International Journal of Medical Science and Pharmaceutical Research

ISSN(e): 3050-5720
ISSN(p): 3050-5712

Vol. 02(09): 105-111, September 2025

Home Page: https://ijmspr.org/

Knowledge and Attitudes Toward Menstrual Hygiene Among School Girls: A Cross-Sectional Study in Two Secondary Schools in Delta State, Nigeria

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KEYWORDS:

Menstrual hygiene, Knowledge, Attitude, Secondary school girls, Reproductive health

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Published:
September 30, 2025

ABSTRACT

Introduction: Menstruation is a normal occurrence that is vital to teenage girls' health and development, but in low- and middle-income environments, there are still many misconceptions, a lack of knowledge, and negative attitude.

Methods: Using a descriptive cross-sectional design, the knowledge and attitudes of menstrual hygiene among school girls in two secondary schools in Amai and Ezionum, Delta State, Nigeria, were evaluated in this study. A multistage stratified random sample procedure was used to select 401 respondents. SPSS version 23.0 was used to analyze the data, which were gathered via a structured self-administered questionnaire. Descriptive statistics compiled sociodemographic traits, knowledge, and attitudes while at a significance threshold of $p < 0.05$, chi-square tests looked at associations between variables.

Results: Of those surveyed, 53.6% were between the ages of 15 and 19, and 46.4% were between the ages of 10 and 14. While 48.4% of respondents exhibited good knowledge of menstrual hygiene, 51.6% showed poor knowledge overall. With 71.3% of respondents having negative attitudes on menstrual hygiene, the most common information sources were mothers (37.7%) and school teachers (34.2%). Both age and class level were substantially associated with knowledge ($p = 0.000$), with older pupils and those in senior classes showing higher knowledge.

Conclusion: To encourage good menstrual hygiene, early school-based health education and parental involvement are required.

INTRODUCTION

According to Ahmed et al. (2025), menstruation is a normal occurrence that typically starts between the ages of 11 and 15. Although a sizable part of high school students in Nigeria are teenage females, many people in low- and middle-income nations are frequently misinformed or lack adequate education regarding menstruation (Uzoechi et al., 2023; Betsu et al., 2023). Despite being a crucial developmental stage, the advent of menstruation is sometimes accompanied by societal taboos, myths, misconceptions, and a lack of preparation or information (Ahmed et al., 2025; Belayneh and Mekuriaw, 2019). The knowledge and attitudes that schoolgirls learn from their families, friends, schools, and cultural surroundings play a significant role in how they perceive and handle

menstruation (Belayneh and Mekuriaw, 2019; Gbogbo et al., 2024; Swe et al., 2022).Girls' self-confidence, infection prevention, school absenteeism, and healthy habits are all impacted by having the right information and having a positive attitude about menstrual hygiene (Ahmed et al., 2025; Niwemukiza et al., 2025; Majeed as al., 2022).

Adolescent girls frequently don't know enough about menstruation before menarche, according to research conducted worldwide (Uzoechi et al., 2023; Chandra-Mouli and Patel, 2017; Msovela et al., 2025). Due to cultural taboos and the lack of open discussion surrounding menstruation in many low- and middle-income countries, girls are often unprepared for their first menstrual experience and turn to peers or trial-and-error methods, which may reinforce unhealthy practices (Chandra-Mouli and Patel, 2017). Menstruation attitudes are also very important. Negative attitudes—such as perceiving menstruation as filthy, humiliating, or a disease—reinforce stigma, lower school involvement, and impede psychosocial development, whereas positive attitudes promote openness and excellent hygiene (Kvalem et al., 2024; Swende et al., 2024; Olson et al., 2022). These issues are still urgent in Nigeria. Inadequate health education, limited access to sanitary products, and a lack of school water, sanitation, and hygiene (WASH) facilities continue to undermine menstrual hygiene management despite increased awareness of adolescent health (Ubochi et al., 2023; Lami and Onchi, 2023; Child and Youth Protection Foundation, 2025). Numerous studies conducted around the nation have revealed that many girls continue to use unsanitary absorbents, are ignorant of the physiology of menstruation, and experience cultural limitations when they are menstruating (Ene et al., 2024; Umahi et al., 2021). In rural and semi-urban areas, where poverty, cultural values, and inadequate infrastructure converge, these problems are more noticeable (Ubochi et al., 2023; Ene et al., 2024). Designing context-specific interventions thus requires an understanding of teenagers' attitudes and knowledge regarding menstrual hygiene. In addition to providing formal education, schools are crucial venues for promoting health. Teenagers' opinions on menstruation can be greatly influenced by their teachers, peers, and school health initiatives (Olusegun et al., 2025). Evidence on how teenagers in smaller communities like Amai and Ezhionum in Delta State, Nigeria perceive and handle menstrual hygiene is still lacking, though.

