

Article Info

Received: 27-12-2025 Revised: 18-01-2026 Accepted: 19-02-2026 Published: 26-03-2026

ABSTRACT

Background: Menstrual hygiene management is critical in a woman's life. For optimal attendance and participation in school activities and future reproductive and sexual health, quality menstrual hygiene practice is crucial. The objective of this study was designed to assess the knowledge, practice, and challenges of menstrual hygiene management among the adolescents.

Methods: A cross-sectional study was conducted on community secondary school girls from 1st May to 30th June 2016. Data was collected with a semi-structured pre-tested questionnaire and analyzed with statistical software as appropriate.

Results: A total of 416 (97.4%) of the respondents were analyzed. Their mean chronological age and age at menarche were 15 ± 2.1 years and 12.9 ± 0.7 years, respectively. Most (77.9%) of the respondents had premenarchal menstrual hygiene knowledge, and mothers (68.8%) were the main source of information. Sanitary pad (56.3%) and cloth (31.2%) were the most commonly used absorbents. Sanitary pad use was higher in respondents whose mothers had higher levels of education ($RR=6.3$, $p<0.001$). Most of the respondents changed absorbent twice or less daily (77.4%), bathed at least twice (77.4%), washed the vulvoperineal region with soap and water (50.2%), and wiped the perineum front to back (72.8%). Burning (51.9%) and refuse dump (26.0%) were the main disposal methods, and 48.1% washed hands before and after changing menstrual absorbent materials. The main menstrual disturbances were abdominal pain (37.7%) and malaise (18.5%), and the main intervention was medication from a patent medicine store (47.2%). Menstruation-related school absenteeism was 30.8%.

Conclusions: There was poor premenarchal menstrual awareness and inappropriate menstrual hygiene practices among adolescent schoolgirls.

Keywords: Adolescent, Menarche, Menstruation, Menstrual hygiene management, schoolgirls

INTRODUCTION

The first natural menstrual cycle, known as menarche, indicates a girl's reproductive development and the beginning of ovulation. Each female kid experiences it differently in terms of timing, pattern, and related physical, social, and emotional effects. If it appears too early—before the age of ten or after the age of sixteen—it can be a sign of underlying sickness. Menstruation is exclusively and intrinsically feminine, and regular menstruation is a major sign of good health and fertility. Since menstrual hygiene management (MHM) has consequences for sexual and reproductive health, one of its first concerns is how to properly manage menstrual hygiene. The World Health Organization (WHO), UNICEF, and JMP jointly define menstrual hygiene management as "Women and adolescent girls using clean menstrual management materials to absorb or collect menstrual blood that can be changed in privacy as often as necessary for the duration of the menstrual period, using soap and water for washing the body as required and having access to facilities to dispose of used menstrual management materials." Furthermore, "they comprehend the fundamental facts associated with the menstrual cycle and how to manage it with dignity and without discomfort or fear."¹⁻² The taboos and unfavourable cultural perceptions around menstruation should also be addressed for a successful MHM.²⁻³ The management of menstrual hygiene has received more attention recently on a worldwide scale.^{2, 4-5}

Despite its relevance and significance, menstruation is often linked to filth, blood, and odour, which makes women feel inferior and devalued.^{2, 6} These are some of the origins of gender discrimination and menstruation taboos.

In many civilisations, women who are menstrual are seen as impure and shunned by males because they are dirty and unclean. This behaviour causes women to feel ashamed and low in self-esteem whenever they are menstruating.^{2,7} It is still frowned upon to openly mention menstruation in certain other contexts.^{2,8} For example, fewer than two out of five schoolgirls in an Indian research were aware of premenarchal menstruation.^{2,9} In a different study conducted in Zambia, the majority of the girls were unaware of the physiological foundation of menstruation until after they reached menarche.¹⁰ Only 48% of the girls in 88 out of 138 studies were told about MHM before menarche, according to a systematic study.¹¹

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Accessible, high-quality water, sanitation, and hygiene (WASH) facilities are essential for managing menstrual hygiene. According to published research, up to 663 million and 2.4 billion people, respectively, do not have access to clean water and proper sanitation.^{2,12} In low- and middle-class societies, women have typically used various substances to absorb menstrual blood. Paper, bark, dirt, sand, linen, and other unusual absorbent materials are examples of these.^{2, 6, 10}

