



KNOWLEDGE AND ATTITUDE TOWARDS MENSTRUAL HYGIENE AMONG ADOLESCENT GIRLS IN SECONDARY SCHOOLS IN OGBA/EGBEMA/NDONI LOCAL GOVERNMENT AREA, RIVERS STATE, NIGERIA

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ABSTRACT: Background: Adequate knowledge and a positive attitude towards menstruation are essential for effective menstrual hygiene management, yet many adolescent girls in rural Nigeria lack comprehensive understanding and hold negative perceptions due to cultural taboos and limited access to information. This study assessed the level of knowledge and attitude towards menstrual hygiene among adolescent girls in secondary schools in Ogba/Egbema/Ndoni Local Government Area (ONELGA), Rivers State, Nigeria. **Methods:** A community-based, cross-sectional study was conducted between January and February 2026 among 386 adolescent girls in secondary schools across ONELGA, with 352 completely filled questionnaires retrieved (91.2% response rate). Participants were selected using stratified random sampling from seven schools. Data were collected using a structured, pre-tested questionnaire adapted from validated instruments, comprising sections on socio-demographics, knowledge of menstruation (9 items), and attitude towards menstruation (10 items on a 4-point Likert scale). Knowledge scores were categorized as poor (0–3 correct), fair (4–6 correct), or good (7–9 correct). Attitude scores were categorized as negative (10–20), moderate (21–30), or positive (31–40). Descriptive statistics were performed using SPSS version 26. **Results:** The mean age of respondents was 14.6 years (SD=2.3), with a mean age at menarche of 12.8 years (SD=1.4). While 90.3% correctly identified menstruation as a normal physiological process, comprehensive knowledge was limited: only 29.0% knew the correct menstrual cycle length (21–35 days) and 57.1% knew the recommended frequency for changing sanitary materials (every 2–6 hours). Overall, 34.7% had good knowledge, 51.7% had fair knowledge, and 13.6% had poor knowledge. Mothers (65.1%) and teachers (42.9%) were the primary information sources. Regarding attitude, 92.7% affirmed maintaining personal hygiene during menstruation, but negative perceptions were prevalent: only 38.0% were willing to discuss menstruation openly in school, and 76.7% preferred to keep it secret. Overall, 27.8% exhibited negative attitude, 46.9% moderate attitude, and 25.3% positive attitude towards menstruation. **Conclusion:** This study revealed high basic awareness of menstruation but significant gaps in comprehensive knowledge and a predominance of negative attitudes characterized by secrecy among adolescent girls in ONELGA. With only about one-third of respondents having good knowledge in the face of negative attitudes, there is need to intensify effort to ensure Health Education as a standalone course in schools. This will give more attention to specific issues on personal menstrual hygiene as one of the new public health concepts, Family Life and Sex Education. These findings underscore the need for targeted school-based educational interventions that address comprehensive menstrual health and foster open dialogue to dismantle stigma.

KEYWORDS: Menstrual hygiene, knowledge, attitude, adolescent girls, reproductive health, Nigeria.



INTRODUCTION

Adolescence represents a critical transitional period in every girl's life, marked by rapid physical, psychological, and social development. The World Health Organization defines adolescence as the phase of life between ages 10 and 19 years, a time of preparing for adulthood and assuming increasing responsibilities (WHO, 2023). Menstruation, or menarche, is one of the most significant physiological events during this period, signaling reproductive maturity and the onset of womanhood (Chandra-Mouli & Patel, 2017). How a girl experiences and manages this transition has profound implications for her health, education, and overall well-being throughout her life course.

Knowledge is a fundamental determinant of health behavior and outcomes. In the context of menstrual health, adequate knowledge encompasses understanding menstruation as a normal biological process, awareness of the menstrual cycle, recognition of hygienic practices, and comprehension of the health implications of poor hygiene (Sommer et al., 2016). When adolescent girls possess accurate and comprehensive knowledge about menstruation, they are better prepared for menarche, more confident in managing their periods, and less susceptible to fear and misinformation (Chandra-Mouli & Patel, 2017). Conversely, inadequate knowledge leaves girls vulnerable to myths, taboos, and unsafe practices that can compromise their reproductive health.