This study evaluates schoolgirls' attitudes and knowledge on menstrual hygiene in two chosen secondary schools in Amai and Ezhionum in an effort to close that gap. In doing so, it hopes to offer guidance to educators, parents, and health policymakers on how to improve menstrual health education and encourage behaviors that protect adolescents' dignity, well-being, and involvement in school.

Aim: To assess the knowledge and attitudes of school girls toward menstrual hygiene in two selected secondary schools in Amai and Ezhionum

Objectives: The objectives of this study are to;

1. Assess the level of knowledge about menstrual hygiene among secondary school girls.
2. Examine attitudes toward menstrual hygiene

Hypotheses:

H_0: There is no significant relationship between the sociodemographic of school girls (age and academic class) and their level of knowledge of menstrual hygiene.

MATERIALS AND METHODS

Study Design

The study utilized a descriptive cross-sectional study design.

Study Area

The study was conducted in two secondary schools in Amai and Ezhionum communities in Ukwuani/Ndokwa Local Government Area of Delta state. The government secondary schools are the only secondary schools in both communities and enrolls both male and female students.

Study Population

Every girl enrolled in public secondary schools in the study area who has gone through at least one menstrual cycle, whether in junior or secondary school.

Sample Size and Sampling Method

The sample size was determined to be 380 using the single proportion calculation with a 45.5% prevalence (Kalu et al., 2022), a 95% confidence level (Z = 1.96), and a 5% margin of error. A 10% non-response rate adjustment raised the final sample size to 422 individuals.

A multi stage stratified random sampling was used.

Stage 1 (School level): Based on the student populations of 425 and 505 at Ezionum and Amai, respectively, the entire sample of 422 was divided equally between the two schools.

Stage 2 (Class level): The sample was subsequently distributed proportionately across the JSS1–SSS2 classes within each school based on class enrollment.
Stage 3 (student level): To reach the allotted quota, participants were chosen at random from each class.

Method of Data Collection

After examining pertinent research on menstruation knowledge and attitudes, a structured, self-administered questionnaire was created in order to gather data (Ene et al., 2024; Nwachukwu et al., 2025). Three components comprised the questionnaire: **Sociodemographic data**: age, class level and parents' occupation.

Knowledge of Menstruation and Menstrual Hygiene: This section assessed the respondents' knowledge of menstrual hygiene, their comprehension of menstruation as a biological phenomenon, and their awareness of the negative health effects of either acceptable or inappropriate behaviors. Additionally, respondents were asked to list the sources of their information, such as their parents, friends, family, instructors, and others. There were both yes/no and multiple-choice questions, and participants were allowed to choose more than one answer when appropriate.

Attitudes Toward Menstrual Hygiene: Using a Likert scale, this part assessed opinions and views about menstruation and menstrual hygiene. Items evaluated the perceived advantages of adequate practices for reproductive health, the significance of understanding menstrual hygiene, and the influence of candid conversations on enhancing practices. Other categories covered personal hygiene practices (e.g., washing your hands before and after changing pads), perceived connections between hygiene practices and health outcomes, and socioeconomic factors (e.g., parental income and access to menstrual hygiene supplies). Strongly Agree, Agree, Disagree, and Strongly Disagree were the available response options.

Data Analysis

The Statistical Package for Social Sciences (SPSS) version 23.0 was used to analyze the data. Sociodemographic characteristics were compiled using descriptive statistics, such as frequencies and percentages, and menstrual hygiene knowledge and attitudes were graded. Variable associations were examined using the Chi-square test, with a significance level of $p < 0.05$.