The provision of high-quality water, sanitation, and hygiene (WASH) facilities for MHM is essential for regular school attendance, physical involvement in school activities, and education. The availability of absorbent sanitary pads, high-quality restrooms and laundry facilities, sufficient seclusion, and avoidance of the stigma associated with public humiliation due to open menstrual hygiene incidents are further. Menstruation-related cultural and religious constraints on women include the shame associated with the menstrual rite of uncleanness. In order to lessen gender differences in education, health, sociopolitical engagement, and economic involvement, this will guarantee comfort, self-assurance, and consistent attendance at school.^{10, 13}

Adolescence is a crucial time in a person's life, particularly for women. It occurs between the ages of 10 and 19 and represents the change from the stage of immature and dependent childhood in terms of sexuality, reproduction, psychology, and socioeconomic status to that of mature and autonomous adulthood. The majority of teenagers are completing their secondary school education at this time in their lives. This guided the investigation of this transitory group's level of menstruation awareness and cleanliness behaviours in order to provide recommendations for maintaining good menstrual hygiene practices.

METHODS

This descriptive cross-sectional study was conducted at the Niger Delta University Teaching Hospital (NDUTH), a tertiary medical facility in Okolobiri, Bayelsa State, in the South-South geopolitical region of Nigeria. Bayelsa State is one of Nigeria's oil-rich Niger Delta states. Its boundaries are the Atlantic Ocean to the east and south, Delta State to the north, and Rivers State to the west. Information on female secondary school students between the ages of 11 and 19 in Umuna, Orlu L.G.A., Imo State, South-Eastern Nigeria, was collected between May 1 and June 30, 2016. Orlu, the second-largest city in Imo state, southeast Nigeria, after Owerri, the state capital, is home to an estimated 420,000 people, the majority of whom are farmers, traders, and government workers. Orlu L.G.A. is located between latitudes 5043'N and 5051'N and longitudes 7000'E. It contains many communities and is bordered by Nkwere, Isu, Njaba, Orsu, and Ideato-north L.G.A. and 7009'E.

Umuna is made up of three electoral wards: Ezedike, Ebenese, and Uzubi. According to the 2006 Nigerian national population census, there are 53,852 people in Umuna who are 18 years of age or older (27,032 women and 26,820 men). The majority are Christians of various denominations, and the bulk of the population is Igbo.

The secondary schools in Umuna include Sharma Modern Secondary School, Urban Secondary School, Community Secondary School, St. Joseph Secondary School, and City Technical School. Both boys and girls attend the aforementioned institutions since they are mixed secondary schools. The student body is composed of both Umuna natives and non-natives. Information on menstrual hygiene management (MHM) behaviours was gathered using a semi-structured pretested interviewer-assisted questionnaire. The questionnaire was divided into two sections. Age in years, class level (from junior secondary school (JSS 1-3) to senior secondary school (SSS 1-3), religion, ethnicity, and mother's educational achievement were the independent variables (sociodemographic characteristics) in Section A. Section B included the dependent variables on MHM. These include being aware of menstruation, menstrual hygiene supplies, and menstrual hygiene practices. The basis for awareness was premenarchal understanding and healthy menstrual behaviours. Only female students between the ages of 11 and 19 who had begun menstruation were selected for the study after providing their informed verbal consent. Those who declined to provide their consent and those who were absent from class during the recruitment period were not included in the study. The sample size was determined using the Cochran GW 14 procedure and the 48% prevalence rate.^{11, 14}

$$n = z^2pq/d^2$$

where P is the highest known premenarchal awareness prevalence in literature and q is the complement of p.
d = Allowable error margin of estimation (precision) = 0.05; z = Z statistic for 95% confidence level (value for

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selected alpha level $\alpha=0.05$, which is usually 1.96); n = sample size = 384 adolescent secondary schoolgirls

To increase the study's power and account for attritions, the sample size was increased to 427. The sample was selected using the stratified sampling technique.

The data was input into Epi Info Version 3.5.1, developed by the Centers for Disease Control and Prevention (CDC) in Atlanta, Georgia, USA, and released in August 2008, as well as INSTAT statistical software. Univariate data analysis of categorical variables concentrated on frequency and percentage, while parametric data contained frequency, mean, and standard deviation. The statistical relationship was investigated using Fisher's exact test for bivariate statistical analysis and 2 x 2 contingency tables. The significance criterion was set at a p-value of 0.05, or 95% Confidence Interval exclusion of the nullity of one, and the findings were presented as relative risk (RR).

Prior to the interview, the ethical committee of the community medical department at Imo State University Teaching Hospital Orlu approved the study, as did the head or principal of the selected secondary schools.

RESULTS

Eleven (2.6%) of the questionnaires were attritions, while 416/427 (97.4%) were successfully completed, included in the research, and examined.

