual Management Materials**

Knowledge Level	Frequency (n)	Percentage (%)
Excellent	88	35.2
Good	115	46.0
Fair	37	14.8
Poor	10	4.0
Total	250	100.0

Menstrual material knowledge information data reveals that a majority of the respondents had a very good degree of awareness and knowledge. Among 250 students, 115 (46%) were found to have "good" knowledge for menstrual materials, 88 respondents (35.2%) of whom had an "excellent" degree of knowledge. This kind of total of 81.2% implies that most of the students have ever heard of various menstrual hygiene items such as sanitary pads, reusing cloth, tampons, or menstrual cups and therefore know when and how to apply them appropriately. It is also possible that increased awareness is a consequence of increased exposure to menstrual health information in school-based programs, counseling of parents, peer discussion, or media campaigns among teenagers. But the statistics also reveal areas of ignorance which may have to be addressed. An embarrassing 14.8% of the participants were discovered to have just "fair" knowledge, i.e., spasmodic or partial knowledge of menstrual management materials. And worse, a 4% were discovered to have "poor" knowledge, i.e., minimal or no knowledge of good menstrual hygiene practice. They recommend that even though general rates of general knowledge are encouraging, there is still a segment of the population at risk for poor menstrual hygiene because they lack sufficient information or access to quality sources. Closing this information gap with specific health education, school education, and community outreach can be an avenue for all students, regardless of their background, to be equipped with knowledge relating to the information needed for safe and confident management of menstruation.

Types of Menstrual Management Materials Used**Table 3: Types of Menstrual Materials Used by Female Students**

Menstrual Material	Frequency (n)	Percentage (%)
Disposable Pads	185	74.0
Reusable Cloth Pads	28	11.2
Tampons	7	2.8
Menstrual Cups	3	1.2
Other (Tissue/Rags)	27	10.8
Total	250	100.0

Results regarding the type of menstrual material used by female students reveal very high acceptability of disposable sanitary pads. Out of 250 respondents, 185 (74%) used disposable pads, which was the most common material by far. Spreads can be attributed to the availability, ease of use, and perceived hygiene benefit of disposable products. It also shows that an overwhelming majority of the students use commercially available menstrual products, something that can be attributed to the reality that they are educated and enlightened regarding menstrual hygiene.

However, the remaining 26% of the students indicated the use of other products that may reflect affordability, availability, or cultural acceptability issues. 11.2% used cloth pads, indicating knowledge of sustainable products but possibly limited by convenience or social viability. Users of tampons (2.8%) and menstrual cups (1.2%) were few, less conventional products in most cultures due to unfamiliarity, cost, or taboo. More alarmingly, 10.8% of the girls resorted to cloth or tissue as makeshift materials, and because some questions on menstrual hygiene and infection can be raised, this calls for the need to have access to affordable and safe sanitary products, along with ongoing education on menstrual health and hygiene.

Inferential Analysis: Relationship Between Knowledge and Use of Menstrual Materials**Table 4: Chi-Square Test Results**

Variable Pair	χ^2	df	p-Value	Decision
Knowledge vs. Use of Menstrual Materials	14.25	2	0.001	Significant ($p < 0.05$)

The inferential analysis is looking for the relationship between students' awareness of menstrual management materials and the types of materials they utilize. The chi-square test result has a χ^2 value of 14.25 and 2 degrees of freedom and a p-value of 0.001. The p-value is less than the 0.05 significance level, and the result is therefore statistically significant. This implies that there is a strong relationship between the level of knowledge students have regarding menstrual hygiene and the choices they make regarding menstrual products. Practically, this finding is such that students who are more knowledgeable are likely to use clean and sanitary menstrual materials, e.g., disposable sanitary pads or cloth pads. On the other hand, those with less knowledge are likely to use less sanitary products such as tissue or rags. This highlights the importance of menstrual health education as a mechanism for affecting not just awareness but behavior and product use. By reinforcing understanding, most especially among those already rated to have fair or poor understanding, it may be possible to improve menstrual hygiene behavior in the student population.

Discussion of Findings

Knowledge of Menstrual Management Materials

The study shows that a large majority (81.2%) of the respondents had good or excellent knowledge of menstrual hygiene materials. This suggests that most students were familiar with sanitary products and basic hygiene practices, likely due to exposure to school-based education, peer discussions, and media campaigns. Such findings align with existing research highlighting the importance of structured menstrual health education in improving awareness and normalizing menstruation among adolescents (Mulvale et al., 2019). In supportive environments where menstruation is openly discussed, students are more likely to ask questions and gain confidence in managing their periods safely. However, nearly one-fifth of respondents (18.8%) had only fair or poor knowledge, reflecting continued gaps in awareness. This limited understanding may be tied to cultural taboos, socioeconomic constraints, or lack of communication at home. Less familiar products like menstrual cups and tampons remain poorly understood or stigmatized due to myths around virginity and discomfort (Greenhalgh, 2021). These disparities underscore the need for age-appropriate, culturally sensitive, and sustained menstrual health education that reaches all students, regardless of background or income.

