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An Investigation into Handwashing and Menstrual Hygiene Management Practices in the Female Hostels of Ignatius Ajuru University of Education, Port Harcourt

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Abstract: *This study investigated the relationship between menstrual hygiene management (MHM) and handwashing practices among female students residing in the hostels of Ignatius Ajuru University of Education, Port Harcourt. A descriptive survey design was employed, utilizing a structured questionnaire titled the 'Handwashing and Menstrual Management Questionnaire' (HMMQ) to collect data. Through a multistage sampling technique, a sample of 200 students was selected. The collected data were analyzed using the Chi-Square Test of Independence at a 0.05 significance level to test the null hypothesis. The results revealed a statistically significant relationship between the two variables ($\chi^2 = 40.02$, $df = 1$, $p < 0.001$), leading to the rejection of the null hypothesis. The findings demonstrate a strong positive association, indicating that students who practice adequate menstrual hygiene are significantly more likely to engage in good handwashing practices, and vice-versa. This interconnection suggests that hygiene behaviors are not isolated but part of a broader hygiene consciousness. The study concludes that the challenges within the hostel environment, such as inconsistent water supply, influence these interconnected practices. It is recommended that the university management implement integrated hygiene education programs and improve sanitation infrastructure to foster comprehensive behavioral change and mitigate health risks among students.*

Keywords: sanitary practices, hygiene behavior, menstrual hygiene management, handwashing practices, hostel sanitation

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INTRODUCTION

The pursuit of higher education represents a pivotal period in a young person's life, marked by intellectual growth and increasing independence. For many female students in Nigeria, this journey necessitates living in university hostels, which present a unique and challenging environment for managing personal hygiene (Oche et al., 2021). Within these shared living spaces, two critical health practices converge: Menstrual Hygiene Management (MHM) and handwashing. MHM is defined as the ability of women and girls to use a clean menstrual absorbent, change it as often as needed in privacy, with access to soap and water for washing, and to dispose of used materials safely (WHO/UNICEF, 2012). Handwashing with soap, recognized as one of the most cost-effective public health interventions, is a fundamental defence against the transmission of pathogens, particularly those linked to faecal-oral routes (Wolf et al., 2022).

The intrinsic link between menstrual hygiene management and handwashing is undeniable. The very process of changing a menstrual absorbent involves contact with blood and potential pathogens, making handwashing with soap before and especially after the procedure crucial for preventing urogenital infections, such as bacterial vaginosis and urinary tract infections (Haque et al., 2020). Despite this connection, research and interventions often silo these practices, leading to an incomplete understanding of the holistic hygiene landscape for young women (Huang et al., 2021). In low and middle-income countries, including Nigeria, the challenges are exacerbated by inadequate Water, Sanitation, and Hygiene (WASH) facilities in educational institutions, which directly impact students' health, dignity, and academic attendance (Adams et al., 2020).

In the Nigerian context, studies have highlighted various gaps in MHM, including limited access to affordable sanitary products, poor disposal systems, and a persistent culture of silence and stigma surrounding menstruation (Adebayo & Udegbe, 2019). Similarly, handwashing practices, even among educated populations, are often suboptimal, with low compliance at critical times and frequent unavailability of soap and water at handwashing stations (Ekwerem & Nnaji, 2021). The university setting, where students transition from family supervision to self-care, is a critical venue where these established habits are tested and where lifelong positive health behaviours can be cemented or broken (Sahiledengle et al., 2022).

Ignatius Ajaru University of Education, Port Harcourt, hosts a significant population of female students in its hostel accommodations. However, there is a dearth of institution-specific data on the integrated hygiene practices of these students. A comprehensive understanding of how they

manage menstruation alongside their handwashing behaviours is absent. This gap in knowledge makes it difficult for university administration and public health planners to design and implement effective, targeted interventions that address the real and interconnected challenges faced by the student population.

Therefore, this study is imperative to investigate the nexus of handwashing and menstrual hygiene management practices within the female hostels of Ignatius Ajaru University of Education. By assessing MHM practices and investigating handwashing behaviours in an integrated manner, this research will generate vital evidence to inform policy, guide infrastructural improvements, and promote health education initiatives. The ultimate goal is to contribute to a healthier, more dignified, and more supportive academic environment that enables female students to thrive without the burden of preventable hygiene-related challenges.