Attitude, defined as a settled way of thinking or feeling about something, is equally important in shaping how girls navigate menstruation. Attitude towards menstruation is largely shaped by cultural norms, family beliefs, and societal expectations (Fennie et al., 2022). In many societies, menstruation is surrounded by secrecy, shame, and restrictions. These negative attitudes can lead to feelings of embarrassment, anxiety, and social isolation, discouraging girls from seeking information, asking questions, or managing their periods openly and confidently (Jimoh & Joseph-Shehu, 2024). A positive attitude, where menstruation is embraced as a normal part of growing up, fosters self-esteem, promotes open communication, and empowers girls to participate fully in daily activities, including school.

The primary effects of inadequate menstrual knowledge and negative attitudes are well-documented. Girls who lack accurate information often resort to unhygienic practices, such as using unclean rags or changing materials infrequently, increasing their risk of reproductive tract infections and other complications (Sumpter & Torondel, 2018). Feelings of shame and fear of staining can lead to school absenteeism during menstruation, causing girls to fall behind academically and potentially drop out of school altogether (Betsu et al., 2024). These consequences could be particularly distressing, as they occur at a critical time when girls are building the foundations for their future educational and economic opportunities. The menstruation-related challenges thus lead to reduced quality of life and diminished life chances among adolescent girls (Henegan et al., 2019).

In Nigeria, several studies have examined menstrual knowledge and attitudes among adolescent girls, revealing a complex picture. While basic awareness of menstruation is often high, comprehensive knowledge across multiple domains remains suboptimal (Dorgbadzi et al., 2024; Onuwa et al., 2024). Mothers are consistently identified as the primary source of information, yet this can perpetuate intergenerational silence and misconceptions (Abulfathi et al., 2025). Negative attitudes, characterized by secrecy and shame, remain prevalent even among girls with adequate factual knowledge, highlighting the powerful influence of cultural



norms (Nwachukwu et al., 2025). These findings suggest that information alone is insufficient to transform deeply embedded attitudes.

The Ogba/Egbema/Ndoni Local Government Area (ONELGA) is a predominantly rural region in Rivers State with distinct cultural characteristics. While cultural traditions play a significant role in community life, they may also contribute to the silence and stigma surrounding menstruation. Adolescent girls in ONELGA secondary schools navigate this cultural context daily, yet their specific knowledge levels and attitudes towards menstruation remain largely unexplored. Without context-specific evidence, the development of effective, culturally sensitive interventions is impossible. This study aimed to assess the level of knowledge and attitude towards menstrual hygiene among adolescent girls in secondary schools in Ogba/Egbema/Ndoni Local Government Area, Rivers State, Nigeria.

MATERIALS AND METHODS

Study Design and Population

This was a cross-sectional study conducted among adolescent girls in secondary schools in Ogba/Egbema/Ndoni Local Government Area (ONELGA), Rivers State, Nigeria, between January and February 2026. ONELGA is a predominantly rural area in northern Rivers State with an estimated population of 300,000 people.

The study population comprised adolescent girls aged 10–19 years enrolled in secondary schools within ONELGA. A total of 386 adolescent girls were selected as the intended sample size. The sample size was calculated using the Krejcie and Morgan formula based on an estimated population of 3,500 girls across 35 secondary schools. To account for 10% non-response, the calculated sample size of 347 was adjusted to 386. Ultimately, 352 completely filled questionnaires were retrieved (91.2% response rate).

A stratified random sampling technique was used. First, the 35 registered secondary schools in ONELGA were stratified into seven strata based on geographical location. From each stratum, one school was randomly selected, giving seven schools. Within each school, students were stratified by class level (JSS1–SS3), and simple random sampling was used to select respondents from each class.

Girls were included if they were aged 10–19 years, enrolled in a secondary school in ONELGA, had attained menarche, and assented to participate. Parental consent was obtained through school authorities for participants below 18 years. Girls absent on data collection day or with conditions affecting questionnaire completion were excluded.