Use of Menstrual Management Materials

The majority of students (74%) reported using disposable sanitary pads, reflecting their wide availability, ease of use, and social acceptability. While this is a positive indicator of awareness and access, it also suggests reliance on non-sustainable products in areas that may lack adequate waste disposal systems. Without appropriate infrastructure, increased use of disposable materials can create environmental and hygiene challenges over time (Cameron & Quinn, 2019).

Notably, 10.8% of students used improvised materials like rags and tissue, often due to financial barriers. These options are less hygienic and can lead to infections, discomfort, and social stigma, contributing to absenteeism and reduced participation in school. Meanwhile, the use of tampons (2.8%) and menstrual cups (1.2%) was very low, reflecting cultural resistance and limited awareness (MacRae et al., 2019). To address these issues, menstrual health interventions must go beyond product provision to include education, debunking of myths, and promotion of safe, affordable, and acceptable alternatives.

Conclusion

The study did find that 81.2% of the students possess a good or excellent understanding of menstrual products, but it does not necessarily translate into safe usage due to constraints on the resource and culture sides. Disposable sanitary pads are utilized the most by students, but then there are also quite a large number who continue to utilize less sanitary methods like rags and tissue, majorly due to the non-availability of resources. And then, too, these sorts of products like tampons and menstrual cups aren't being utilized to their fullest, not only due to expense or lack of experience, but due to deeply rooted cultural use and taboo against using them. To address these needs, menstrual health programs must offer sufficient education as well as increased access at low cost. Appropriate, age-appropriate menstrual health education must be included within curricula and girls must be supplied with clean, hygienic products through distribution or subsidization systems. Decreased cultural stigma, improved school sanitation facilities, and community and family engagement with education programs must be addressed. This type of promotion of menstrual health in an integrated way is needed for the safeguarding of students' dignity, health, and study interest. Bottom of Form

Recommendations

- Integrate menstrual hygiene education into school curricula (UNESCO, 2014).
- Provide affordable or free menstrual products through government and NGO initiatives (UNICEF, 2019).
- Conduct community awareness campaigns to address cultural misconceptions (Mahon & Fernandes, 2010).
- Install proper disposal facilities in schools to promote hygienic practices (WHO, 2015).

REFERENCES

1. Aniebue, U. U., Aniebue, P. N., & Nwankwo, T. O. (2009). The impact of pre-menarcheal training on menstrual practices and hygiene of Nigerian school girls. *Pan African Medical Journal*, 2(9).
2. Cameron, L., & Quinn, J. (2019). Socioeconomic impacts on menstrual hygiene practices. *Journal of Public Health*, 41(3), 456–463.
3. Chandra-Mouli, V., & Patel, S. V. (2017). Mapping the knowledge and experience of menarche, menstrual hygiene, and reproductive health among adolescent girls. *Reproductive Health*, 14(1), 1–10.

4. Das, P., Baker, K. K., Dutta, A., Swain, T., & Sahoo, S. (2015). Menstrual hygiene practices, WASH access, and risk of urogenital infection in women from Odisha, India. *PLoS ONE*, 10(6), e0130777.
5. Dasgupta, A., & Sarkar, M. (2008). Menstrual hygiene: How hygienic is the adolescent girl? *Indian Journal of Community Medicine*, 33(2), 77–80.
6. Grant, M., Lloyd, C., & Mensch, B. (2013). Menstruation and school absenteeism: Evidence from rural Malawi. *Comparative Education Review*, 57(2), 260–284.
7. Greenhalgh, S. (2021). Cultural influences on menstrual health. *Global Health Journal*, 5(4), 123–130.
8. House, S., Mahon, T., & Cavill, S. (2012). *Menstrual hygiene matters: A resource for improving menstrual hygiene around the world*. WaterAid.
9. Iliyasu, Z., Galadanci, H. S., Abubakar, I. S., Haruna, H., Aliyu, M. H., & Salihu, H. M. (2018). Menstrual hygiene among adolescent school girls in Kano, Northern Nigeria. *African Journal of Reproductive Health*, 22(3), 89–96.
10. MacRae, E. R., Clasen, T., Dasmohapatra, M., & Caruso, B. A. (2019). Redefining adequate menstrual hygiene management throughout women's varied life stages in Odisha, India. *PLoS ONE*, 14(8), e0220114.
11. Mahon, T., & Fernandes, M. (2010). Menstrual hygiene in South Asia: A neglected issue for WASH programmes. *Gender and Development*, 18(1), 99–113.
12. Mulvale, A., Green, J., & Patel, R. (2019). Menstrual health education in schools: A global perspective. *Health Education Journal*, 78(5), 567–579.
13. Sommer, M. (2015). Where the education system and women's bodies collide: The social and health impact of girls' experiences of menstruation and schooling in Tanzania. *Journal of Adolescence*, 33(4), 521–529.
14. Sommer, M., Sahin, M., & Caruso, B. A. (2015). A time for global action: Addressing girls' menstrual hygiene management needs in schools. *PLoS Medicine*, 12(2), e1001962.
15. UNESCO. (2014). *Puberty education & menstrual hygiene management*. United Nations Educational, Scientific and Cultural Organization.
16. UNICEF. (2019). *Guidance on Menstrual Health and Hygiene*. UNICEF.
17. WHO. (2015). *Water, sanitation and hygiene standards for schools in low-cost settings*. WHO Press.