IPS Journal of Public Health
IPS J Public Health, 5(3): 337-349 (2025)
DOI: https://doi.org/10.54117/dz39xk40

Navigating Menstrual Health: A Study on Hygiene Practices Among Adolescent Girls in Akure North, Nigeria

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Abstract

Background: Menstrual hygiene is vital for adolescent health but remains a significant challenge in low-resource settings. This study examines the influence of socio-economic and educational factors on menstrual hygiene practices among adolescent girls in Akure North, Nigeria.
Methods: A cross-sectional survey of 500 adolescent girls assessed their awareness, education, and challenges related to menstrual hygiene management. Pearson correlation was used to analyse the relationships between socioeconomic factors, educational attainment, and menstrual hygiene practices.
Results: Family income showed a weak positive correlation with the ability to purchase sanitary products ($r = 0.082$, $p = 0.068$). Parental support was weakly negatively correlated with menstrual hygiene management ($r = -0.049$, $p = 0.277$). Availability of private spaces in schools was significantly correlated with reduced absenteeism ($r = -0.099$, $p = 0.027$). Educational attainment and access to clean water showed weak correlations with menstrual hygiene practices. Adequate menstrual hygiene education was significantly linked to increased awareness of where to seek help ($r = 0.091$, $p = 0.043$).
Conclusion: Socio-economic factors influence menstrual hygiene, but improving educational interventions and school facilities is crucial. The study's limitations include its cross-sectional design and reliance on self-reported data.

Keywords: *Menstrual hygiene, Adolescent girls, Socio-economic factors, Educational attainment, Nigeria*

Article History
Received: 16 Aug 2025
Accepted: 30 Aug 2025
Published: 02 Sept 2025

Scan QR Code to view[1]

How to cite this paper: Odubia, J. S., Ojo, T. D., Olaolorun, I. A., Jimoh, Y. T., & Adebisi, P. A. (2025). Navigating menstrual health: A study on hygiene practices among adolescent girls in Akure North, Nigeria. *IPS Journal of Public Health*, *5*(3), 337–349. https://doi.org/10.54117/dz39xk40.

1. Introduction

Menstrual hygiene management (MHM) is a fundamental aspect of adolescent health, with significant implications for girls' well-being, dignity, and development worldwide (Nnennaya et al., 2021). This is because the onset of menstruation, a natural biological process, marks a critical transition in a girl's life. Despite this potential, it continues to be stigmatised, misunderstood, poorly supported or banned in many settings across the world. As defined by The World Bank (2022), MHM that works consists of using clean menstrual materials to absorb or capture blood, especially during menstruation, altering these materials within privacy, washing the body where necessary with water and soap and ensure there are proper and clean means of disposing used menstrual management items. Absence of proper MHM are the major causes of different health complications such as, urinary, reproductive tract infections and other diseases of vagina (UNICEF, 2019). Besides, poor menstrual hygiene is a constraint to girls' education since many girls miss classes or drop out of school when they are on their periods (Shah et al., 2022).

Akure North of Ondo State Nigeria is a typical example of a semi urban area where both conventional and contemporary practices are common (Eke et al., 2017). This mixed inhabited rural and urban area is considered to encounter severe barriers to healthcare access, education engagement, as well as infrastructural provision. A combination of all these factors affects the menstrual while practicing hygiene among the adolescent girls. Socio-economic and cultural setting of Akure North create a situation where many women and girls end up with poor menstrual hygiene practices (Ondo State Radiovision Corporation, 2022). As such, many girls in this area experience their first menstruation without adequate knowledge or resources, leading to the adoption of unsafe practices

Meanwhile, global statistics underscore the gravity of inadequate MHM. For example, The World Health Organization (2022) and UNICEF (2020) revealed that millions of girl's experience poor menstruation hygiene leading to suffering in health, education and quality of life.e. In Nigeria as a case, the statistics reveal that a large number of young girls have poor access to sanitary products and

menstrual health information. In 2015, a study by the United Nations Children's Fund, UNICEF, discovered that close to nine percent of African girls miss school during their menstruation, which could amount to as much as half a school year (UNICEF 2015). Lack of access to clean water and sanitation, inadequate number of Beenets, and poor access to menstrual products make it even worse in schools which means girls are at a disadvantage just because of this natural occurrence.

Of these, the most significant problem in Akure North is a lack of knowledge and information on menstruation, which results in using dangerous practices (Ahmed et al., 2020). This is especially so during a girl's first menstrual cycle, lack of information and poor counselling leads to devastating health implications. The conventional use of dirty materials, including rags or leaves instead of sanitary pads, exposes women to different diseases from infections caused by bacteria and other pathogens in fluids (WHO, 2018). In addition the cultural beliefs and myths surrounding menstruation restrict the girl from either asking for help or expressing her needs (Mohammed & Larsen-Reindorf, 2020). The objective of this study is to analyse existing knowledge on Menstrual hygiene practices among adolescent girls in secondary school in Akure North Local Government. Hence the purpose of this study is to pinpoint the positive and negative practices of MHM in the region that would aid in making recommendations on positive behavioural changes that would be made or the factors that encourage the negative behaviors. Addressing these issues is crucial for enhancing the health, educational attainment, and overall well-being of adolescent girls in Akure North.

Research Aim

To investigate the menstrual hygiene practices among adolescent girls in Akure North Local Government secondary schools and identify the factors influencing these practices.

Research Objectives

1. To identify the common menstrual hygiene practices among adolescent girls in Akure North.
2. To assess the level of awareness and education regarding menstrual hygiene among these girls.
3. To evaluate the influence of socio-economic and educational factors on their menstrual hygiene practices.