Data Collection Instruments and Procedures

Data were collected using a structured, pre-tested questionnaire adapted from validated instruments (Sommer et al., 2015; Dorgbadzi et al., 2024). The questionnaire had three sections: Section A captured socio-demographic characteristics; Section B assessed knowledge of menstruation and menstrual hygiene using nine multiple-choice questions; Section C assessed attitude towards menstruation using ten items on a four-point Likert scale.



The instrument was reviewed for validity by research supervisors. A pilot study was conducted among 40 girls in a neighbouring LGA to assess comprehension and reliability. Test-retest reliability yielded a Pearson correlation coefficient of $r = 0.86$, and Cronbach's alpha for the attitude scale was 0.82.

Trained female research assistants administered questionnaires during regular school hours, providing standardized instructions and ensuring privacy. Completed questionnaires were checked immediately for completeness.

Data Analysis

Data were entered into SPSS version 26.0 for analysis. Descriptive statistics including frequencies, percentages, means, and standard deviations summarized socio-demographic characteristics, knowledge items, and attitude responses.

For knowledge assessment, each correct response was scored 1, and incorrect responses 0. A composite knowledge score was computed for each respondent by summing correct responses. Respondents were classified into three knowledge categories: poor (0–3 correct), fair (4–6 correct), and good (7–9 correct).

For attitude assessment, Likert-scale responses were assigned numerical values (Strongly Agree=4 to Strongly Disagree=1). Negatively worded items were reverse-coded. A total attitude score was computed by summing scores across all ten items (range 10–40). Respondents were classified into three attitude categories: negative (10–20), moderate (21–30), and positive (31–40).

Results were presented in tables and figures.

Ethical Consideration

Ethical approval was obtained from the Research Ethics Committee of Rivers State University (RSU/FBMS/REC/25/258). Permission was obtained from the Rivers State Ministry of Education and school principals. Written informed consent and assent were obtained from all participants. Confidentiality and anonymity were assured throughout.

RESULTS

Socio-Demographic Characteristics of Respondents

A total of 352 adolescent girls from secondary schools in ONELGA participated in the study. Table 1 presents the socio-demographic characteristics of the respondents.

The respondents were aged between 10 and 19 years, with a mean age of 14.6 years ($SD=2.3$). The majority of respondents fell within the 13–15 age bracket (52.3%), followed by those aged 16–19 (31.2%) and 10–12 years (16.5%). In terms of class distribution, respondents were spread across all secondary school grades, with the highest proportion in SS1 (20.2%), followed by SS2 (19.3%), JSS3 (17.6%), SS3 (16.2%), JSS2 (15.1%), and JSS1 (11.6%).



Regarding religious affiliation, the majority of respondents were Pentecostal Christians (48.6%), followed by Orthodox Christians (31.5%), Islam (12.5%), and Traditional religion (5.4%). More than half of the respondents resided in rural areas (54.8%), while 45.2% lived in semi-urban areas. The majority lived with their parents (78.1%), followed by those living with relatives (13.4%), guardians (6.5%), and a small proportion living alone (2.0%).

Educational attainment among mothers varied: 8.2% had no formal education, 21.3% had primary education, 42.6% had secondary education, and 27.8% had tertiary education. Similarly, fathers' educational attainment showed that 5.7% had no formal education, 16.5% had primary education, 44.0% had secondary education, and 33.8% had tertiary education.

All respondents had commenced menstruation as per the inclusion criteria. The mean age at menarche was 12.8 years (SD=1.4). The largest proportion of respondents experienced menarche at age 13 (32.7%), followed by age 12 (27.8%), age 14 (19.6%), age 11 (11.9%), and age 15 or above (8.0%).

Regarding cultural practices and taboos related to menstruation, 40.1% of respondents reported that their family or community had specific cultural practices or taboos, 46.9% reported none, and 13.1% were unsure.

