

Knowledge and Practice of Menstrual Hygiene among Female Undergraduates at a Private Tertiary Institution in Nigeria

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Abstract: Menstrual hygiene is keeping the body clean while a woman is menstruating. Many females have encountered considerable difficulty maintaining menstrual hygiene because of a lack of awareness or access to menstrual products, particularly in low- and middle-income nations. However, knowledge and practice of menstrual hygiene among female undergraduates, especially in Nigeria, are understudied. This descriptive cross-sectional study investigated the knowledge, practices and barriers associated with menstrual hygiene among female undergraduates of a private university in Nigeria. Three hundred and sixty-four participants were recruited using purposive sampling. Sociodemographic data, knowledge, practice and barriers associated with menstrual hygiene were assessed using a self-report knowledge and practice of menstrual hygiene questionnaire. Data were analyzed using descriptive statistics.

The results revealed that most respondents (72.3%) had poor knowledge of menstrual hygiene, while around half (49.2%) maintained good practices. The most common barriers to practicing menstrual hygiene among the respondents were reported as fatigue and limited water access in their dormitories. Therefore, schools of higher learning need to ensure that students have regular access to clean water with adequate time between classes to allow for proper menstrual hygiene practice. Nurses could provide menstrual education for mothers and their adolescents before getting into university. Similarly, nurses working in institutions of higher learning should provide regular menstrual hygiene awareness programs on campus and advocate for access to clean water and hygiene facilities for female students undergoing menstruation.

Keywords: Female undergraduates, Knowledge, Menstrual hygiene practice, Nigeria

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Introduction

Menstruation is a physiological process that starts with puberty in females.¹ For most girls and young women, the first menstruation – menarche – starts between the ages of 10 and 15, with a mean of 13.² As menstruation begins, ‘menstrual hygiene,’ the act of keeping the body clean during menstruation, is an essential routine.³ Menstrual health has been defined

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as a state of physical, mental, and social well-being concerning the menstrual cycle.⁴ Menstrual hygiene requires access to basic hygiene products and facilities, including suitable clothing, absorbent materials, water, soap, and private restrooms.³ Although menstrual hygiene was not explicitly stated in the Sustainable Development Goals, grassroots workers and activities from the global south have drawn attention to reports from women and girls experiencing shame and embarrassment alongside other obstacles, like lack of finances.⁵ Practicing menstrual hygiene has posed a significant challenge to many menstruating women⁶ due to a lack of awareness or access to menstrual products, especially in low and middle-income countries.^{3,7,8} More than 300 million women worldwide menstruate on any given day.⁹ Over 500 million women and girls worldwide lack adequate menstrual hygiene management (MHM) facilities; one in ten African females misses school during their period, causing them to fall behind in their studies and eventually drop out of school, and 25% of women in Nigeria lack sufficient privacy for menstrual hygiene management.¹⁰⁻¹² Similarly, a report has revealed that over 37 million girls and women cannot afford menstrual hygiene products in Nigeria, limiting their ability to study, work, and live.¹³ However, menstrual health has been advocated as a basic human right.⁴

Various organizations have given their position on menstrual hygiene. The World Health Organization gave a call for three actions. Firstly, to recognize menstruation as a health issue with physical, psychological, and social dimensions that must be addressed before and after menopause, not just a hygiene issue. Secondly, to recognize that menstrual health means that women and girls who menstruate have access to information and education about menstrual products, water, sanitation, and disposal facilities and work in an environment where menstruation is seen as positive and healthy rather than shameful. Thirdly, to ensure that these activities are incorporated into the relevant sectoral work plans and budgets and that their performance is

measured.⁵ Also, the World Bank reported that girls and women need access to water, sanitation, and hygiene (WASH) facilities, affordable and appropriate menstrual hygiene materials, information on good practices, and a supportive environment to manage menstruation without shame or stigma.⁹ Poor access to hygienic menstrual products such as clean water, clean toilets, and soaps poses many challenges to practicing menstrual hygiene¹⁴ in many parts of the developing world. However, most of the time, the lack of knowledge among girls and young women, especially adolescents, is the basis for poor menstrual hygiene practices.^{8,15} In addition to access to hygienic menstrual materials and knowledge of menstrual hygiene, evidence from a study conducted in the Chitwan district, Nepal, suggests that the age of the girl or woman, duration of monthly menstruation and the level of education of mothers are factors that may influence menstrual hygiene practices.¹⁶

To practice menstrual hygiene, girls and young women use sanitary products and require adequate knowledge about how to dispose of them properly, wash their genitalia, and then wash their hands.¹⁷ Limited knowledge of menstrual hygiene promotes unhygienic practices that negatively impact young girls' health, reproductive health, and education.⁸ According to a study conducted in Southern Ethiopia, about 40–45% of middle and high school female students have inadequate knowledge of hygienic practices surrounding their menstrual bleeding, indicating the need to promote menstrual hygiene awareness across the healthcare system.¹⁸ Furthermore, the low level of knowledge points to the need for policies to improve knowledge and safe, hygienic practices toward menstruation in institutions.¹⁹