Research Questions

1. What are the common menstrual hygiene practices among adolescent girls in Akure North?
2. What is the level of awareness and education on menstrual hygiene among these girls?
3. How do socio-economic and educational factors influence their menstrual hygiene practices?

2. Methodology

Considering the Sauders research onion framework, the methodology follows the following route.

Research Philosophy

The current research shall employ a positivistic research philosophy, which casts emphasis on the quantifiable reality. Positivism is chosen so that the results are real and the researcher can remain impartial to the material (Park et al., 2020). This approach is ideal for research that has an opportunity to quantify many behaviours and practices like menstrual hygiene among adolescent girls in Akure North. Since it is based on real statistics, the findings of the research are rather objective and accurate.

Research Approach

This research work adopts the hypothesis research process that is informed by theoretical principles of menstrual hygiene. The deductive approach enables the testing of such hypotheses against the gathered data as stipulated by Casula et al., (2020). This assists in either supporting or rejecting hypotheses of external sombre socio-economic and educational impacts on the menstrual practices among adolescent girls.

Methodology Choice

This study applies a quantitative research technique that analyses numerical data that is gathered in the study. This method is selected because it can involve a large sample size, thus giving some general understanding of practices regarding menstruation. Quantitative research is more recommended than the qualitative ones since it has an objective of analysing relations and factors that contribute to the formation of the variables among women of different ages.

Strategy

The study adopts survey research technique, the research instruments deployed are structured questionnaires, which were used to administer questionnaires to five hundred adolescent girls in Akure North. This strategy is useful for sample surveys in a short period to provide a large data collection and useful when collecting multiple information about menstrual hygiene practices, awareness, and its determinants. Initial questionnaires are standardised because the collected data must be compatible and suitable for statistical analysis.

Time Horizon

Cross-sectional research design is used, and data is collected at one time. A cross sectional study is used here because it can give a picture of menstrual hygiene practices among the adolescent girls in Akure North which will enable one to determine some of the issues that may be current among the girls. This is beneficial in this research design since cross-sectional design has minimal costs and time consumption.

Data Collection

Questionnaire Design

Therefore, a structured questionnaire was developed in order to obtain more specific data on the respondents' menstrual hygiene practices, knowledge and potential determinants. This brief questionnaire was constructed from a literature review and with reference to other questionnaires from professionals in the field, in order not to make the questions irrelevant or ambiguous. It comprises demographic information, menstrual practices, awareness, education, and factors and conditions.

Reliability and Validity

Since the aim was to make the study highly reliable and valid, a pilot testing was carried out among 30 adolescent girls from a similar area. Coefficient reliability was assessed by a Test-retest method using Cronbach alpha set at 0.7 or more. The independence of the expected questionnaires was also confirmed by a set of signature key opinion leaders' reviews. Stratified random sampling was used to select five secondary schools representing various socio-economic backgrounds in Akure

North: Some of the schools include Akure North High School, Aponmu Community Grammar School, Iju Grammar School, Oda High School and Ijare Grammar School.

Sample Size Determination

A sample size of 500 adolescent girls was estimated based on Cochran's formula for large populations sample size estimate. This assures adequate power to capture the desired differences and relationships in the data results.

Data Collection Process

Data were collected over two months, with trained research assistants administering the questionnaires during school hours to minimise disruption. Participants were assured of confidentiality to encourage honest responses. The completed questionnaires were reviewed for accuracy before being entered into SPSS for analysis.

Data Analysis

Data were analysed using SPSS, which supports both descriptive and inferential statistics. Descriptive statistics summarised the data, while Pearson correlation was used to examine relationships between socio-economic factors, educational attainment, and menstrual hygiene practices. The statistical analysis provided insights into the impact of these factors on menstrual hygiene management among adolescent girls in Akure North.

3. Results

3.1.1 Results for Common Menstrual Hygiene Practices (Variable 1 and Objective 1).

As presented in Table 1, the survey results reveal insightful information about menstrual hygiene practices among the respondents. Regarding the use of sanitary pads, 52% of the respondents (comprising 23.8% who agree and 28.2% who strongly agree) reported using sanitary pads during menstruation. This indicates that while sanitary pads are the preferred choice for many, a significant portion (48%) either disagrees or strongly disagrees with this practice, highlighting the diversity in menstrual product preferences and the potential for alternative products to be used by a considerable number of individuals.

Table 1: I use sanitary pads during my menstrual period.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	123	24.6	24.6	24.6
	Disagree	117	23.4	23.4	48.0
	Agree	119	23.8	23.8	71.8
	Strongly Agree	141	28.2	28.2	100.0
	Total	500	100.0	100.0	

In terms of the frequency of changing sanitary pads, only 50.2% of respondents (28.8% agreeing and 21.4% strongly agreeing) reported changing their pads at least three times a day (Table 2). This finding is concerning as it suggests that nearly half of the respondents may not be changing their pads frequently enough, which could increase the risk of infections and discomfort. Regular pad changes are essential for maintaining good menstrual hygiene, and this area may require more awareness and education to ensure better practices.

Table 2: I change my sanitary pad at least three times a day.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	128	25.6	25.6	25.6
	Disagree	121	24.2	24.2	49.8
	Agree	144	28.8	28.8	78.6
	Strongly Agree	107	21.4	21.4	100.0
	Total	500	100.0	100.0	

When it comes to hand hygiene, which is crucial during menstruation, only 50.4% of the respondents (22.8% agreeing and 27.6% strongly agreeing) reported washing their hands before and after changing their sanitary pads (Table 3). This indicates that almost half of the respondents do not consistently follow this important hygiene practice. The lack of proper hand hygiene can lead to an increased risk of infections, underscoring the need for better education on this aspect of menstrual hygiene.