Six items on a 12-point weighted scale were used to score knowledge about menstrual hygiene, and seven items on a 14-point weighted scale were used to measure attitude toward menstrual hygiene. While wrong replies (No) and negative attitude responses (Disagree or Strongly Disagree) were given zero points, each accurate knowledge response (Yes) and positive attitude response (Strongly Agree or Agree) was given two points. Those who scored less than five points were classified as having poor knowledge, while those who scored at least six points were classified as having good knowledge. Likewise, individuals who scored ≥7 points on the attitude scale were categorized as having a positive attitude, and those who scored lower were categorized as having a negative attitude.

Ethical Approval

Ethical approval was obtained from the Research, Ethics, and Grant Committee of Delta State University, Abraka, and institutional permission was granted by the school's administrative head. Informed consent was also obtained from participants and they were assured of their right to withdraw at any point of the study.

RESULTS

In table 1, the results show that 46.4% of the respondents were between the ages of 10–14 years, while 53.6% were aged 15–19 years. By class distribution, 16.7% were in JSS1, 20.4% in JSS2, 21.6% in JSS3, 21.4% in SSS1, and 19.7% in SSS2. Regarding parents' occupation, 55.8% were farmers, 34.9% were engaged in business, 2.7% were civil servants, and 6.4% were private school teachers.

Table 1: Sociodemographic of School Girls (n=401)

Variables	Category	Frequency	Percentage (%)
Age	10-14	186	46.4
	15-19	215	53.6
Class	Jss1	67	16.7
	Jss2	82	20.4
	Jss3	87	21.6
	Sss1	86	21.4
	Sss2	79	19.7
Parents' Occupation	Farming	224	55.8
	Business	140	34.9
	Civil service	11	2.7
	Private School Teacher	26	6.4

Assessment of knowledge revealed that 51.6% of respondents demonstrated poor knowledge of menstrual hygiene, whereas 48.4% showed good knowledge (Fig 1).

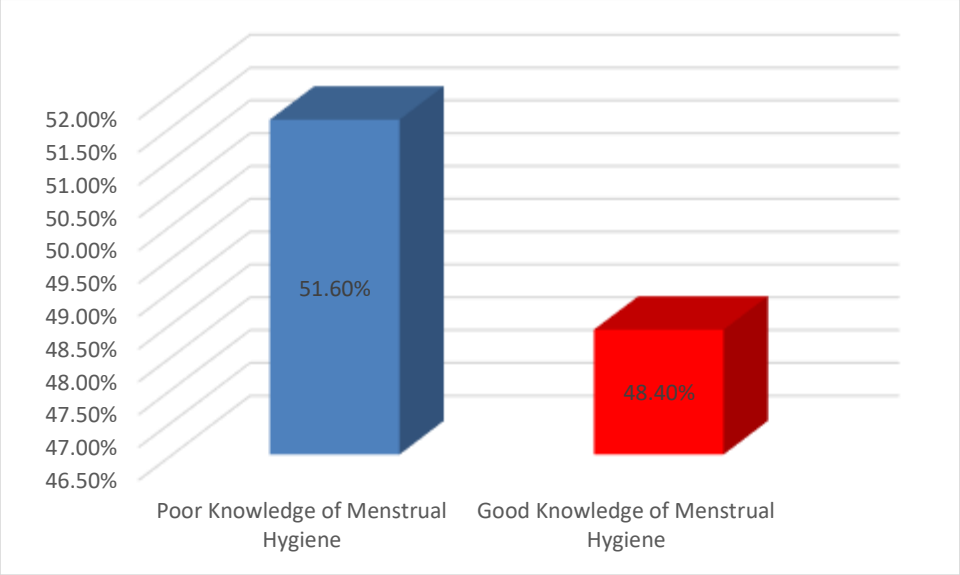

Fig 1: Knowledge of Menstrual Hygiene among School Girls (n=401)

Table 2: Respondents' Source of Information on Menstrual Hygiene (n=401)

The results in table 2, indicate that the main source of information on menstrual hygiene for respondents was their mother (37.7%), followed closely by teachers in school (34.2%). Other sources included family members (8.5%), fathers (4.2%), and friends (3.2%), while 12.2% of respondents reported having no source of information.

Table 2: Respondents' Source of Information on Menstrual Hygiene (n=401)

Source of Information	Frequency	Percentage (%)
Father	17	4.2
Mother	151	37.7
Friends	13	3.2
Family Members	34	8.5
Teachers in school	137	34.2
No one	49	12.2

Assessment of attitude revealed that 71.3% of respondents demonstrated negative attitude towards menstrual hygiene, whereas only 28.6% showed positive attitude towards menstrual hygiene (Fig 1).