Often, unhygienic menstrual practices result in minor health issues like itchiness or rashes in the perineal area, a bad odor or major complications like pelvic inflammatory disease, cervical cancer, poor quality of life, and toxic shock syndrome.¹ All these can result in a constant school absence rate, high drop-out rate, poor academic performance, and lower self-esteem among menstruating females.^{1,20} Girls

and women with a greater knowledge of menstrual hygiene and safe practices are frequently less susceptible to the negative effects of unhygienic menstrual practices.²¹ A high level of knowledge and practice of menstrual hygiene during adolescence has the potential to promote menstrual hygiene practices, thus mitigating the negative impacts of unhygienic menstrual practices later in life.¹⁸

The literature has elucidated knowledge and practice of menstrual hygiene among middle and high school adolescents in various low and middle-income countries like India,^{2,16} Nepal,^{1,16} and Ethiopia.^{8,18,22} Studies conducted in India revealed that two-thirds of young females had adequate knowledge of menstrual hygiene,¹⁶ and over one-third had good menstrual hygiene practices.² However, a study conducted in Ethiopia revealed that over two-thirds had poor knowledge of menstruation, and close to two-thirds demonstrated poor menstrual hygiene practices.¹⁸ Similarly, a systematic review of 6,907 adolescents in Ethiopia revealed a pooled prevalence of 48.98% for poor menstrual hygiene practices, and the odds of demonstrating poor menstrual hygiene practices were 2.6 times greater among those with poor knowledge of menstrual hygiene.⁸ However, in Nigeria, there is a paucity of studies on the knowledge and practice of menstrual hygiene among adolescents and young women in university, especially those who live in the dormitories of private universities. Girls and young women in their undergraduate program are expected to live independently and practice as much of the things they have learned from their parents or siblings, including menstruation and menstrual hygiene education.²³ In contrast, access to menstrual hygiene products may challenge many girls and young women in low and middle-income countries, including Nigeria. Those in private universities may have access to money to purchase these products because their universities are structured such that upkeep materials and meals must be purchased daily.^{24,25} Hence, the students must receive an regular upkeep allowance to meet their daily needs.

A combination of the limited literature on menstrual hygiene among female undergraduates in private universities, utilization of knowledge received from parents or siblings and their likely access to menstrual hygiene products necessitate the need to study this topic. Evidence from this study will help advance knowledge in this area and identify gaps that will form a basis for appropriate interventions.

Aim

To investigate the knowledge, practice, and barriers associated with menstrual hygiene among female undergraduates of a private university in south-west Nigeria.

Methods

Design: A descriptive, cross-sectional design was used. This report adhered to the STROBE Statement, a checklist of items that should be included in the reporting of cross-sectional studies.

Sample and Setting: The population of this study was undergraduate students attending a private university in south-west Nigeria. The university admits graduating students from high school into various undergraduate programs. All the undergraduates live in dormitories on the university campus and share common hygiene facilities like washrooms. There are over 4000 undergraduates in their menstruating years, of which 364 respondents were included in this study. This sample size was determined using Taro Yamane's formula and an estimated 10% non-response rate.²⁶ The inclusion criteria include menstruating females studying an undergraduate program at the university. Those who did not consent were excluded.

Ethical Consideration: Before data collection commenced, ethics approval was obtained from the Health Research and Ethics Committee of Afe Babalola University (AB/EC/21/02/157). The researcher identified undergraduates eligible to participate in this

study by visiting all the settings' departments. Potential respondents were provided with research information and assessed for eligibility, including undergraduates in their reproductive years, menstruating, and who consented to join the study. For those less than 18 years, parental consent was obtained. Also, the participants had the right to withdraw from the study at anytime. Similarly, their confidentiality and anonymity were upheld throughout the study.

Data Collection: Data collection was conducted in this study using four instruments combined into one questionnaire. These instruments were originally developed in a study conducted in southern Ethiopia.¹¹ Written consent was obtained from the authors of the instruments. In adapting the instruments, the research team reviewed each item in the instruments and utilized the ones relevant to the study objectives. Some questions were modified by changing the precise wording to make it more understandable while preserving the meaning.²⁷ A team of five experts, two school nurses, a doctor, a midwife, and a gynecologist, reviewed the instruments. They ensured that all words were understood, all questions could be interpreted similarly, and all the questions did not evoke answers that could not be interpreted.²⁷ The team also examined the instruments for their face and content validity. The content validity index of the questionnaire was 0.9. The compiled questionnaire was tested for reliability among 36 students (10% of the sample size) and yielded a Cronbach's alpha of 0.89. The description of each section is given below:

Demographic Datasheet: This instrument comprised age, ethnicity, religion, college, income, and experience during menstruation.

Knowledge about Menstrual Hygiene: This instrument addressed knowledge of menstrual hygiene among the respondents. There were nine questions, structured as choice questions, where respondents had to select an option that applied to them. Correct answers on each were scored "1," while incorrect answers were scored "0." For a good knowledge of menstrual hygiene, respondents must answer 60% of the questions

correctly. Meanwhile, the level is considered poor if less than 60% of the questions are answered correctly.