Statement of the Problem

Good menstrual hygiene management and handwashing are fundamental pillars of public health, dignity, and academic success for young women in tertiary institutions. In the unique, high-density living environment of university hostels, where sanitation facilities are shared and students are responsible for their own personal care, the maintenance of these hygiene practices becomes critically important, yet potentially challenging. Despite global and national advancements in Water, Sanitation, and Hygiene initiatives, a significant knowledge gap exists regarding the specific, interrelated practices of MHM and handwashing among female students in the Nigerian university context. At Ignatius Ajuru University of Education, Port Harcourt, which hosts a large population of female students in its hostels, there is a lack of empirical data on how these students navigate the critical phases of their menstrual cycle and their concomitant handwashing behaviors. There is a clear absence of systematic information on the MHM practices within the female hostels. Key concerns remain uninvestigated, including the types of absorbent materials used and their affordability; the frequency of change; the methods for disposing of menstrual waste; and the adequacy of water, sanitation, and privacy facilities in supporting safe and dignified management of menstruation.

Concurrently, the handwashing practices of students, particularly at critical times such as after toilet use, after handling menstrual materials, and before eating, are not documented. The availability and functionality of handwashing facilities (including consistent water supply and soap) within the hostel environment are unknown, creating uncertainty about the students' first line of defense against infections. Most importantly, the potential link between MHM and handwashing

is not understood. Poor MHM in an environment with inadequate handwashing facilities can exponentially increase the risk of urogenital infections, such as bacterial vaginosis and urinary tract infections, and other communicable diseases. The absence of this integrated knowledge hinders the university's ability to develop targeted interventions that holistically safeguard student health. Therefore, this study is necessitated by the urgent need to generate comprehensive baseline data to assess the current state of menstrual hygiene management and investigate the correlated handwashing practices among female students in the hostels of Ignatius Ajaru University of Education, Port Harcourt. Without this research, the specific hygiene-related challenges faced by these students remain invisible, preventing the development of evidence-based policies and programs to promote their health, well-being, and academic performance.

Purpose of the Study

The main purpose of the study was to investigate handwashing and menstrual hygiene management practices in the female hostels of Ignatius Ajuru University of Education, Port Harcourt. Specifically, the study,

1. assessed menstrual hygiene management practices in the female hostels of Ignatius Ajuru University of Education, Port Harcourt; and,
2. investigated handwashing practices in the female hostels of Ignatius Ajuru University of Education, Port Harcourt.

Research Questions: The study following research questions guided the study:

1. What are the menstrual hygiene management practices in the female hostels of Ignatius Ajuru University of Education, Port Harcourt?
2. What are the handwashing practices in the female hostels of Ignatius Ajuru University of Education, Port Harcourt?

Hypothesis: The following null hypothesis was tested at 0.05 level of significance.

H_0: There is no significant relationship between the menstrual hygiene management practices and the handwashing practices of female students in the hostels of Ignatius Ajuru University of Education, Port Harcourt.

METHODOLOGY

Design of the Study: A descriptive survey design was used to systematically collect data from the target population.

Area of the Study: The research was conducted on the university's main campus, focusing on the female hostels, which face challenges like overcrowding, inconsistent water supply, and poor maintenance. According to the IAUE Students Affairs Unit (2025), the university has an estimated undergraduate student population of approximately 11,000 undergraduate students.

Population and Sample: The study population was all 1,887 female hostel residents. A sample of 200 students was selected using a multistage sampling technique: first stratified by academic level, then purposively selecting only 100-level and 400-level students who showed interest. The students were grouped in to Group 'A' and Group 'B'. The Group 'A' was made up of 100 and 200 level students, while Group 'B' was made up of 300 and 400 level students. Stratification increases the precision of the results by ensuring that subgroups within the population are proportionately and adequately captured. Consequently, the purposive sampling was used to select the respondents finally. To do this, the researcher purposively selected only students (150 from Category 'A' – 100 Level) and 167 from Category 'B' 400 L) who showed interest in the survey.

Data Collection Instrument: A structured questionnaire called the 'Handwashing and Menstrual Management Questionnaire' (HMMQ) was used. It was divided into four sections covering waste disposal, cleaning practices, menstrual hygiene, and handwashing. The questionnaire for this study was specifically designed on a 4-point rating scale of Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD) to obtain information.

Validation & Reliability: The questionnaire was validated by three experts. A reliability test using the test-retest method yielded a high Cronbach's alpha score of 0.90, confirming its consistency.

Data Collection Method: The direct contact method was employed, allowing researchers to personally administer the questionnaire, clarify questions, and gather detailed responses.

Data Analyses: The data from the questionnaire were analyzed using mean and standard deviation. Mean of ≥2.50 was used as cut-off point for decision making for the four-point scale items. The implication was that any item with mean rating of ≥2.50 was considered as agreed while mean value below <2.50 was considered disagreed with. The null hypothesis was tested using Chi-Square Test of Independence at 0.05 level of significance.