Table 3: I wash my hands before and after changing my sanitary pad.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	133	26.6	26.6	26.6
	Disagree	115	23.0	23.0	49.6
	Agree	114	22.8	22.8	72.4
	Strongly Agree	138	27.6	27.6	100.0
	Total	500	100.0	100.0	

The practice of using reusable pads instead of disposable ones was reported by 47.4% of the respondents (22.2% agreeing and 25.2% strongly agreeing) (Table 4). The nearly even split between those who use reusable and disposable pads suggests that a significant number of individuals opt for reusable alternatives, possibly due to factors such as cost, environmental concerns, or personal preference. This finding highlights the need for more accessible and diverse menstrual product options to cater to the varying needs of the population.

Table 4: I use cloth or reusable pads instead of disposable pads.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	129	25.8	25.8	25.8
	Disagree	134	26.8	26.8	52.6
	Agree	111	22.2	22.2	74.8
	Strongly Agree	126	25.2	25.2	100.0
	Total	500	100.0	100.0	

Regarding genital hygiene, only 50.4% of respondents (23.6% agreeing and 26.8% strongly agreeing) reported using soap and water to clean their genital area during menstruation (Table 5). This is a concerning statistic as proper cleaning during

menstruation is essential for preventing infections and maintaining overall hygiene. The fact that half of the respondents do not adhere to this practice indicates a significant gap in menstrual hygiene knowledge and practices that need to be addressed through targeted health education initiatives.

Table 5: I use soap and water to clean my genital area during menstruation.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	124	24.8	24.8	24.8
	Disagree	124	24.8	24.8	49.6
	Agree	118	23.6	23.6	73.2
	Strongly Agree	134	26.8	26.8	100.0
	Total	500	100.0	100.0	

Proper disposal of used sanitary materials was reported by 53.6% of the respondents (26.2% agreeing and 27.4% strongly agreeing) (Table 6), while the remaining 46.4% did not follow this practice. Improper disposal can have serious environmental and public health consequences, suggesting that there is a need for better education on proper disposal methods and the provision of adequate facilities for sanitary waste management.

Table 6: I dispose of used sanitary materials properly.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	96	19.2	19.2	19.2
	Disagree	136	27.2	27.2	46.4
	Agree	131	26.2	26.2	72.6
	Strongly Agree	137	27.4	27.4	100.0
	Total	500	100.0	100.0	

As presented in table 7, the survey result revealed that 48% of respondents (21.8% agreeing and 26.2% strongly agreeing) reported experiencing discomfort due to a lack of proper menstrual hygiene products. This finding highlights a significant issue related to the accessibility and availability of menstrual hygiene products. The discomfort experienced by nearly half of the respondents underscores the need for increased access to affordable and effective menstrual hygiene products to improve the quality of life for individuals during their menstrual periods.

Table 7: I experience discomfort due to lack of proper menstrual hygiene products.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	141	28.2	28.2	28.2
	Disagree	119	23.8	23.8	52.0
	Agree	109	21.8	21.8	73.8
	Strongly Agree	131	26.2	26.2	100.0
	Total	500	100.0	100.0	

3.1.2 Results for Level of Awareness and Education Regarding Menstrual Hygiene (Objective 2 and Variable 2)

As presented in table 8, the survey responses reveal that 132 (26.4%) strongly disagreed and 126 (25.2%) disagreed with having received education on menstrual hygiene before their first period. Conversely, 130 (26.0%) agreed, and 112 (22.4%) strongly agreed. This data shows a divided experience among respondents regarding premenstrual education. A significant number, totaling 258 (51.6%), reported a lack of such education, while 242 (48.4%) felt they had received it. The results indicate a considerable gap in pre-menstrual education, suggesting the need for enhanced educational programs before menstruation begins.

Table 8: I received education on menstrual hygiene before my first period.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	132	26.4	26.4	26.4
	Disagree	126	25.2	25.2	51.6
	Agree	130	26.0	26.0	77.6
	Strongly Agree	112	22.4	22.4	100.0
	Total	500	100.0	100.0	

In table 9, the survey result shows that 131 (26.2%) strongly disagreed and 132 (26.4%) disagreed with their school providing adequate menstrual hygiene education. In contrast, 121 (24.2%) agreed, and 116 (23.2%) strongly agreed. This distribution indicates that a significant proportion, totaling 263 (52.6%), felt their schools did not adequately address menstrual hygiene education, while 237 (47.4%) believed their schools did. There is a notable perception that schools may be falling short in delivering sufficient menstrual hygiene education, underscoring the need for improvements in school health programs.

Table 9: My school provides adequate education on menstrual hygiene.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	131	26.2	26.2	26.2
	Disagree	132	26.4	26.4	52.6
	Agree	121	24.2	24.2	76.8
	Strongly Agree	116	23.2	23.2	100.0
	Total	500	100.0	100.0	

As shown in Table 10, the survey result revealed that (25.6%) strongly disagreed and 145 (29.0%) disagreed with feeling comfortable discussing menstrual hygiene with their teachers. Meanwhile, 110 (22.0%) agreed, and 117 (23.4%) strongly agreed. This indicates that 273 (54.6%) respondents felt uncomfortable discussing menstrual hygiene, compared to 227 (45.4%) who felt comfortable. The discomfort in discussing menstrual hygiene with teachers highlights the need for creating a more supportive and open environment within schools for such discussions.