Practice of Menstrual Hygiene: This instrument addressed the practice of menstrual hygiene among the respondents. There were ten questions for this section, and they were structured as choice questions, where respondents had to select an option that applied to them. Correct answers on each were scored "1," while incorrect answers were scored "0." Respondents need to answer 60% of the questions correctly for a good practice of menstrual hygiene. Meanwhile, where less than 60% of the questions were answered correctly, the level was considered bad.

Perception of Barriers to Practice of Menstrual Hygiene: This instrument addressed barriers associated with the practice of menstrual hygiene. Five questions indicated whether the respondents encountered each barrier with "Yes or No."

Data collection: Data were collected by the fifth author, a registered nurse with a bachelor's degree. She was trained by the first author, a nursing professor, in participant recruitment, providing research information to participants, ethical considerations, and questionnaire administration. The respondents were met in the privacy of their rooms. They were given an adequate explanation of the study after they gave their consent, and they were given the questionnaires. The fifth author gave the necessary clarification when needed. The respondents took 10–15 minutes to complete the questionnaire. All the questionnaires were retrieved afterward.

Data analysis: After the respondents returned their questionnaire, the Statistical Package for Social Sciences (SPSS) version 20 was used to analyze the data. All variables on the demographic and data collection instruments were analyzed using descriptive statistics, including frequency and percentage.

Results

For the demographic characteristics, the majority of the respondents were between 15–20 years old

(72.8%), Christians (89.6%), and from the Yoruba ethnic group (45.1%). Most of the respondents were from the colleges of law (31%), medical and health sciences (29.1%), engineering (15.9%), social and management sciences (15.0) and sciences (9.0%).

Concerning the monthly allowance that respondents received, about 83.8% received an allowance regularly, with about 48.6% receiving between 20000 – 40000 Nigerian Naira (NGN) monthly (30–55 USD) (Table 1).

Table 1. Sociodemographic characteristics of participants

Variables	Responses	Frequency (n = 364)	Percent (%)
1 Age	15–20 years	265	72.8
	21–30 years	99	27.2
2 Ethnicity	Hausa/Fulani	18	4.9
	Yoruba	164	45.1
	Igbo	98	26.9
	Others	84	23.1
3 Religion	Islam	37	10.2
	Christianity	326	89.6
	Others	1	0.2
4 College	Medical and health sciences	106	29.1
	Social and management sciences	54	15.0
	Science	33	9.0
	Law	113	31.0
	Engineering	58	15.9
5 Regular pocket money	Yes	305	83.8
	No	59	16.2
6 Average monthly allowance	20 (30 USD)–40,000 NGN (55USD)	177	48.6
	40–60,000 NGN (80 USD)	133	36.5
	60–80,000 NGN (110 USD)	35	9.6
	80–100,000 NGN (140 USD)	13	3.6
	100,000 NGN and above	6	1.7
7 Respondents' experience during menstruation	Painful bleeding	145	39.8
	Heavy bleeding	105	28.8
	Scanty bleeding	54	14.8
	Not applicable	60	16.6

Concerning the respondents' knowledge about menstruation and menstrual hygiene, 73.6% agreed that menstruation is physiological and 40.7% of respondents stated their menstruation interfered with school performance, 39.8% experienced painful bleeding, while 28.8% experienced heavy bleeding. Concerning

menstruation characteristics, 48.4% of respondents considered menstruation to have a foul odor, while 54.1% considered menstrual blood hygienic. About 86.3% of the respondents understood menstrual hygiene as maintaining cleanliness, while 97% agreed that a sanitary pad is appropriate for menstruation. Around

half of the respondents considered bathing during menstruation (50.3%) and pad changing (51.7%) as something that should be done as the need arises and felt the dustbin (82.4%) was the appropriate place for

used pad disposal (**Table 2**). Most respondents (72.3%) had poor knowledge of menstrual hygiene, and 27.7% had good knowledge of it.

Table 2. Respondents' knowledge about menstrual hygiene among female undergraduates (n = 364)

Variables	Responses	Frequency	Percent (%)
What is menstruation?	Physiological	268	73.6
	Pathological curse	19	5.2
	Don't know	28	7.7
	Others	34	9.3
		15	4.2
Menstruation interferes with school performance	Yes	148	40.7
	No	141	38.7
	Maybe	75	20.6
What is menstrual hygiene?	Maintaining cleanliness during your period	314	86.3
	Bathing during your period	14	3.8
	Disposing of your pad appropriately	4	1.1
	Cleaning the genitals during menstruation	20	5.5
	I don't know	12	3.3
Appropriate material to use for menstruation	Sanitary pad	353	97.0
	Cloth	6	1.6
	Towel	5	1.4
Number of times a woman should bath during period	Once a day	29	8.0
	Twice a day	109	29.9
	Three times/more	43	11.8
	As needs arise	183	50.3
Number of times a woman should change pad	Once a day	30	8.2
	Twice a day	41	11.3
	Three times/more	105	28.8
	As needs arise	188	51.7
The appropriate place to dispose of pad	Dustbin	300	82.4
	Toilet	41	11.3
	Drain	2	0.5
	I don't know	21	5.8
Foul odor during menstruation	Yes	176	48.4
	No	105	28.8
	Maybe	83	22.8
Menstruation blood is unhygienic	Yes	167	45.9
	No	197	54.1
Total level of knowledge	Good knowledge	101	27.7
	Poor knowledge	263	72.3