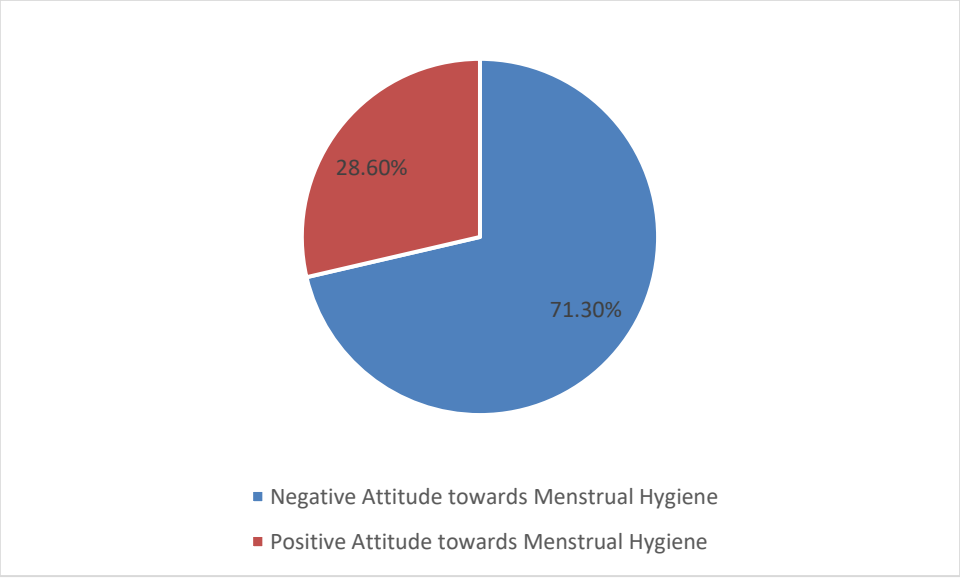

Fig 2: Attitude towards Menstrual Hygiene among School Girls (n=401)

The analysis in table 3 shows a significant association between age and knowledge of menstrual hygiene (p = 0.000). Among respondents aged 10–14 years, 32.2% had poor knowledge and 14.2% had good knowledge, whereas among those aged 15–19 years, 19.5% had poor knowledge and 34.2% had good knowledge. Overall, younger respondents were more likely to have poor knowledge, while older respondents were more likely to demonstrate good knowledge.

Table 3: Chi Square test of Association between School's Girls Age and their level of Menstrual Hygiene Knowledge

Age	Poor Knowledge (% of total)	Good Knowledge (% of total)	Total	χ^2 (df)	p-value
10-14	129 (32.2)	57 (14.2)	186 (46.4)	43.686 (1)	0.000
15-19	78 (19.5)	137 (34.2)	215 (53.6)		
Total	207 (51.6)	194 (48.4)	401 (100)		

P=0.000 (statistically significant); df= degree of freedom

The results in table 4, reveal a statistically significant relationship between class level and knowledge of menstrual hygiene (p = 0.000). In the junior classes, poor knowledge predominated: JSS1 (13.7% poor vs. 2.9% good), JSS2 (12.5% poor vs. 7.9% good), and JSS3 (15.7% poor vs. 5.9% good). In contrast, the senior classes showed higher levels of good knowledge: SSS1 (5.9% poor vs. 15.5% good) and SSS2 (3.7% poor vs. 15.9% good). Overall, knowledge improved progressively with advancement in class level.

Table 4: Chi Square test of Association between School's Girls Academic Class and their level of Menstrual Hygiene Knowledge

Class	Poor Knowledge (% of total)	Good Knowledge (% of total)	Total	χ^2 (df)	p-value
JSS1	55 (13.7)	12 (2.9)	67 (16.7)	95.893 (4)	0.000
JSS2	50 (12.5)	32 (7.9)	82 (20.4)		
JSS3	63 (15.7)	24 (5.9)	87 (21.7)		
SSS1	24 (5.9)	62 (15.5)	86 (21.4)		
SSS2	15 (3.7)	64 (15.9)	79 (19.7)		
Total	207 (51.6)	194 (48.4)	401 (100)		