The respondents' sociodemographic details are shown in Table 1. The respondents' ages varied from 11 to 19 years, with a mean age of 15 ± 2.1 years. 50.4% of the respondents were in the modal age group, which was 14–16 years old. Igbo (97.6%), Christians (98.8%), and those in the senior secondary school class (70.7%) made up the majority of the respondents. The moms of more than three out of five respondents (64.9%) had less education.

Table 1: Characteristics of the respondents (n=416).

Characteristics	Variables	Frequency	Percent
Chronological age (years)	11-13	103	24.8
	14-16	210	50.4
	17-19	103	24.8
Class level	Junior (JSS1-3)	122	29.3
	Senior (SS1-2943)		70.7
Religion	Christianity	411	98.8
	Islam	5	1.2
Family Position	First	228	54.8
	≥Second	188	45.2
Ethnicity	Igbo	406	97.6
	Others	10	2.4
Mother's Education	≤2o	270	64.9
	>2o	146	35.1

	11	12	13	14	15
Frequency	11	97	251	53	4

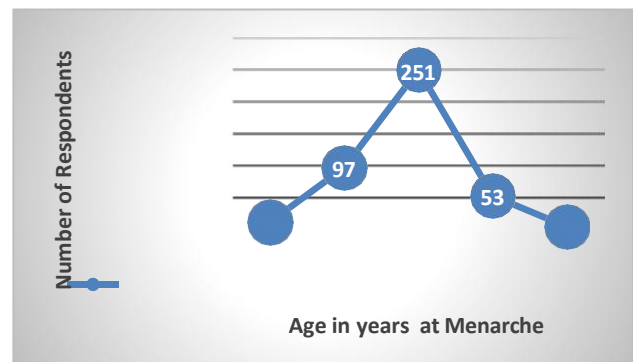


Figure 1: Age distribution at menarche.

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The respondents' ages at menarche are shown in Figure 1. The majority of responders, 251 (60.3%), had their first menstrual bleeding at age 13, followed by 97 (23.3%) at age 12. The respondents' mean menarche age was 12.9 ± 0.7 years, with a range of 11–15 years.

The respondents' knowledge of menstrual hygiene routines is shown in Table 2. The majority of respondents (77.9%) learned about menstruation and managing menstrual hygiene before to menarche, while the remaining respondents (22.1%) did so after menarche. Prior to menarche, the respondents who were aware of menstrual hygiene were mostly informed by their mothers (68.8%) and other female members of their immediate family (82.2%). Menstrual hygiene was taught to only 9.9% of students by teachers and a pitiful 0.3% by medical professionals. Approximately three out of five responders (56.3%) collected menstrual blood using absorbent sanitary pads.

Table 2: Respondents knowledge about menstrual hygiene practices.

Characteristics	Variables	Frequency	%
Timing	ofPremenarchal	324	77.9
Awareness	Menarchal	92	22.1
n=416			
Main Source	‡Immediate		
Premenarchal	offamily female	266	
Menstrual	members		82.1
Information	Teachers	32	9.9
n=324	Friends	25	7.7
	Healthcare Providers	1	0.3
Type	ofSanitary pad	234	56.3
Absorbent	Toilet Tissue	52	12.5
Material n=416	Paper		
	Cloth	130	31.2

‡=Mother, elder sisters, grandmother etc

Table 3 compares the respondents' selection of menstruation absorbent materials according to the level of education of their moms. Compared to respondents whose moms had less education, those whose mothers had completed more than secondary school were more than six times more likely to use absorbent sanitary pads. A statistically significant difference was found ($RR=6.3$, $p<0.001$). Additionally, the portion of respondents whose moms had higher levels of education (0.7% vs. 47.8%) did not wear clothing. Once again, the observed difference was statistically significant ($RR=0.02$, $p<0.001$). However, when it came to collecting menstrual blood using toilet paper, the subgroups were comparable ($p>0.05$). Menstrual hygiene routines of the respondents are shown in Table 4. During their periods, around four out of five respondents (77.4%) changed their absorbent menstrual materials no more than twice a day, while the remaining 22.6% changed them three times or more. One in five people (22.6%) only took a bath once a day throughout their menstrual cycle, while the same percentage took a bath at least twice a day. During menstruation, around half of the respondents (50.2%) washed their vulva and perineal areas with water and soap, while slightly more than a quarter (26.2%) simply used water. Approximately 72.8% of respondents washed from front to back, while more than 25% washed from back to front (23.6%) or randomly (3.6%). The majority, 215 (51.9%), burnt their menstrual waste, while more than a quarter, 108 (26.0%), dumped it in the trash. Before and after switching out their menstrual blood absorbent materials, less than half of the respondents (48.1%) cleansed their hands. When replacing the absorbent materials, almost 10% of the respondents did not wash their hands. When changing menstrual materials, 23 respondents (82.1%) said that hand washing was unnecessary, and 5 respondents (17.9%) said that the lack of soap and water was the reason.