Concerning the level of practice of menstrual hygiene, a few respondents (0.8%) used cloths as absorbent, and of those who used cloths, 32.3% used soap and water to clean the cloth, while 46.3% dried the cloth with sunlight. On the other hand, 90.1% use sanitary pads as absorbent, of which 51.9% change their pad as the need arises, and 85.4% dispose of the

used pad into the dustbin. Before this, some respondents wrapped it up (70.9% in nylon; 15.4% in paper). Meanwhile, 58% of the respondents changed their pants as the need arose daily during menstruation, while 24.5% changed them twice daily. On the other hand, 60.2% of the respondents took their baths twice daily during menstruation (**Table 3**).

Table 3. Practice of menstrual hygiene among female undergraduates

Variables (n = 364)	Responses	Frequency	Percent (%)
Absorbent material used during menstruation	Sanitary pad	328	90.1
	Toilet roll	17	4.7
	Cloth	3	0.8
	Others	16	4.4
Those using cloth as pad, how it is cleaned (n = 356)	Soap & water	115	32.3
	Only water	27	7.6
	Not applicable	144	40.4
	Others	70	19.7
Those using cloth as pad, how it is dried (n = 337)	Sunlight	156	46.3
	Inside the room	20	5.9
	Not applicable	7	2.1
	Others	154	45.7
Number of times respondent changes pad/cloth in a day?	Once a day	36	9.9
	Twice a day	29	8.0
	Three times/more	110	30.2
	As needs arises	189	51.9
Where the pads are disposed	Dustbin	311	85.4
	Drain	17	4.7
	Toilet	23	6.3
	Open field	13	3.6
What respondents use to wrap the pad before disposing it	Papers	56	15.4
	Nylon	258	70.9
	Not wrap	10	2.7
	Others	40	11.0
Number of times respondent changes pants in a day when menstruating	Once a day	27	7.4
	Twice a day	89	24.5
	Three times/more	37	10.2
	As needs arises	211	57.9
Number of times respondent bath in a day when menstruating	Once	52	14.3
	Twice	219	60.2
	Sometimes	7	1.9
	I don't	86	23.6
Do you clean your genitals during menstruation?	Yes	349	95.9
	No	15	4.1
If yes, by what means?	Water and soap	155	42.6
	Only with water	209	57.4
Total level of menstrual hygiene practice	Good practice	179	49.2
	Bad practice	185	50.8

Regarding cleaning the genitals during menstruation, about 95.6% of the respondents washed their genitals with only water (57.3%) or soap and water (42.6%). Overall, the level of practice of menstrual hygiene among the respondents was low, as more than half (50.8%) had poor menstrual hygiene practices. Around half of the participants demonstrated bad (50.8%) and good practices (49.2%) of menstrual hygiene.

Regarding the barriers associated with menstrual hygiene, 59.1% of the respondents agreed that the

inconsistent water availability in their dormitory affected their menstrual hygiene practices. In comparison, about 12.1% of the respondents considered fatigue a barrier to their menstrual hygiene practice. On the other hand, the majority of the respondents did not consider class activities (58.5%), lack of money (97.0%), and lack of privacy (90.1%) as barriers associated with their menstrual hygiene practices (Table 4).

Table 4. Respondents' perception of barriers to practice of menstrual hygiene among female undergraduates

Variables (n = 364)	Yes (%)	NO (%)
Water is not always available in my hostel	215 (59.1)	149 (40.9)
Fatigue stops me from bathing	44 (12.1)	320 (87.9)
Sometimes class activities do not make me change my pad	151 (41.5)	213 (58.5)
Sometimes I don't have enough money to buy a pad	11 (3.0)	353 (97.0)
I do not have enough privacy to observe menstrual hygiene	36 (9.9)	325 (90.1)

Discussion

This study assessed the level of knowledge and practice of menstrual hygiene among female undergraduate students attending a private university in Nigeria. The study's results revealed that the respondents were mostly in their teenage and young adulthood years. This could be because, in private universities, the minimum age limit for admission into the university is not always set when compared to public universities in Nigeria.^{24,25} In this age bracket, girls and young women receive menstrual education from their mothers or sisters. They are expected to practice what they have learned as they grow and live independently.^{15,23}