Table 1: Socio-Demographic and Cultural Characteristics of Respondents

Variable	Frequency (n)	Percentage (%)	Mean ($\pm$ SD)
Age (Years)			14.6 ($\pm$2.3)
10–12	58	16.5	
13–15	184	52.3	
16–19	110	31.2	
Current Class			
JSS1	41	11.6	
JSS2	53	15.1	
JSS3	62	17.6	
SS1	71	20.2	
SS2	68	19.3	
SS3	57	16.2	
Religion			
Pentecostal	171	48.6	
Orthodox	111	31.5	
Others	70	19.9	
Place of Residence			
Semi-Urban	159	45.2	
Rural	193	54.8	
Living Arrangement			
Variable	Frequency (n)	Percentage (%)	Mean ($\pm$SD)
Parents	275	78.1	
Relatives/Guardian	70	19.9	
Alone	7	2.0	
Mother's Education			
$\leq$ Primary	104	29.5	



Secondary	150	42.6	
Tertiary	98	27.8	
Father's Education			
≤ Primary	78	22.2	
Secondary	155	44.0	
Tertiary	119	33.8	
Mother's Occupation			
Civil servant	65	18.5	
Trader	125	35.5	
Farmer	87	24.7	
Artisan	43	12.2	
Unemployed	32	9.1	
Father's Occupation			
Civil servant	75	21.3	
Trader	100	28.4	
Farmer	110	31.2	
Artisan	44	12.5	
Unemployed	23	6.5	
Age at Menarche (Years)			12.8 (±1.4)
11	42	11.9	
12	98	27.8	
13	115	32.7	
14	69	19.6	
>15	28	8.0	
Cultural Practices/Taboos			
Yes	141	40.1	
No	211	60.0	

Knowledge of Menstruation and Menstrual Hygiene

Table 2 presents the knowledge of menstruation and menstrual hygiene among respondents. The knowledge assessment revealed that 90.3% of respondents identified menstruation as a normal physiological process, 3.4% viewed it as a disease, 2.3% as a curse, and 4.0% did not know.

Regarding the source of menstrual blood, 75.3% correctly identified the uterus, while 11.9% indicated the stomach, 5.1% indicated the bladder, and 7.7% did not know. On the normal length of the menstrual cycle, only 29.0% correctly identified 21–35 days, while 27.8% indicated 7–10 days, 31.8% indicated 14 days, and 11.4% did not know.

Regarding the meaning of menstrual hygiene, 82.1% correctly understood it as using clean absorbent materials and maintaining cleanliness, while 7.1% associated it with staying at home, 5.1% with avoiding certain foods, and 5.7% did not know. On the frequency of changing sanitary pads, 57.1% correctly stated every 2–6 hours, while 14.8% said once daily, 21.3% said only when completely soaked, and 6.8% did not know.

Regarding poor menstrual hygiene leading to reproductive tract infections, 79.0% responded yes, 11.6% responded no, and 9.4% did not know. On proper disposal of used sanitary