Table 3: Maternal educational level by respondents choice of absorbent materials use (n=416).

Characteristic	Variables	Maternal Education	RR (95% CI)	p-value
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		>Secondary n (%)	≤Secondary n (%)		
Absorbent material	Sanitary Pad	130 (89.0)	104 (38.5)	6.3 (3.9-10.2)	<0.0001
	Cloth	1 (0.7)	129 (47.8)	0.02 (0.0021-0.11)	<0.0001
	Toilet tissue paper	15 (10.3)	37 (13.7)	0.80 (0.51-1.26)	0.35
	Total	270	146		

Table 4: Respondents menstrual hygiene practices.

Characteristics	Variables	Frequency	Percentage
Frequency of daily absorbent change	1-2	322	77.4
	≥3	94	22.6
Bathing pattern during menstruation	Once	94	22.6
	≥2	322	77.4
Substance for washing	Water only	109	26.2
	Water and soap	209	50.2
	Water and antiseptic	98	23.6
Direction of vulvo-perineal washing	Front to back	303	72.8
	Back to front	98	23.6
	Non specific	15	3.6
Menstrual material disposal	Burning	216	51.9

Continued.

Characteristics	Variables	Frequency	Percentage
	Pit latrine	64	15.4
	Water closet	28	6.7
	Refuse dump	108	26.0
Timing hand washing during absorbent change	Before	51	12.3
	After	137	32.9
	Before and after	200	48.1
	NIL	28	6.7

Table 5: Menstrual challenges and interventions by respondents.

Characteristics	Variables	Frequency	Percent
Menstrual disturbances (n=416)	Abdominal/waist pain	157	37.7
	Malaise	77	18.5
	Lack of concentration	16	3.8
	Nil	166	39.9
Interventions (n=250)	Medication from patent medicine dealer	118	47.2
	Consulted doctor	16	6.4
	Received medication from parents	10	4.0
	Nil	106	42.4
School absenteeism (n=416)	School absenteeism	128	30.8
	Nil	288	69.2

Menstrual difficulties and the responders' solutions are shown in Table 5. Up to 250 respondents (60.1%) reported having at least one menstrual problem. The most common monthly disturbance reported by respondents was abdominal and waist discomfort (37.7%), followed by malaise (18.5%), and no menstrual disturbance at all (39.9%). Of the respondents who experienced disruptions, the majority (47.2%) obtained medicines from patent medicine shops, but many (42.4%) took no action. Menstruation caused around three out of ten (30.8%) of the

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respondents to miss school at least once. Severe abdominopelvic discomfort 97 (75.8%), religious reasons and uncleanness 21 (16.4%), and inadequate lavatory facilities in schools for changing menstrual materials 10 (7.8%) were the reasons given by the respondents for missing school during their periods.