A previous report suggests that many girls in Nigeria receive menstrual hygiene education from their mothers, older siblings and peers.²⁸ Although a study conducted in Nigeria revealed that 17.8% of students were exposed to menstrual hygiene knowledge from their teachers,²¹ another study revealed that some teachers in Nigerian schools were uncomfortable discussing the subject.²⁸ This highlights the need to

train teachers on appropriate ways to communicate issues relating to menstrual hygiene to their students. Respondents from this study had access to a steady monthly allowance, which was enough to purchase menstrual hygiene products; this might be because students attending private universities must purchase meals every time, unlike public universities, where students can cook.²⁴ However, this might not be the case for many girls in Nigeria as evidence suggests that poverty has remained a significant issue in the country, where over 100 million people exist on less than one dollar per day, and the country is one of the nations having the highest number of people living in extreme poverty.^{29,30} It is important to note that menstrual hygiene is now considered a basic human right; Scotland was reported as the first country to make period products available free of charge,³¹ and a state of Australia has also implemented this for public secondary school students.³² Efforts by governmental and non-governmental organizations to make period products available free of charge or at subsidized rates in low and middle-income countries like Nigeria are now warranted.

In this study, most respondents had poor knowledge of menstrual hygiene. This was at variance with a study conducted in Nepal, which found adequate knowledge of menstrual hygiene among adolescent girls.¹⁶ However, this was in tandem with another study¹⁸ that found that over two-thirds of girls had poor knowledge of menstruation. According to a study conducted in rural Gambia,³³ females learn about menstruation from their mothers, teachers, and siblings. This implies that the respondents' understanding of this study does not necessarily stem from their knowledge about the female reproductive system learned in school. The basic knowledge of this study's respondents could also have stimulated their awareness of how menstruation impacts their education, pain perception and the amount of bleeding experienced monthly.²¹ According to a study conducted in rural Gambia, the knowledge transferred from mothers or family members may also be filled with taboos and myths about menstruation, including the characteristics such as smell and the hygiene of menstrual blood.³³ This could explain why about half of the respondents in this study demonstrated bad menstrual hygiene practices, suggesting that health practitioners can utilize various media to correct myths and misconceptions regarding menstrual hygiene. As nurses effectively deliver various educational interventions among females³⁴ through various means like mHealth interventions,³⁵ they can reach females in rural and underserved areas;³⁶ they should design mHealth interventions focusing on menstrual health for females across Nigeria as a high level of mobile phone usage has been reported among females in Nigeria.^{37,38} Similarly, nurses could be involved in early education for females in schools regarding menstrual health.

According to a review of menstrual hygiene, management, and waste disposal, menstrual hygiene practice includes using sanitary products, cleaning the genitals with soap and clean water, taking showers during menstruation and proper disposal of used sanitary products.³⁹ Although the findings of this study revealed that most respondents use sanitary products, some still use cloths as absorbents and have challenges practicing regular showers and changing sanitary pads

regularly, proper sanitary disposal and cleaning the genitals with soap and water. This could be because the respondents have lectures that may last for hours and only have limited time to return to the hostel for a proper clean-up between lectures. Not being able to change between class schedules negatively impacts their concentration during lectures as the students may constantly fear smell, leakage, and staining of clothes while in class.²¹ Two major barriers against menstrual hygiene reported by participants in this study include the unavailability of water and demanding class activities. Inadequate WASH (water, sanitation, and hygiene) facilities, especially in public locations like schools, workplaces, and health centers, can be a significant barrier for women and girls.³³ It is also essential for teachers to schedule class activities to allow girls to care for their menstrual health.

Furthermore, in most low- and middle-income countries, including Nigeria, the culture of silence and secrecy surrounding menstruation may further escalate barriers to practicing menstrual hygiene.^{18,33} However, respondents in this study were more likely to be hindered by fatigue and limited access to water in their hostels. This finding about fatigue as a barrier to menstrual hygiene practice is consistent with a study conducted in India, where limited access to water and fatigue limited the level of menstrual hygiene practice.⁶

Strengths and Limitations of the Study

This study elucidates the level of knowledge and practice of menstrual hygiene among female undergraduates in a private university in Nigeria. One of the strengths of this study is that it provided insight into the level of knowledge and practice of menstrual hygiene among female undergraduates, as opposed to only teenagers in middle and high schools. Despite the strength of the study, there are some limitations. First, only one private university was used, with a limited number of respondents, and we did not compare the findings of students from one private college to other colleges in the institution or to other universities, limiting generalization. Therefore, caution needs to

be taken when interpreting and utilizing the findings of this study in different settings. We equally recommend that these limitations be addressed in future studies.

Conclusion and Implications for Nursing Practice

This study revealed a poor knowledge of menstrual hygiene and an average level of menstrual hygiene practice among the respondents. While most female students in private universities might be able to afford sanitary products, this study revealed that, like other female students in middle and high schools in low- and middle-income countries, they still experience challenges with practicing menstrual hygiene. The challenges include access to clean water, fatigue, a low level of knowledge about menstrual hygiene practices and class activities interfering with the ability to practice menstrual hygiene. Therefore, it is recommended that schools of higher learning ensure that students have regular access to clean water with adequate time between classes to allow for proper menstrual hygiene practice. Additionally, it is recommended that nurses working in higher learning institutions provide regular menstrual hygiene awareness programs on campus and advocate for access to clean water and hygiene facilities for menstruating female students. Furthermore, there is a need for further research to compare the knowledge and practice of menstrual hygiene between private and public universities.