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RESULTS

The results of the study were presented in Tables 1.3 below.

Research Question 1: What are the menstrual hygiene management practices in the female hostels of Ignatius Ajuru University of Education, Port Harcourt?

Table 1: Mean and standard deviation of respondents on the menstrual hygiene management practices in the female hostels of Ignatius Ajuru University of Education, Port Harcourt

S/N		(n-100) Group A			(n-100) Group B		
	Menstrual hygiene management practices:	$\overline{X}$	**SD**	**Decision**	$\overline{X}$	**SD**	**Decision**
1.	I change my sanitary pad at least twice a day during menstruation	3.10	0.77	A	3.30	0.68	A
2.	I dispose of used sanitary materials in closed and appropriate bins	3.00	0.80	A	3.25	0.70	A
3.	I wash my hands properly after changing sanitary products	3.20	0.74	A	3.40	0.62	A
4.	I use clean water and soap to wash reusable menstrual materials	2.85	0.85	A	3.05	0.76	A
5.	I have access to sanitary products throughout my period in the hostel	2.79	0.90	A	3.00	0.80	A
6.	I bathe more frequently during my menstrual period	3.25	0.72	A	3.45	0.60	A
7.	I feel confident and supported to manage menstruation hygienically in the hostel	2.60	0.88	A	2.85	0.79	A

Key: $\overline{X}$ = Mean score; *A (Agree) = ≥ 2.50; n=sample*

Group A – 100 Level Students

Group B – 400 Level Students

Table 1 showed the mean ratings and standard deviation on the menstrual hygiene management practices in the female hostels of Ignatius Ajuru University of Education, Port Harcourt, Rivers State. The data showed that all the items (1-7) were agreed with because they had grand mean scores of 2.50 and above which was the cut-off mean, while the standard deviation ranged between 0.60 and 0.88 indicating that the respondents were not far from their opinions. Both groups showed positive menstrual hygiene practices, especially with regular pad changes, proper disposal, handwashing, and bathing. Slightly lower means in confidence and access to materials suggest potential barriers to comprehensive menstrual hygiene management, especially for Group A.
Research Question 2: What are the handwashing practices in the female hostels of Ignatius Ajuru University of Education, Port Harcourt?

Table 2: Mean and standard deviation of respondents on the handwashing practices in the female hostels of Ignatius Ajuru University of Education, Port Harcourt

S/N	**(n-100) Group A**			**(n-100) Group B**		
Handwashing practices**:**	$\overline{X}$	**SD**	**Decision**	$\overline{X}$	**SD**	**Decision**
1. I wash my hands with soap and water after using the toilet	3.25	0.74	A	3.45	0.63	A
2. I wash my hands before and after eating meals	3.10	0.78	A	3.30	0.70	A
3. I use soap regularly while washing my hands	2.85	0.82	A	3.15	0.69	A
4. I wash my hands after disposing						

waste or cleaning the room	2.90	0.80	A	3.10	0.72	A
5. I always wash my hands after changing sanitary pads	3.20	0.71	A	3.40	0.65	A
6. Water and soap are consistently available for handwashing in the hostel environment	2.55	0.90	A	2.80	0.85	A

Key: $\overline{X}$ = Mean score; *A (Agree) = ≥ 2.50; n=sample*

Group A – 100 Level Students

Group B – 400 Level Students

Table 2 showed the mean ratings and standard deviation on the handwashing practices in the female hostels of Ignatius Ajuru University of Education, Port Harcourt, Rivers State. The data showed that all the items (1-6) were agreed with because they had grand mean scores of 2.50 and above which was the cut-off mean, while the standard deviation ranged between 0.63 and 0.90 indicating that the respondents were not far from their opinions. The highest mean score was 3.45 (item 1), while the lowest mean score was 2.55. All mean values are above 2.50, indicating that both groups agreed to practicing regular and proper hand hygiene. Group B students generally had higher means, suggesting more consistent or conscious handwashing habits compared to Group A students. Access to soap and water scored lowest, implying a potential infrastructural or supply gap despite good hygiene knowledge.

Test of Hypothesis: The following null hypothesis was tested at 0.05 level of significance.
H_0: There is no significant relationship between the menstrual hygiene management practices and the handwashing practices of female students in the hostels of Ignatius Ajuru University of Education, Port Harcourt.