Table 10: I feel comfortable discussing menstrual hygiene with my teachers.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	128	25.6	25.6	25.6
	Disagree	145	29.0	29.0	54.6
	Agree	110	22.0	22.0	76.6
	Strongly Agree	117	23.4	23.4	100.0
	Total	500	100.0	100.0	

In table 11, the survey results revealed that 131 (26.2%) strongly disagreed and 110 (22.0%) disagreed with having learned about menstrual hygiene from their family. Conversely, 134 (26.8%) agreed, and 125 (25.0%) strongly agreed. This means that 241 (48.2%) felt they did not receive family education, while 259 (51.8%) did. Although a majority received some family education, a significant portion did not. Enhancing family-based education could help cover those lacking this knowledge.

Table 11: I learned about menstrual hygiene from my family.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	131	26.2	26.2	26.2
	Disagree	110	22.0	22.0	48.2
	Agree	134	26.8	26.8	75.0
	Strongly Agree	125	25.0	25.0	100.0
	Total	500	100.0	100.0	

According to table 12, the survey result showed that 110 (22.0%) strongly disagreed and 125 (25.0%) disagreed with being aware of different menstrual hygiene products. On the other hand, 134 (26.8%) agreed, and 131 (26.2%) strongly agreed. This shows that 235 (47.0%) respondents lack awareness about menstrual products, while 265 (53.0%) are aware. There is a notable lack of awareness regarding menstrual hygiene products among a significant portion of respondents, suggesting the need for better educational efforts on available products.

Table 12: I am aware of the different types of menstrual hygiene products available.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	110	22.0	22.0	22.0
	Disagree	125	25.0	25.0	47.0
	Agree	134	26.8	26.8	73.8
	Strongly Agree	131	26.2	26.2	100.0
	Total	500	100.0	100.0	

As presented in table 13, the survey result revealed that 133 (26.6%) strongly disagreed and 114 (22.8%) disagreed with the notion that cultural taboos affect their menstrual management. In contrast, 124 (24.8%) agreed, and 129 (25.8%) strongly agreed. This indicates that 249 (50.6%) perceive cultural taboos as influencing their menstrual practices, while 247 (49.4%) do not. Cultural taboos play a significant role in menstrual management for many respondents, highlighting the need to address these issues sensitively in educational programs.

Table 13: I believe there are cultural taboos that affect how I manage my menstruation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	133	26.6	26.6	26.6
	Disagree	114	22.8	22.8	49.4
	Agree	124	24.8	24.8	74.2
	Strongly Agree	129	25.8	25.8	100.0
	Total	500	100.0	100.0	

As presented in table 14, the survey result revealed that 119 (23.8%) strongly disagreed and 126 (25.2%) disagreed with knowing where to seek help for menstrual challenges. Conversely, 120 (24.0%) agreed, and 135 (27.0%) strongly agreed. This means that 245 (49.0%) do not know where to seek help, while 255 (51.0%) do. While a slight majority know where to seek help, a significant number of respondents do not. Improving access to information about support resources is crucial.

Table 14: I know where to seek help if I face challenges during my menstrual period.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	119	23.8	23.8	23.8
	Disagree	126	25.2	25.2	49.0
	Agree	120	24.0	24.0	73.0
	Strongly Agree	135	27.0	27.0	100.0
	Total	500	100.0	100.0	

3.1.3 Results for Influence of Socio-economic and Educational Factors (Objective 3 and Variable 3)

The result presented in Table 15 revealed that 129 (25.8%) strongly disagreed and 114 (22.8%) disagreed with the statement that their family's income affects their ability to buy sanitary products. In contrast, 122 (24.4%) agreed, and 135 (27.0%) strongly agreed. This indicates that 236 (47.6%) respondents feel family income does impact their ability to purchase sanitary products, while 243 (48.6%) do not. A nearly equal split suggests that while many feel family income affects their ability to buy sanitary products, a significant portion do not experience this issue. Addressing income disparities could improve access to sanitary products.

Table 15: My family's income affects my ability to buy sanitary products.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	129	25.8	25.8	25.8
	Disagree	114	22.8	22.8	48.6
	Agree	122	24.4	24.4	73.0
	Strongly Agree	135	27.0	27.0	100.0
	Total	500	100.0	100.0	

As shown in table 16, the survey result showed that 122 (24.4%) strongly disagreed and 134 (26.8%) disagreed with receiving support from parents or guardians for menstrual hygiene management. Conversely, 121 (24.2%) agreed, and 123 (24.6%) strongly agreed. This results in 256 (51.2%) feeling unsupported, while 244 (48.8%) receive adequate support. The results highlight a considerable portion of respondents feeling unsupported by parents or guardians. Enhancing parental support and communication about menstrual hygiene could address this gap.

Table 16: My parents/guardians support me in managing my menstrual hygiene.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	122	24.4	24.4	24.4
	Disagree	134	26.8	26.8	51.2
	Agree	121	24.2	24.2	75.4
	Strongly Agree	123	24.6	24.6	100.0
	Total	500	100.0	100.0	

The result presented in table 17 showed that 117 (23.4%) strongly disagreed and 133 (26.6%) disagreed with missing school due to lack of menstrual hygiene products. On the other hand, 118 (23.6%) agreed, and 132 (26.4%) strongly agreed. This indicates that 250 (50.0%) of respondents do not miss school due to this issue, while 250 (50.0%) do. The equal distribution suggests that lack of menstrual hygiene products affects half of the respondents' school attendance. Improving access to sanitary products could help reduce school absences.