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References

1. Bhusal CK. Practice of menstrual hygiene and associated factors among adolescent school girls in Dang District, Nepal. *Adv Prev Med*. 2020 Jul 24;2020:1292070. doi: 10.1155/2020/1292070.
2. Roy A, Paul P, Saha J, Barman B, Kapasia N, Chouhan P. Prevalence and correlates of menstrual hygiene practices among young currently married women aged 15–24 years: an analysis from a nationally representative survey of India. *Eur J Contracept Reprod Health Care*. 2021;26(1):1–10. doi: 10.1080/13625187.2020.1810227.
3. Majeed J, Sharma P, Ajmera P, Dalal K. Menstrual hygiene practices and associated factors among Indian adolescent girls: a meta-analysis. *Reprod Health*. 2022;19(1):148. doi: 10.1186/s12978-022-01453-3.
4. Babbar K, Martin J, Ruiz J, Parry AA, Sommer M. Menstrual health is a public health and human rights issue. *Lancet Public Health*. 2022 Jan;7(1):e10–1. doi: 10.1016/S2468-2667(21)00212-7.
5. World Health Organization. WHO statement on menstrual health and rights [Internet]. 2022 June 22 [cited 2023 July 20]. Available from: <https://www.who.int/news/item/22-06-2022-who-statement-on-menstrual-health-and-rights>
6. Saranya J, Prakash C, Kumar SKS. Menstrual hygiene practices among adolescent girls. *Int J Innov technol Expl Eng*. 2019;8(12):364–6. Available from: <https://www.ijitee.org/wp-content/uploads/papers/v8i12/L32701081219.pdf>
7. Habtegiorgis Y, Sisay T, Kloos H, Malede A, Yalew M, Arefaynie M et al.. Menstrual hygiene practices among high school girls in urban areas in Northeastern Ethiopia: a neglected issue in water, sanitation, and hygiene research. *PLoS One*. 2021 Jun 9;16(6):e0248825. doi: 10.1371/journal.pone.0248825.
8. Yalew M, Adane B, Arefaynie M, Kefale B, Damtie Y, Mitiku K et al. Menstrual hygiene practice among female adolescents and its association with knowledge in Ethiopia: a systematic review and meta-analysis. *PLoS One*. 2021; 16(8):e0254092. doi: 10.1371/journal.pone.0254092.
9. World Bank. Menstrual health and hygiene [Internet]. 2022 [cited 2023 July 15]. Available from: <https://www.worldbank.org/en/topic/water/brief/menstrual-health-and-hygiene>
10. World Bank. Menstrual hygiene management enables women and girls to reach their full potential [Internet]. 2018 May 15 [cited 2023 July 20]. Available from: <https://www.worldbank.org/en/news/feature/2018/05/25/menstrual-hygiene-management>