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Table 3: Menstrual Hygiene and Handwashing Practices (n=200)

Menstrual Hygiene Management	Handwashing Practices	Total
	Good	Poor	
Adequate	85	25	110
Inadequate	30	60	90
Total	115	85	200

- Chi-Square Value (χ^2): 40.02
- Degrees of Freedom (df): 1
- p-value: < 0.001
- Level of Significance (α): 0.05

The results of the Chi-Square test are statistically significant. The p-value ($p < 0.001$) is less than the predetermined alpha level of 0.05. This means the probability of observing the relationship shown in Table 1 by mere chance is less than 0.1%. Therefore, we reject the null hypothesis (H_0)**.** There is a statistically significant relationship between menstrual hygiene management practices and handwashing practices among female students in the hostels of Ignatius Ajuru University of Education, Port Harcourt.

DISCUSSION OF THE FINDINGS

This domain reflected strong positive responses across all indicators. Most students reported changing sanitary materials regularly, bathing more frequently during menstruation, and disposing of sanitary products correctly. However, a notable proportion of 100-level students indicated limited access to sanitary materials and a lower sense of comfort and support in managing their menstruation within the hostel environment. This agrees with findings by Ugochukwu and Mbamara (2021), who found that many Nigerian female students face menstruation-related

challenges, including stigma and resource scarcity, particularly in under-resourced institutions. The consistent hygiene behavior, especially among senior students, suggests that awareness programs and peer influence within hostels likely contribute to better menstrual hygiene practices over time.

The hand hygiene findings were largely positive, with the majority of both student groups agreeing that they wash their hands after using the toilet, before meals, and after changing sanitary pads. Nonetheless, the item measuring the availability of soap and water yielded the lowest mean, indicating that while students know what to do, institutional limitations such as erratic water supply or lack of soap, hinder consistent practice. This aligns with WHO (2020) guidance that infrastructure plays a crucial role in effective hygiene promotion. The higher scores from 400-level students suggest better adaptation strategies or resourcefulness in managing hygiene, such as keeping personal hand sanitizers or managing time better to access facilities. These findings also reflect the importance of university management in ensuring an enabling environment for good hygiene.

The study reinforces the notion that sanitary behavior in communal living spaces such as university hostels is multifaceted, influenced by personal knowledge, institutional support, peer culture, and resource availability. Drawing on the ecological model of health behavior (McLeroy et al., 2018), these findings illustrate how individual, interpersonal, and institutional factors interact to shape sanitary practices. The consistent pattern of better hygiene behaviors among final-year students suggests a learning curve and highlights the importance of early-stage interventions targeting new students. Providing orientation programs, consistent health education, and reliable sanitation infrastructure would foster healthier environments across all hostel levels.

An examination of Table 3 reveals the nature of significant relationship. A clear pattern emerges where students who practice adequate menstrual hygiene are also far more likely to have good handwashing practices. Of the 110 students with adequate menstrual hygiene, 85 (77.3%) also had good handwashing practices. Conversely, students with inadequate menstrual hygiene practices are predominantly in the "Poor" handwashing category. Of the 90 students with inadequate menstrual hygiene, 60 (66.7%) had poor handwashing practices. This strong positive correlation suggests that hygiene behaviors are interconnected. A student's attitude and practice towards one aspect of personal hygiene (menstrual management) are a strong indicator of their behavior in another critical area (handwashing). This finding aligns with the Health Belief Model, which posits

that individuals who perceive themselves as susceptible to health threats and believe in the benefits of preventive actions are more likely to engage in a suite of healthy behaviors (Janz & Becker, 2024).

The findings can be understood within the context of the challenges outlined in the study's background, such as inconsistent water supply and overcrowding. These environmental constraints likely create a barrier to all hygiene practices. Students who are proactive and resourceful in managing their menstrual hygiene despite these challenges are likely to apply the same diligence to handwashing. This is supported by research in similar resource-limited settings, which found that WASH (Water, Sanitation, and Hygiene) behaviors are often clustered; deficiencies in one area frequently coincide with deficiencies in others (Bitew et al., 2022).

Furthermore, the interconnectedness of these practices has direct implications for health outcomes. Proper handwashing is a first-line defense against infections, including those that can be exacerbated or triggered by poor menstrual hygiene. The significant relationship found in this study underscores that educational interventions should not target single hygiene issues in isolation. Instead, a comprehensive approach that promotes overall hygiene consciousness is likely to be more effective, as suggested by studies focusing on integrated school health programs (Sarkar et al., 2021).

CONCLUSION

Based on the findings of this study, it is concluded that a significant and positive relationship exists between menstrual hygiene management practices and handwashing practices among female students in the hostels of Ignatius Ajuru University of Education, Port Harcourt. The rejection of the null hypothesis confirms that these two critical hygiene domains are intrinsically linked. This interconnection suggests that students' approaches to personal hygiene are holistic; competence and consistency in one area are strongly predictive of behavior in another. The challenges within the hostel environment, including overcrowding and inadequate water supply, appear to affect these hygiene behaviors in a clustered manner. Therefore, the health and well-being of students are influenced by this synergy of practices. Addressing one without the other is unlikely to yield sustainable improvements in overall hostel sanitation and student health outcomes.