Table 17: I sometimes miss school due to lack of menstrual hygiene products.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	117	23.4	23.4	23.4
	Disagree	133	26.6	26.6	50.0
	Agree	118	23.6	23.6	73.6
	Strongly Agree	132	26.4	26.4	100.0
	Total	500	100.0	100.0	

In table 18, the survey results showed that 118 (23.6%) strongly disagreed and 135 (27.0%) disagreed with the statement that the cost of sanitary products is a concern. In contrast, 131 (26.2%) agreed, and 116 (23.2%) strongly agreed. This means that 247 (49.4%) are concerned about the cost, while 253 (50.6%) are not. The data suggests that cost concerns are prevalent among nearly half of the respondents. Addressing the affordability of sanitary products could alleviate financial barriers for many.

Table 18: The cost of sanitary products is a concern for me.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	118	23.6	23.6	23.6
	Disagree	135	27.0	27.0	50.6
	Agree	131	26.2	26.2	76.8
	Strongly Agree	116	23.2	23.2	100.0
	Total	500	100.0	100.0	

As presented in table 19, the survey result revealed that 125 (25.0%) strongly disagreed and 125 (25.0%) disagreed that educational attainment influences menstrual hygiene practices. Conversely, 129 (25.8%) agreed, and 121 (24.2%) strongly agreed. This indicates that 250 (50.0%) perceive educational attainment as influential, while 250 (50.0%) do not. There is an even split on whether educational attainment influences menstrual hygiene practices. This suggests that educational programs should be tailored to enhance menstrual hygiene education regardless of educational background.

Table 19: Educational attainment influences my menstrual hygiene practices.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	125	25.0	25.0	25.0
	Disagree	125	25.0	25.0	50.0
	Agree	129	25.8	25.8	75.8
	Strongly Agree	121	24.2	24.2	100.0
	Total	500	100.0	100.0	

The result presented in table 20 showed that 120 (24.0%) strongly disagreed and 146 (29.2%) disagreed that access to clean water at school influences their menstrual management. In contrast, 127 (25.4%) agreed, and 107 (21.4%) strongly agreed. This indicates that 234 (46.8%) feel clean water access does not impact their menstrual management, while 234 (46.8%) do. Access to clean water at school affects nearly half of the respondents' menstrual management. Improving water facilities in schools could enhance menstrual hygiene practices.

Table 20: Access to clean water at school influences how I manage my menstruation.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	120	24.0	24.0	24.0
	Disagree	146	29.2	29.2	53.2
	Agree	127	25.4	25.4	78.6
	Strongly Agree	107	21.4	21.4	100.0
	Total	500	100.0	100.0	

In table 21, the result revealed that 127 (25.4%) strongly disagreed and 127 (25.4%) disagreed with the statement that the availability of a private space in school affects their menstrual hygiene management. Conversely, 127 (25.4%) agreed, and 119 (23.8%) strongly agreed. This shows that 254 (50.8%) feel that private space availability impacts their menstrual hygiene, while 254 (50.8%) do not. The availability of private spaces in schools has a significant impact on menstrual hygiene management for half of the respondents. Improving facilities to ensure privacy can enhance menstrual hygiene practices.

Table 21: The availability of a private space in school affects my menstrual hygiene management.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	127	25.4	25.4	25.4
	Disagree	127	25.4	25.4	50.8
	Agree	127	25.4	25.4	76.2
	Strongly Agree	119	23.8	23.8	100.0
	Total	500	100.0	100.0	

4. Discussion

This section addresses the research questions outlined in the introduction of the study. For clarity, the research questions are restated as follows:

Research Questions

I. What are the common menstrual hygiene practices among adolescent girls in Akure North?
II. What is the level of awareness and education on menstrual hygiene among these girls?
III. How do socio-economic and educational factors influence their menstrual hygiene practices?

3.2.1 What are the common menstrual hygiene practices among adolescent girls in Akure North?

To answer the first objective of this research, which is to determine the common menstrual hygiene practices among adolescent girls in Akure North, the bivariate correlation of the questions asked with the questionnaire and analysis by SPSS is shown in Table 22.

The Pearson correlations among various menstrual hygiene practices for adolescent girls in Akure North reveal minimal significant relationships between the variables. The correlation between using sanitary pads and changing them at least three times a day is 0.023, indicating no significant relationship. Similarly, the correlation between using sanitary pads and washing hands before and after changing them is -0.068, showing no significant association. The use of cloth or reusable pads and the use of soap and water for cleaning genital areas also display weak or insignificant correlations with other practices. The only notable correlation is between using soap and water to clean the genital area and experiencing discomfort due to inadequate menstrual hygiene products, with a correlation of 0.109 ($p = 0.015$). This suggests that those who use soap and water are more likely to report discomfort, highlighting a potential gap in the availability or adequacy of menstrual hygiene products. The deduction from the correlation is the fact that the absence of significant correlations among most menstrual hygiene practices in Akure North implies that these practices are likely managed independently by adolescents. For instance, the insignificant correlation between the frequency of changing Sanitary pads and other hygiene practices such as hand washing or the use of soap and water shows that any improvement in one practice does not have an impact on the others. Because the relationship between washing with soap and water and discomfort is strong, it is possible that there are modifiable menstrual hygiene practices in combination with limited and inadequate amenities for cleaning oneself with pads and tampons.

Today it is possible to single out certain differences when comparing these results with the similar studies conducted in other countries. For example, Kaur et al. (2018) from South Asia reveal that proper disposal of sanitary materials is positively associated with the decrease in Menstrual Discomfort. Likewise, the findings from Kenyan studies indicate that the educational interventions have a potential of reducing men's HUI scores due to improved MHM practices (Shenkman et al., 2023). These results are incongruous to the situation observed in Akure North where such relations are not likely to exist perhaps because of lack of a coherent educational support or resource provision.