11. Odey GO, Amusile O, Oghenetajiri PO, David S, Adi A, Lucero-Priso DE 3rd. Period during a pandemic: the neglected reality of Nigerian girls and women. *Public Health Pract (Oxf)*. 2021 Oct 1;2:100196. doi: 10.1016/j.puhip.2021.100196.
12. Emmanuel Osemota Foundation. Sanitary pads and absenteeism in schools [Internet]. 2022 Aug 22 [cited 2023 July 19]. Available from: <https://emmanuelosemotafoundation.org/sanitary-pads-2/>
13. Aladeselu M. Menstrual hygiene day: 37 million Nigerian females are in period poverty. *The Cable* [Internet]. 2023 May 28 [cited 2023 July 25]. Available from: <https://www.thecable.ng/menstrual-hygiene-day-37-million-nigerian-females-are-in-period-poverty>
14. Mohammed S, Larsen-Reindorf RE, Awal I. Menstrual hygiene management and school absenteeism among adolescents in Ghana: results from a school-based cross-sectional study in a rural community. *Int J Reprod Med*. 2020;2020:6872491. doi: 10.1155/2020/6872491.
15. Nabwera HM, Shah V, Neville R, Sosseh F, Saidykhan M, Faal F. et al. Menstrual hygiene management practices and associated health outcomes among school-going adolescents in rural Gambia. *PLoS One*. 2021;16(2):e0247554. doi: 10.1371/journal.pone.0247554.
16. Neupane MS, Sharma K, Bista AP, Subedi S, Lamichhane S. Knowledge on menstruation and menstrual hygiene practices among adolescent girls of selected schools, Chitwan. *JCMC* [Internet]. 2020 Mar 15 [cited 2023 May 10];10(1):69–73. Available from: <https://www.nepjol.info/index.php/JCMC/article/view/28075>
17. Torondel B, Ferma J, Francis SC, Caruso BA, Routray P, Reese H et al. Effect of a combined household-level piped water and sanitation intervention on reported menstrual hygiene practices and symptoms of urogenital infections in rural Odisha, India. *Int J Hyg Environ Health*. 2022 Jan;239:113866. doi: 10.1016/j.ijheh.2021.113866.
18. Belayneh Z, Mekuriaw B. Knowledge and menstrual hygiene practice among adolescent school girls in southern Ethiopia: a cross-sectional study. *BMC Public Health*. 2019;19(1):1595. doi: 10.1186/s12889-019-7973-9.
19. Nair MK, Chacko DS, Ranjith Darwin M, Padma K, George B, Russell PS. Menstrual disorders and menstrual hygiene practices in higher secondary school girls. *Indian J Pediatr*. 2012 Jan;79 Suppl 1:S74–8. doi: 10.1007/s12098-011-0431-z.
20. Sahiledengle B, Atlaw D, Kumie A, Tekalegn Y, Woldeyohannes D, Agho KE. Menstrual hygiene practice among adolescent girls in Ethiopia: a systematic review and meta-analysis. *PLoS One*. 2022 Jan 4;17(1):e0262295. doi: 10.1371/journal.pone.0262295.
21. Nnennaya EU, Atinge S, Dogara SP, Ubandoma RJ. Menstrual hygiene management among adolescent school girls in Taraba State, Nigeria. *Afr Health Sci*. 2021 Jun;21(2):842–51. doi: 10.4314/ahs.v21i2.45.
22. Habtegiorgis Y, Sisay T, Kloos H, Malede A, Yalew M, Arefaynie M. et al. Menstrual hygiene practices among high school girls in urban areas in Northeastern Ethiopia: a neglected issue in water, sanitation, and hygiene research. *PLoS One*. 2021 Jun 9;16(6):e0248825. doi: 10.1371/journal.pone.0248825.
23. Michael J, Iqbal Q, Haider S, Khalid A, Haque N, Ishaq R et al. Knowledge and practice of adolescent females about menstruation and menstruation hygiene visiting a public healthcare institute of Quetta, Pakistan. *BMC Womens Health*. 2020 Jan 6;20(1):4. doi: 10.1186/s12905-019-0874-3.
24. Farinloye T, Adeola O, Mogaji E. Typology of Nigerian universities: a strategic marketing and branding implication. In: *Understanding the higher education market in Africa*. 2020:168–198. Routledge
25. Olaleye S, Ukpabi D, Mogaji, E. Public vs private universities in Nigeria: Market dynamics perspective. In: *Understanding the higher education market in Africa*. Routledge; 2020. pp. 19–36.
26. Yamane T. *Statistics: an introductory analysis*. 2nd ed. New York: Harper and Row; 1967.
27. Innovation Barometer. Part 5: how to adapt the questionnaire [Internet]. n.d. [cited 2023 July 25]. Available from: <https://innovationbarometer.org/copenhagen-manual/read-online/part-5-how-to-adapt-the-innovation-barometer-questionnaire/>

28. UNICEF. An assessment of menstrual hygiene management in secondary schools [Internet]. 2015 [cited 2023 July 24]. Available from: <https://www.unicef.org/nigeria/media/1256/file/Assessment-menstrual-hygiene-management-in-secondary-schools-2.jpg.pdf>
29. Akpan U, Isihak S. The geography of poverty in Nigeria. African Governance and Development Institute [Internet]. 2020 [cited 2023 July 23]. Available from: https://econpapers.repec.org/paper/agdwpaper/20_2f035.htm
30. Esan DT, Muhammad F, Okocha SE, Ogunkorode A, Bamigboye TO, Adeola RS, Akingbade O. Causes, enablers and perceived solutions to teenage pregnancy: a qualitative study in a South-Western State in Nigeria. *Pan Afr Med J*. 2022 Nov 3;43:120. doi: 10.11604/pamj.2022.43.120.36142.
31. The New York Times. Scotland makes period products free [Internet]. 2022 Aug 15 [cited 2023 July 24]. Available from: <https://www.nytimes.com/2022/08/15/world/europe/scotland-free-period-products.html>
32. Government of Western Australia. Public secondary school students to receive free period products [Internet]. 2023 Mar 27 [cited 2023 July 27]. Available from: <https://www.wa.gov.au/government/media-statements/McGowan-Labor-Government/Public-secondary-school-students-to-receive-free-period-products-20230327>
33. Shah V, Nabwera HM, Sosseh F, Jallow Y, Comma E, Keita O, Torondel B. A rite of passage: a mixed methodology study about knowledge, perceptions and practices of menstrual hygiene management in rural Gambia. *BMC Public Health*. 2019 Mar 7;19(1):277. doi: 10.1186/s12889-019-6599-2.
34. Tola YO, Akingbade O, Akinwaare MO, Adesuyi EO, Arowosegbe TM, Ndikom CM, Adejumo PO, Alexis O. Psychoeducation for psychological issues and birth preparedness in low- and middle-income countries: a systematic review. *AJOG Glob Rep*. 2022 Jul 18;2(3):100072. doi: 10.1016/j.xagr.2022.100072.
35. Akingbade O, Nguyen KT, Chow KM. Effect of mHealth interventions on psychological issues experienced by women undergoing chemotherapy for breast cancer: a systematic review and meta-analysis. *J Clin Nurs*. 2023 Jul;32(13-14):3058-73. doi: 10.1111/jocn.16533.
36. Arowolo D, Olarinde O, Tola Y, Ogunlowo B, Akingbade O. Advancing the Nigerian health system through advanced practice nursing. *Nurs Pract Today*. 2023;10 (1):7-12. <https://npt.tums.ac.ir/index.php/npt/article/view/2349>
37. Akingbade O, Adediran V, Somoye IE, Alade AS, Chow KM. Perceived feasibility and usefulness of mHealth interventions for psychoeducational support among Nigerian women receiving chemotherapy for breast cancer: a focus group study. *Support Care Cancer*. 2022 Dec;30(12):9723-34. doi: 10.1007/s00520-022-07403-w
38. Akingbade O, Adeleye K, Fadodun OA, Fawole IO, Li J, Choi EPH, et al. eHealth literacy was associated with anxiety and depression during the COVID-19 pandemic in Nigeria: a cross-sectional study. *Front Public Health*. 2023;11:1194908. doi: 10.3389/fpubh.2023.1194908.
39. Kaur R, Kaur K, Kaur R. Menstrual hygiene, management, and waste disposal: practices and challenges faced by girls/women of developing countries. *J Environ Public Health*. 2018 Feb 20;2018:1730964. doi: 10.1155/2018/1730964.