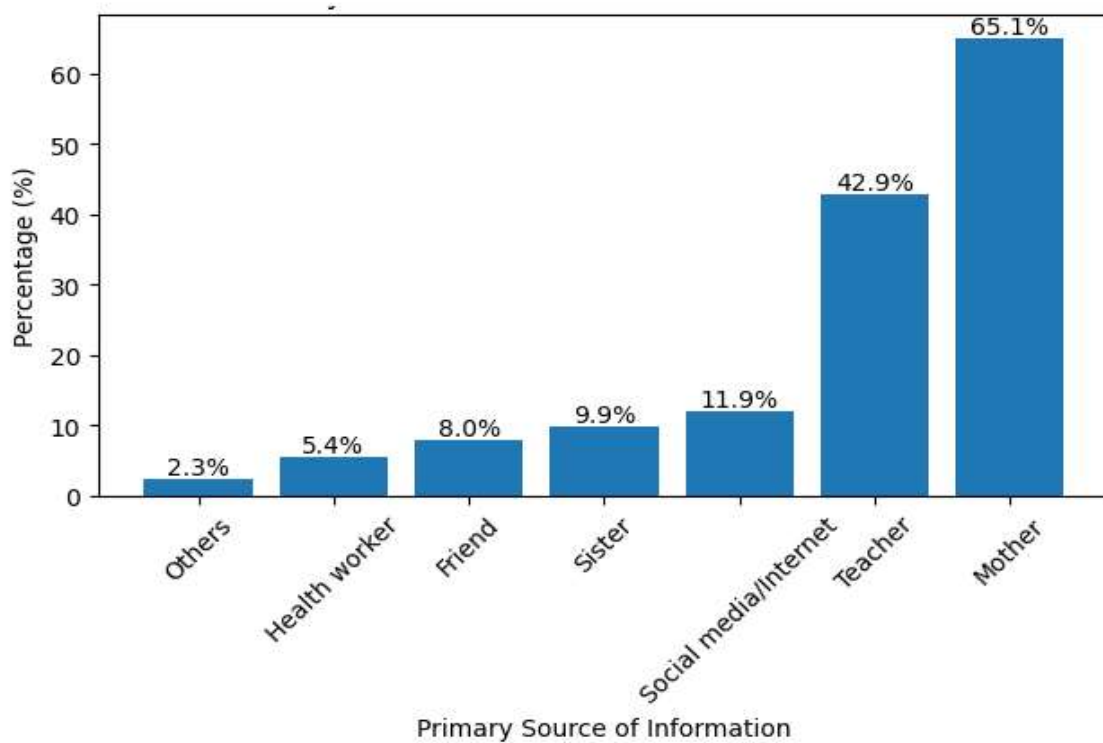
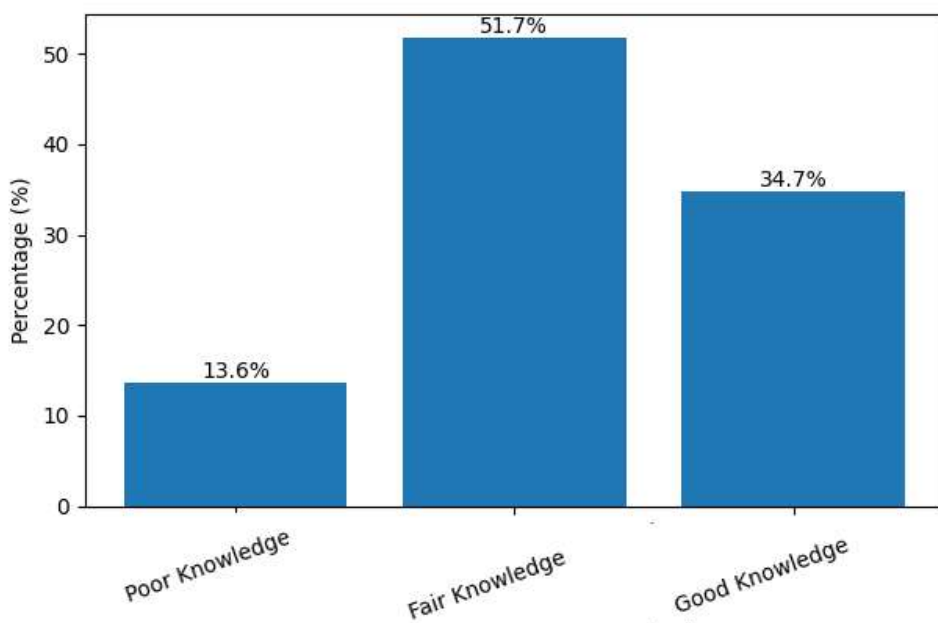
materials, 92.3% responded yes, 4.3% responded no, and 3.4% did not know. Regarding hand washing with soap after changing a sanitary pad, 87.5% responded yes, 8.0% responded no, and 4.5% did not know. On whether bathing regularly during menstruation is harmful, 79.8% correctly responded no, 12.8% responded yes, and 7.4% did not know.