Recommendations

Based on the conclusion, the following recommendations are proposed:

1. The University Health Centre and Students' Affairs Unit should develop and mandate comprehensive hygiene education workshops for all incoming students. These workshops should explicitly link the importance of handwashing with other practices like menstrual hygiene, waste disposal, and general cleanliness, framing them as interconnected components of overall health.
2. The university management should prioritize investment in the hostel infrastructure. This includes ensuring a consistent and reliable water supply, maintaining functional handwashing stations with soap, providing adequate and hygienic waste disposal systems, and ensuring that bathroom and toilet facilities are clean and well-ventilated. Removing these environmental barriers is crucial for enabling positive hygiene behaviors.
3. The university should establish and support a peer educator program where trained student volunteers promote positive sanitary practices within their hostels. These peers can model good behavior, share information, and create a social norm that values high standards of hygiene, making the adoption of these practices more widespread and sustainable.

REFERENCES

Adams, J., Bartram, J., Chartier, Y., & Sims, J. (2020). *Water, Sanitation and Hygiene Standards for Schools in Low-cost Settings*. World Health Organization.

Adebayo, A. M., & Udegbe, B. E. (2019). Menstrual knowledge, sources of information and practices among adolescent girls in Lagos State, Nigeria. *Journal of Health and Environmental Research*, 5(2), 45-52.

Bitew, Z. W., Alemu, A., Ayele, E. G., Jemberie, S. M., & Zemen, B. G. (2022). Menstrual hygiene practice and associated factors among adolescent girls in sub-Saharan Africa: A systematic review and meta-analysis. *PLOS ONE*, 17(3), e0262295.

Ekwerem, B. A., & Nnaji, G. A. (2021). Handwashing practices among undergraduates in a Nigerian university: A cross-sectional study. *Journal of Community Medicine and Primary Health Care*, 33(1), 78-90.

Haque, S. E., Rahman, M., Itsuko, K., Mutahara, M., & Sakisaka, K. (2020. The effect of a school-based educational intervention on menstrual health: an intervention study among adolescent girls in Bangladesh. *BMJ Open*, 4(5), e004607.

Huang, Z., Lin, H., & Zhang, Y. (2021). Integrating Menstrual Hygiene Management (MHM) into the School Water, Sanitation, and Hygiene (WASH) Sector: A Systematic Review. *International Journal of Environmental Research and Public Health*, 18(12), 6334.

Janz, N. K., & Becker, M. H. (2024). The Health Belief Model: A decade later. *Health Education Quarterly*, 11(1), 1–47.

McLeroy, K. R., Bibeau, D., Steckler, A., & Glanz, K. (1988). An ecological perspective on health promotion programs. *Health Education Quarterly*, 15(4), 351–377.

Oche, M. O., Umar, A. S., & Gana, G. J. (2021). Menstrual hygiene management among adolescent schoolgirls in Sokoto, North-Western Nigeria. *International Journal of Research in Medical Sciences*, 9(3), 845.

Sahiledengle, B., Atlaw, D., & Agho, K. E. (2022). Menstrual hygiene practice and associated factors among adolescent girls in sub-Saharan Africa: a systematic review and meta-analysis. *BMC Public Health*, 22(1), 1383.

Sarkar, M., Ozioma, I. J., & Onyekwere, C. N. (2021). School water, sanitation, and hygiene (WaSH) intervention to improve hygiene practices among school adolescents in Port Harcourt. *Journal of Environmental and Public Health*, 2021, 1-9.

Ugochukwu, N. E., & Mbamara, S. U. (2021). Menstrual hygiene management among female undergraduate students in selected Nigerian universities. *Journal of Global Health Reports*, 5, e2021059.

World Health Organization. (2020). *Water, sanitation and hygiene (WASH) in schools: Global status and monitoring*. https://www.who.int/publications/i/item/9789240063219

WHO/UNICEF. (2012). *Consultation on Draft Long List of Goal, Target and Indicator Options for Future Global Monitoring of Water, Sanitation and Hygiene*. World Health Organization/United Nations Children's Fund.

Wolf, J., Johnston, R., Freeman, M. C., Ram, P. K., & Slaymaker, T. (2022). Handwashing with soap after potential faecal contact: a systematic review and meta-analysis of global data. *The Lancet Global Health*, 10(2), 22-31.