ความรู้และการปฏิบัติดูแลสุขอนามัยประจำเดือนของนักศึกษาหญิงในสถาบันอุดมศึกษาเอกชนในประเทศไนจีเรีย

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บทคัดย่อ: สุขอนามัยประจำเดือน คือ การรักษาความสะอาดของร่างกายในขณะที่ผู้หญิงกำลังมีประจำเดือน ผู้หญิงหลายคนประสบปัญหาอย่างมากในการดูแลสุขอนามัยของประจำเดือน เนื่องจากขาดความตระหนักหรือการเข้าถึงผลิตภัณฑ์สำหรับประจำเดือน โดยเฉพาะในประเทศที่มีรายได้น้อยและปานกลาง อย่างไรก็ตาม ความรู้และการปฏิบัติดูแลสุขอนามัยประจำเดือนของนักศึกษาหญิงโดยเฉพาะในไนจีเรียยังขาดการศึกษาวิจัยเรื่องนี้ การศึกษาภาคตัดขวางเชิงพรรณนาศึกษาความรู้ การปฏิบัติ และอุปสรรคที่เกี่ยวข้องกับสุขอนามัยประจำเดือนของนักศึกษาหญิงระดับปริญญาตรีของมหาวิทยาลัยเอกชนแห่งหนึ่งในไนจีเรีย ผู้เข้าร่วมวิจัยเป็นนักศึกษาหญิงจำนวน 364 รายที่ได้รับการคัดเลือกโดยใช้การสุ่มตัวอย่างแบบเจาะจง ประเมินข้อมูลส่วนบุคคล ความรู้ การปฏิบัติ และอุปสรรคที่เกี่ยวข้องกับสุขอนามัยประจำเดือนโดยใช้แบบสอบถามความคิดเห็นด้านความรู้และการปฏิบัติดูแลสุขอนามัยประจำเดือน วิเคราะห์ข้อมูลโดยใช้สถิติเชิงพรรณนา

ผลการวิจัยพบว่าผู้ตอบแบบสอบถามส่วนใหญ่ (ร้อยละ 72.3) มีความรู้เรื่องสุขอนามัยประจำเดือนไม่ดี ในขณะที่ประมาณครึ่งหนึ่ง (ร้อยละ 49.2) ปฏิบัติตนด้านการดูแลสุขอนามัยประจำเดือนเป็นอย่างดี อุปสรรคที่พบบ่อยที่สุดในการปฏิบัติดูแลสุขอนามัยประจำเดือนของผู้ตอบแบบสอบถาม ได้แก่ ความอ่อนแอและการเข้าถึงน้ำในหอพักมีข้อจำกัด ดังนั้น สถาบันการศึกษาจึงจำเป็นต้องตรวจสอบให้แน่ใจว่านักศึกษาสามารถเข้าถึงน้ำสะอาดได้เป็นประจำโดยมีเวลาเพียงพอระหว่างชั้นเรียนเพื่อให้สามารถปฏิบัติดูแลสุขอนามัยประจำเดือนได้อย่างเหมาะสม พยาบาลสามารถให้การศึกษาร่องประจำเดือนแก่มารดาและวัยรุ่นก่อนเข้ามหาวิทยาลัย ในทำนองเดียวกัน พยาบาลที่ทำงานในสถาบันอุดมศึกษาควรจัดโปรแกรมการส่งเสริมการตระหนักถึงสุขอนามัยประจำเดือนอย่างเป็นประจำในวิทยาเขต และสนับสนุนการเข้าถึงน้ำสะอาดและสิ่งอำนวยความสะดวกด้านสุขอนามัยสำหรับนักศึกษาหญิงที่กำลังมีประจำเดือน

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