Table 2. Knowledge of Menstruation and Menstrual Hygiene Among Respondents

Variable/Category	Frequency (n)	Percentage (%)
Menstruation is:		
A disease	12	3.4
A curse	8	2.3
A normal physiological process	318	90.3
I do not know	14	4.0
Menstrual blood comes from:		
Stomach	42	11.9
Uterus	265	75.3
Bladder	18	5.1
I do not know	27	7.7
Normal menstrual cycle length:		
7–10 days	98	27.8
14 days	112	31.8
21–35 days	102	29.0
I do not know	40	11.4
Menstrual hygiene means:		
Staying at home during menstruation	25	7.1
Using clean absorbent materials and maintaining cleanliness	289	82.1
Avoiding certain foods	18	5.1
I do not know	20	5.7
Variable/Category	Frequency (n)	Percentage (%)
How often should a sanitary pad be changed?		
Every 2–6 hours	201	57.1
Once daily	52	14.8
Only when completely soaked	75	21.3
I do not know	24	6.8
Can poor menstrual hygiene lead to reproductive tract infections?		
Yes	278	79.0
No	41	11.6
I do not know	33	9.4
Should used sanitary materials be properly disposed of?		
Yes	325	92.3
No	15	4.3
I do not know	12	3.4
Is washing hands with soap after changing a sanitary pad necessary?		
Yes	308	87.5



No	28	8.0
I do not know	16	4.5
Is bathing regularly during menstruation harmful?		
Yes	45	12.8
No	281	79.8
I do not know	26	7.4

Fig. 1: Distribution of Primary source of information**Fig. 2: Level of Knowledge**



Attitude Towards Menstrual Hygiene Among Respondents

The attitude assessment using a four-point Likert scale is presented in Table 4. The results showed that 56.3% strongly agreed and 36.4% agreed that they make sure to maintain personal hygiene during menstruation, with a mean of 3.47 (SD=0.71).

For willingness to discuss menstruation openly in school, only 11.9% strongly agreed and 26.1% agreed, while 40.3% disagreed and 21.6% strongly disagreed, with a mean of 2.28 (SD=0.94). Regarding following cultural restrictions during menstruation, 25.0% strongly agreed, 44.3% agreed, 20.5% disagreed, and 10.2% strongly disagreed, with a mean of 2.84 (SD=0.91).

On preferring to keep menstruation a secret from others, 31.8% strongly agreed, 44.9% agreed, 16.5% disagreed, and 6.8% strongly disagreed, with a mean of 3.02 (SD=0.87). Regarding support for boys learning about menstruation, 27.8% strongly agreed, 40.3% agreed, 22.2% disagreed, and 9.7% strongly disagreed, with a mean of 2.86 (SD=0.93).

On managing menstruation in school without difficulty, only 12.8% strongly agreed and 27.8% agreed, while 36.4% disagreed and 21.9% strongly disagreed, with a mean of 2.32 (SD=0.96). Regarding preference to stay home from school during menstruation, 22.2% strongly agreed, 42.0% agreed, 24.4% disagreed, and 11.4% strongly disagreed, with a mean of 2.75 (SD=0.92).

On feeling anxious when having a period at school, 31.8% strongly agreed, 44.9% agreed, 16.5% disagreed, and 6.8% strongly disagreed, with a mean of 3.02 (SD=0.87). Regarding embracing menstruation as a normal part of growing up, 51.7% strongly agreed, 39.2% agreed, 6.3% disagreed, and 2.8% strongly disagreed, with a mean of 3.40 (SD=0.73).

On feeling comfortable purchasing sanitary pads openly, only 17.6% strongly agreed and 27.8% agreed, while 36.4% disagreed and 18.2% strongly disagreed, with a mean of 2.45 (SD=0.98).