P=0.000 (statistically significant); df= degree of freedom

DISCUSSION

The study's findings showed that the majority of parents were either farmers (55.8%) or traders (34.9%), with 46.4% of respondents being between the ages of 10 and 14 and 53.6% being between the ages of 15 and 19. The distribution of classes was also well balanced. According to the knowledge assessment, 48.4% of respondents exhibited good understanding of menstrual hygiene, whereas 51.6% had low knowledge. This result shows that schoolgirls' menstruation literacy is still low, with over half of them not being sufficiently aware of it. About 82.6% of teenagers reported having inadequate awareness of menstruation hygiene, following a similar pattern (Uzoechi et al., 2023). On the other hand, Osegbu et al. (2025) and Ahmed et al. (2025) have documented greater levels of knowledgeable menstrual hygiene, indicating regional variations that are probably impacted by socioeconomic position, cultural norms, and access to health education. These findings have important ramifications for promoting adolescent health because menstrual hygiene is strongly associated with reproductive health outcomes, school attendance, and self-esteem (Ahmed et al., 2025; Namuwonge et al., 2025; Adane et al., 2025). The results highlight how schoolgirls, especially those in rural areas and younger adolescents, require more intensive menstrual health education. The fact that almost half of the respondents showed a lack of knowledge indicates that efforts to raise awareness are still not enough. This knowledge gap could be filled by incorporating menstrual hygiene instruction into the curriculum earlier on and bolstering school-based reproductive health programs.

Additional findings showed that the most common sources of information on menstrual hygiene were mothers (37.7%) and teachers at school (34.2%), with fewer respondents mentioning friends (3.2%), fathers (4.2%), and family members (8.5%), and 12.2% stating no source at all. This emphasizes how important mothers and schools are in forming menstrual literacy in adolescents. This is in line with findings that similarly found mothers and teachers to be the primary information providers (Uzoechi et al., 2023; Mowah and Obohwemu; 2024; Njee et al., 2024). Tshivule et al. (2025) have also observed that cultural obstacles and limited open communication are highlighted by the lack of paternal engagement and the modest percentage of peer-based knowledge.

Further findings showed that 28.6% of respondents had favorable attitudes on menstrual hygiene, whereas 71.3% had negative attitudes. This conclusion is troubling because it illustrates the continued stigma, taboos, and misconceptions around menstruation,

which can hinder healthy behavior and have an impact on the health and education of teenage girls. According to comparable studies, negative sentiments surpassed 60%, indicating that cultural silence and a lack of confidence when talking about menstruation continue to be major issues (Uzoechi et al., 2023; Tshivule et al., 2025). These findings highlight the necessity for thorough menstrual health education that tackles attitudes through candid conversations in peer groups, families, and educational institutions in addition to providing information.

The study's additional findings show that knowledge of menstrual hygiene was significantly associated with both age and class level, with older respondents (15–19 years old) and those in senior secondary classes (SSS1 and SSS2) showing superior knowledge in comparison to their younger counterparts (10–14 years old, JSS1–JSS3). As pupils grow in their schooling, they may become more mature, be exposed to formal education, and have easier access to information about reproductive health. Osegbu et al. (2025) found that older adolescents and students in higher grades knew more about menstruation and hygiene practices than younger pupils. These results suggest that insufficient knowledge about menstrual hygiene puts younger girls, especially those in junior classes, at higher risk for recurrent infections, school absences, and psychological distress (Ahmed et al., 2025; Belayneh and Mekuriaw, 2019). This highlights the significance of incorporating instruction on menstrual hygiene earlier in the school curriculum and making sure that correct information is given prior to menarche (Mahfuz et al., 2021; Tshivule et al., 2025). Improving health education in schools, especially for younger teenagers, will help close the knowledge gap and encourage better menstrual hygiene habits.

CONCLUSION

According to this study, schoolgirls' attitudes and knowledge on menstrual hygiene are still below ideal, with junior class students and younger adolescents showing less knowledge than senior class students. Although mothers and teachers were found to be the main knowledge providers, a sizable percentage of respondents expressed unfavorable opinions regarding menstrual hygiene. In order to fill in knowledge gaps and promote good attitudes, our findings highlight the necessity of early, systematic, and school-based menstrual health education that is backed by family engagement. Reducing school absences, enhancing reproductive health, and enhancing the general wellbeing of school girls all depend on addressing these problems.

Conflict of Interest

The authors declare no conflict of interest

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