DISCUSSION

The mean age of menarche was 12.9 years in our research, which included teenagers mostly between the ages of 14 and 16. Similar menarche ages of 11 to 13 years were noted by Garba et al. in Kano, Nwankwo et al. in Enugu, and Akinwaare in Ibadan and Nayak in India.^{15–18} Okafor-Terver et al. in Katsina, however, stated that the menarche age varied between 14 and 16 years.¹⁹ Socioeconomic considerations have been linked to variations in menarche age. We found that up to 77.9% of the respondents had received premenarchal instruction on menstrual hygiene practices. This percentage was much lower than the 92.2% and 93.7% recorded by Garba et al. in Kano and Akinwaare et al. in Ibadan, but it was comparable to the 85.4% of 400 teenagers reported by Aluko et al. in Ile-Ife.^{15, 17, 20} Mothers and sisters accounted for up to 82.1% of the premenarchal knowledge sources, whereas teachers accounted for less than 10%. In contrast, Garba et al. showed that in 62.0% and 19.0% of instances, respectively, parents/guardians and school instructors were the primary source of knowledge.¹⁵ The moms' lower educational levels and potential inability to interact with their daughters may be the reason for the lower proportion of girls in our research who got premenarchal information. Additionally, slightly more than half of the teenagers were the family's first female members, so they may not have had elder female siblings to mentor them. In a study of 1191 teenagers in Abakiliki, South Eastern Nigeria, Ilo et al. found that those with older sisters knew more about menstrual hygiene than their peers.²¹ Sanitary pads were the most popular menstruation absorbent among teenagers in 56.3% of instances, according to our survey. This percentage was more than the 32.7% of 550 teenagers in Onitsha, South East Nigeria, that Adinma et al. recorded.²² Garba et al. found that in 92.2% of instances, sanitary pads were the most popular menstruation absorbent among teenagers.¹⁵ The fact that our research was conducted in Umuinna, a semi-urban location in Imo State, with mothers of lower socioeconomic position than those in Kano metropolis, may have contributed to the lower rates of sanitary pad usage. Therefore, the amount of teenagers using the sanitary pad may have been significantly influenced by cost. In Sokoto, Oche et al. discovered a strong correlation between the teenagers' choice of menstruation absorbents and their moms' socioeconomic position.²³ The majority of schoolgirls did not use sanitary pads since they were more expensive than reusable cloths, according to a research done in Pakistan by Rizvi et al.²⁴ Additionally, it was shown that people whose moms with more education used sanitary pads much more often. Other writers have reported a similar relationship between the usage of sanitary pads and greater mother educational level.^{17, 21} According to Upasha et al.'s study of 828 teenagers in Western Ethiopia, girls whose mothers had completed secondary school or above were 50% more likely than their peers to be knowledgeable about menstruation and menstrual hygiene.²⁵

According to this research, 77.4% of the participants showered with soap and water more than twice a day and changed their menstruation clothes once or twice a day. Additionally, we observed that 48.1% cleaned their hands both before and after changing their menstruation garment, and around 50% properly cleaned their perineum from front to back. These results were consistent with those from other regions of Nigeria.^{15, 21} The majority of these teenagers had premenarchal instruction, which may have contributed to their excellent level of menstrual hygiene. Aniebue et al. and Garba et al. discovered that adolescents who received premenarchal instruction had better menstrual hygiene behaviours than those who did not.^{15, 26} Burning used menstrual absorbent was the method of disposal in 51% of instances, followed by pit latrines and trash dumps in 26% and 15.4% of cases, respectively. According to Akinwaare et al., burning the menstrual absorbent was the most popular method of disposal.¹⁷ This result contrasted with studies from Upashe et al. in Ethiopia and Garba et al. in Kano, where the most popular way to dispose of spent menstruation clothing was in the trash can.^{15, 25} Due to the lack of appropriate disposal systems, our research population's rural location may be the cause of this. However, compared to alternative disposal techniques, incineration is a safe option since it is environmentally beneficial and lowers air pollution. However, as most schools lack an incinerator to guarantee appropriate disposal, this must be done at home. According to Okafor-Trevor et al., teenagers' hygienic habits improve when they are in a supportive setting.¹⁹

The most often reported symptoms in our research were pain and discomfort in the abdomen and waist. This was comparable to the study conducted in the same region of South Eastern Nigeria by Adinma et al.²² It is noteworthy that 30% of the teenagers reported having stomach ache as a primary cause of missing school. This percentage is much lower than the 61.7% of girls who skip school in a Ugandan research, but it is higher than the 13.1% recorded by Femi-Agboola et al. in Ibadan.^{27,28} Nwankwo et al. in Enugu also found that among 495 teenage girls in their research, severe stomach discomfort was a key reason for missing school, with up to 16.4% of them needing to see

a doctor for their symptoms.¹⁶ Premenstrual syndrome often includes abdominal discomfort, which is said to be incapacitating for many teenagers. Lack of water and proper lavatory facilities, sanitary pads, privacy, and focus were other factors that contributed to school absence, as our research also found.^{28–31} The prospective dataset and scientifically calculated sample size were the study's strongest points. However, these data came from self-reported behaviours that are known to be rife with errors due to information distortion, which in this case may have resulted from poor memory or young timidity when volunteering sensitive and personal information. Once again, the data was gathered from a multicenter rural community and may be a real and accurate representation of the greater population. However, the cross-sectional research design is inadequate when it comes to behaviour analysis and drawing conclusions about causality.

CONCLUSION

Teenage girls' understanding and habits about menstrual hygiene are still lacking. Although sanitary pads are the most popular menstruation garment, tissues and rags were also utilised. Burning was the primary method of disposing of discarded menstruation clothing. Although using sanitary pads was linked to better maternal education, premenarchal information was acquired by the majority of them, mostly from female family members.

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