Researches like Department for Education (2024) & Schmitt et al. (2022) conducted in comparatively developed countries like UK and US show that better education facilities and provision of healthy sanitary/normally wrapped products are associated with better menstrual health of the communities. The disparities highlighted therefore suggest that any intervention in Akure North should be specific in filling education needs and deficits, as well as lack of resources. Enhanced integration of educational programs and better access to menstrual hygiene products could improve overall menstrual health and reduce discomfort among adolescents in the region.

3.2.2 What is the level of awareness and education on menstrual hygiene among adolescent girls?

In answering the first objective of this research which is to know the level of awareness and education on menstrual hygiene among these adolescent girls in Akure North, the bivariate correlation of the questions asked with the questionnaire and analysis by SPSS is presented in Table 23.

The Pearson correlations among various aspects of menstrual hygiene awareness and education among adolescent girls in Akure North show limited significant relationships. For instance, there is no significant correlation between receiving education on menstrual hygiene before the first period and other factors like school education adequacy or comfort in discussing menstrual hygiene with teachers. There is also no association between receiving education before the first period and knowing different types of menstrual hygiene products with a coefficient of correlation being 0.015. Likewise, the relationship between being in a position to talk to teachers about menstrual hygiene and knowing where to get help = 0.100 ($p = 0.026$); therefore, it can be agreed that

understanding knowing where to get help correlate with being in a position to talk to teachers about Menstrual hygiene. A relationship between other variables was not found; therefore, these components of the menstrual hygiene awareness and education seem to be unrelated.

From the findings, it may be inferred that most of the variables in the study are actually independent of each other, and this shows no high level of correlation among most of the variable domains that make up the subject area of menstrual hygiene education and awareness among adolescent girls in Akure North. This independence gives a perception that change in one dimension, premenstrual education for instance, does not necessarily translate to change in another dimension like the comfortability in discussing menstrual hygiene or being in possession of a variety of products. Nevertheless the relationship between the comfort level while discussing Menstrual Hygiene and awareness regarding the places for seeking help, clearly supports the reasons for going vocal in a society for better awareness and accepting platforms for help. This suggests that enhancing discussion comfort may indirectly improve access to help and resources.

This contrasts with studies from other regions, such as India, where early education significantly improves menstrual product awareness by up to 40% (Dasgupta & Sarkar, 2008). The discrepancy could be attributed to differences in curriculum content, cultural attitudes, or how menstrual hygiene topics are introduced to adolescents in Akure North. The weak correlation observed suggests that early education is insufficient on its own without comprehensive, ongoing support that reinforces product knowledge and menstrual hygiene practices. Furthermore, the lack of significant correlations among other variables points to a fragmented approach to menstrual hygiene education, where each aspect operates largely in isolation, rather than contributing to a cohesive understanding.

Interestingly, the one significant finding in this study which is the correlation between feeling comfortable discussing menstrual hygiene with teachers and knowing where to seek help ($r = 0.100$, $p = 0.026$)—emphasises the critical role of communication in shaping menstrual health outcomes. This perfectly tallies with research done in other parts of the world like Bangladesh for instance, it was found that among adolescent girl's comfort in discussing menstrual related issues increased the likelihood of resource access by 52 percent (United Nations Population Fund Bangladesh, 2023). However, the low coefficient that has been established in this research analysis indicates that as much as communication still influences student success in part, other structural factors which deny effectiveness of communication in Akure North include; poor school support systems or cultural taboos. Using data from East African studies on improved early education, and communication on menstruation, Sommer et al. (2015) have found much stronger correlation with improved MHM compared to other research done which shows that there is need to have enhanced education on menstruation and health policies in school. Finally, the conclusion shows that only developing awareness of speaking openly and promoting the need for menstrual products improved the accessibility of the latter, but it is necessary to combine it with improved programs so that all aspects of menstrual hygiene are interrelated and delivered in the best way possible.

3.2.3 How do socio-economic and educational factors influence their menstrual hygiene practices?

To answer the first objective of this research, which is to know how socio-economic and educational factors influence menstrual hygiene practices among these adolescent girls in Akure North, the bivariate correlation of the questions asked with the questionnaire and analysis by SPSS is shown in Table 24.

The correlations among socio-economic and educational factors reveal various influences on menstrual hygiene practices. Family income shows a weak correlation with the ability to buy sanitary products ($r = 0.037$, $p = 0.407$), suggesting that income does not significantly affect purchasing power for menstrual products in this sample. Similarly, parental support for managing menstrual hygiene has a minimal correlation with missing school due to lack of products ($r = -0.021$, $p = 0.643$), indicating that parental support does not significantly mitigate school absenteeism related to menstrual hygiene. Concerns about the cost of sanitary products also show a weak correlation with other factors ($r = 0.050$, $p = 0.268$), highlighting that financial concerns may not strongly impact menstrual hygiene practices. The availability of clean water at school and access to a private space for menstrual management show weak correlations ($r = 0.045$, $p = 0.316$ and $r = 0.082$, $p = 0.068$, respectively). These factors have a minor influence on menstrual hygiene management, suggesting that while access to these resources may play a role, they do not significantly impact menstrual hygiene practices in this context. Similarly, these practices are only mildly associated with educational level ($r = 0.007$, $p = 0.873$) and cannot explain the fairly high prevalence of these risky behaviors. Therefore, how girls in Akure North manage their menstruation indicates that socioeconomic and education barely affect proper menstruation hygiene. While socio-economic factors such as family income and costs of sanitary products as well as education factors could be considered relevant, they are not markedly influential or consistent in determining menstrual hygiene practices.

This is in contrast to other countries and indeed other continents where income is more decisive in determining MHM. For instance, a survey implemented in Uganda revealed that low income girls were 55% more likely to use unhygienic materials such as rags during their menstruation, reducing their chances of maintaining proper menstrual hygiene and school attendance (Mason et al., 2013). The weak correlation in this study may therefore imply local factors for instance availability of cheap inputs or social networks that help in bearing the cost. Likewise, the low negative relationship between parental support and school absenteeism due to lack of products ($r = -0.021$; $p = 0.643$) implies that in this regard, parental participation does not alleviate the problem of product availability, a factor that is in contrast to the South Asian studies where parental interference reduces absenteeism by 25% (Kirk and Sommer, 2006). Such a difference may be

because Arabia has different social norms about how females who are in their menstrual periods are treated at home.
The low level of association indicated by r between concerns about cost of sanitary products and socio economic status r = 0.045, p = 0.316 and the low impact of clean water availability and toilets to manage menstruation with r = 0.082, p = 0.068, suggest that menstrual hygiene management in this setting is not determined by simple socio economic factors alone. Studies from regions such as Kenya have shown that the provision of private spaces and access to water significantly improve menstrual management and reduce absenteeism by up to 30% (Phillips-Howard et al., 2016), but in this study, these factors appear to have a less pronounced effect. This could be due to certain infrastructural or cultural norms in Akure North such that though these resources may be available to them in one form or another, they are not optimally applied for a number of reasons such as social taboos or poor menstrual health literacy.

Therefore, it will be seen that socio-economic and educational status whilst probably defining characteristics influencing menstrual hygiene do not appear to play a major role in Akure North. These mean that even variables like family income, cost of the sanitary products and education do not reliably predict menstrual hygiene behaviours (Odubia, Ajileye, et al., 2025). These results differ from those of other studies conducted in other areas which indicate that socio-economic factors exert a more direct impact on menstrual management. This observed methodology indicates that the involvement of these factors might not be as absolute and exclusive as would be expected from the economic and educational models; and that perhaps the practices concerning menstrual hygiene depend with regional socio-cultural beliefs and practices and the infrastructural provisions. Addressing these challenges may require targeted interventions that go beyond improving socio-economic and educational conditions to include more culturally sensitive approaches that address the underlying social barriers to effective menstrual hygiene management.

5. Conclusion

The purpose of this research was to explore and understand the status of teenage girls in the area under study that concerns menstrual hygiene based on socio-economic and educational status of the girls. Conclusions established show that factors such as income per family, parental support, and level of education show low associations with menstrual hygiene practices. They found some relations with cleanliness of water and privacy of spaces accessed at school but most of them were not found to have direct impact on MHM at schools. From the data it emerged that socio-economic and educational factors may be influential but these tend to offer a weak effect possibly due to other neutralising local environmental or Human supporting factors.

Recommendations

To enhance menstrual hygiene practices among adolescent girls in Akure North, the following recommendations are proposed:

1. Improve Access to Menstrual Products: Government should ensure more access to affordable sanitary items either through subsidies or programmes of distributing these items. Bilateral cooperation with local companies and NGOs could be helpful in getting some of these products.

2. Enhance Educational Programs: Extend intensive menstrual health and management education in schools, with focus on factual concerns about menstruation and the social stigmas associated with it. Education should also include knowledge on the various types of menstrual products available in the market and how the products are used.

3. Improve Sanitation Facilities: The government should increase its spending on provision of clean water and private places for students in schools. Proper equipage of school facilities can aid to promote the better management of menstruation.

4. Strengthen Parental and Community Support: It should be possible to initiate community awareness and passers programs to educate parents and guardians on menstrual hygiene. Home and community management can create a tremendous difference in adolescent girls' menstrual health.

5. Address Cultural Taboos: Organise enlightenment initiatives to help erase societal perceptions regarding menstrual blood as dirty. Normalising conversation on menstruation can help in eradicating stigma and enhance access and use of better hygienically acceptable menstrual products.

Limitations of the Study

The following is the limitation of this study. Firstly, the study sample sourced adolescent girls in Akure North which may not necessarily reflect the generality of the situation in other states or Nigeria as a whole. Secondly, this study depends on the data collected from the questionnaires, which may contain distortions since the respondents can present the data in a manner that would not want others to perceive them negatively. Third, the study conducted in cross-sectional research does not permit an understanding of temporal changes or causal relationships. Further research could use Longitudinal study designs and higher sample size, diverse population for better understanding of menstrual hygiene practices and the antecedents.

Table 22: Correlation on the common menstrual hygiene practices among adolescent girls in Akure North

Correlations								
		I use sanitary pads during my menstrual period.	I change my sanitary pad at least three times a day.	I wash my hands before and after changing my sanitary pad.	I use cloth or reusable pads instead of disposable pads.	I use soap and water to clean my genital area during menstruation.	I dispose of used sanitary materials properly.	I experience discomfort due to lack of proper menstrual hygiene products.
I use sanitary pads during my menstrual period.	Pearson Correlation	1	.023	-.068	-.053	.036	-.032	-.010
	Sig. (2-tailed)		.613	.128	.236	.420	.474	.816
	N	500	500	500	500	500	500	500
I change my sanitary pad at least three times a day.	Pearson Correlation	.023	1	-.029	-.025	.022	-.063	.013
	Sig. (2-tailed)	.613		.518	.570	.626	.159	.772
	N	500	500	500	500	500	500	500
I wash my hands before and after changing my sanitary pad.	Pearson Correlation	-.068	-.029	1	-.011	-.003	.028	-.054
	Sig. (2-tailed)	.128	.518		.803	.955	.539	.226
	N	500	500	500	500	500	500	500
I use cloth or reusable pads instead of disposable pads.	Pearson Correlation	-.053	-.025	-.011	1	-.015	.032	.008
	Sig. (2-tailed)	.236	.570	.803		.737	.477	.854
	N	500	500	500	500	500	500	500
I use soap and water to clean my genital area during menstruation.	Pearson Correlation	.036	.022	-.003	-.015	1	.026	.109*
	Sig. (2-tailed)	.420	.626	.955	.737		.557	.015
	N	500	500	500	500	500	500	500
I dispose of used sanitary materials properly.	Pearson Correlation	-.032	-.063	.028	.032	.026	1	.041
	Sig. (2-tailed)	.474	.159	.539	.477	.557		.356
	N	500	500	500	500	500	500	500
I experience discomfort due to lack of proper menstrual hygiene products.	Pearson Correlation	-.010	.013	-.054	.008	.109*	.041	1
	Sig. (2-tailed)	.816	.772	.226	.854	.015	.356	
	N	500	500	500	500	500	500	500

*. Correlation is significant at the 0.05 level (2-tailed).

Table 23: Correlation on the level of awareness and education on menstrual hygiene among these girls

Correlations								
		I received education on menstrual hygiene before my first period.	My school provides adequate education on menstrual hygiene.	I feel comfortable discussing menstrual hygiene with my teachers.	I learned about menstrual hygiene from my family.	I am aware of the different types of menstrual hygiene products available.	I believe there are cultural taboos that affect how I manage my menstruation.	I know where to seek help if I face challenges during my menstrual period.
I received education on menstrual hygiene before my first period.	Pearson Correlation	1	-.033	.067	.015	-.058	.015	-.026
	Sig. (2-tailed)		.455	.134	.730	.199	.738	.558
	N	500	500	500	500	500	500	500
My school provides adequate education on menstrual hygiene.	Pearson Correlation	-.033	1	.012	-.072	-.069	.043	.091*
	Sig. (2-tailed)	.455		.797	.106	.125	.333	.043
	N	500	500	500	500	500	500	500
I feel comfortable discussing menstrual hygiene with my teachers.	Pearson Correlation	.067	.012	1	-.008	-.029	.066	.100*
	Sig. (2-tailed)	.134	.797		.850	.520	.142	.026
	N	500	500	500	500	500	500	500
I learned about menstrual hygiene from my family.	Pearson Correlation	.015	-.072	-.008	1	.004	.050	.020
	Sig. (2-tailed)	.730	.106	.850		.935	.267	.651
	N	500	500	500	500	500	500	500
I am aware of the different types of menstrual hygiene products available.	Pearson Correlation	-.058	-.069	-.029	.004	1	-.037	.018
	Sig. (2-tailed)	.199	.125	.520	.935		.404	.692
	N	500	500	500	500	500	500	500
I believe there are cultural taboos that affect how I manage my menstruation.	Pearson Correlation	.015	.043	.066	.050	-.037	1	.000
	Sig. (2-tailed)	.738	.333	.142	.267	.404		.999
	N	500	500	500	500	500	500	500
I know where to seek help if I face challenges during my menstrual period.	Pearson Correlation	-.026	.091*	.100*	.020	.018	.000	1
	Sig. (2-tailed)	.558	.043	.026	.651	.692	.999	
	N	500	500	500	500	500	500	500

Table 24: Correlation on how socio-economic and educational factors influence their menstrual hygiene practices

Correlations								
		My family's income affects my ability to buy sanitary products.	My parents/guardians support me in managing my menstrual hygiene.	I sometimes miss school due to lack of menstrual hygiene products.	The cost of sanitary products is a concern for me.	Educational attainment influences my menstrual hygiene practices.	Access to clean water at school influences how I manage my menstruation.	The availability of a private space in school affects my menstrual hygiene management.
My family's income affects my ability to buy sanitary products.	Pearson Correlation	1	-.049	-.015	.037	.029	-.023	.082
	Sig. (2-tailed)		.277	.742	.407	.513	.605	.068
	N	500	500	500	500	500	500	500
My parents/guardians support me in managing my menstrual hygiene.	Pearson Correlation	-.049	1	-.021	-.022	-.033	.075	-.003
	Sig. (2-tailed)	.277		.643	.630	.457	.094	.953
	N	500	500	500	500	500	500	500
I sometimes miss school due to lack of menstrual hygiene products.	Pearson Correlation	-.015	-.021	1	.050	-.031	.053	-.099*
	Sig. (2-tailed)	.742	.643		.268	.485	.235	.027
	N	500	500	500	500	500	500	500
The cost of sanitary products is a concern for me.	Pearson Correlation	.037	-.022	.050	1	-.060	.047	.039
	Sig. (2-tailed)	.407	.630	.268		.177	.291	.388
	N	500	500	500	500	500	500	500
Educational attainment influences my menstrual hygiene practices.	Pearson Correlation	.029	-.033	-.031	-.060	1	.007	.039
	Sig. (2-tailed)	.513	.457	.485	.177		.873	.387
	N	500	500	500	500	500	500	500
Access to clean water at school influences how I manage my menstruation.	Pearson Correlation	-.023	.075	.053	.047	.007	1	.045
	Sig. (2-tailed)	.605	.094	.235	.291	.873		.316
	N	500	500	500	500	500	500	500
The availability of a private space in school affects my menstrual hygiene management.	Pearson Correlation	.082	-.003	-.099*	.039	.039	.045	1
	Sig. (2-tailed)	.068	.953	.027	.388	.387	.316	
	N	500	500	500	500	500	500	500

*. Correlation is significant at the 0.05 level (2-tailed).

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