Table 4. Attitude and Practice Towards Menstrual Hygiene Among Respondents

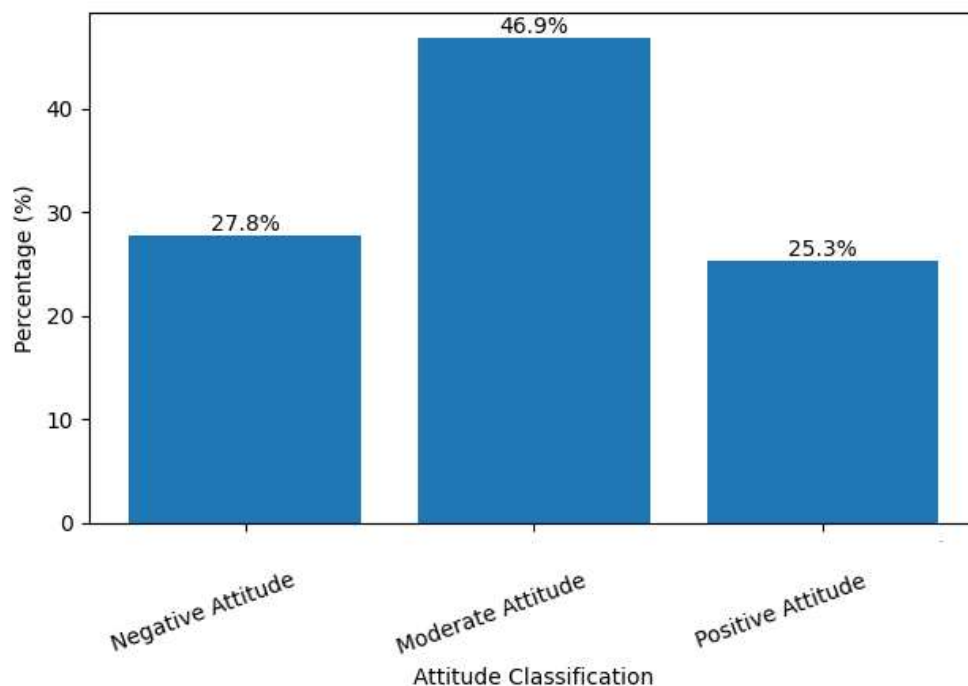
Variable/Category	SA n(%)	A n(%)	D n(%)	SD n(%)	Mean	SD
I make sure to maintain personal hygiene during menstruation	198 (56.3)	128 (36.4)	18 (5.1)	8 (2.3)	3.47	0.71
I am willing to discuss menstruation openly in school	42 (11.9)	92 (26.1)	142 (40.3)	76 (21.6)	2.28	0.94
I follow cultural restrictions during menstruation	88 (25.0)	156 (44.3)	72 (20.5)	36 (10.2)	2.84	0.91
I prefer to keep my menstruation a secret from others	112 (31.8)	158 (44.9)	58 (16.5)	24 (6.8)	3.02	0.87
I support the idea of boys learning about menstruation	98 (27.8)	142 (40.3)	78 (22.2)	34 (9.7)	2.86	0.93
I manage my menstruation in school without difficulty	45 (12.8)	98 (27.8)	132 (37.5)	77 (21.9)	2.32	0.96



I prefer to stay home from school during my menstruation	78 (22.2)	148 (42.0)	86 (24.4)	40 (11.4)	2.75	0.92
I get anxious when I have my period at school	112 (31.8)	158 (44.9)	58 (16.5)	24 (6.8)	3.02	0.87
I embrace menstruation as a normal part of growing up	182 (51.7)	138 (39.2)	22 (6.3)	10 (2.8)	3.40	0.73
I feel comfortable purchasing sanitary pads openly	62 (17.6)	98 (27.8)	128 (36.4)	64 (18.2)	2.45	0.98

SA=Strongly Agree, A=Agree, D=Disagree, SD=Strongly Disagree

Fig. 3: Attitude Classification of adolescent girls from secondary school in onelga



DISCUSSION

This study assessed the level of knowledge and attitude towards menstrual hygiene among adolescent girls in secondary schools in Ogba/Egbema/Ndoni Local Government Area, Rivers State, Nigeria. The results showed that while basic awareness of menstruation as a normal physiological process is nearly universal, comprehensive knowledge across multiple domains remains limited, with only about one-third of girls demonstrating good knowledge. Furthermore, negative attitudes characterized by secrecy, shame, and discomfort are predominant, with only one-quarter of girls expressing consistently positive attitudes towards menstruation.



The finding that 90.3% of respondents correctly identified menstruation as a normal physiological process is encouraging and aligns with studies from other parts of Nigeria. Dorgbadzi et al. (2024) reported that over half of adolescent girls in Abuja had good knowledge of menstruation, while Onuwa et al. (2024) found that the vast majority of girls in Rivers State public secondary schools possessed accurate basic knowledge about menstrual hygiene practices. This widespread foundational understanding suggests that efforts to normalize menstruation through basic education have achieved some success, at least in conveying that menstruation is not a disease or curse. However, this finding must be interpreted alongside the significant gaps in comprehensive knowledge revealed in this study.

The observation that only 34.7% of respondents demonstrated good comprehensive knowledge across multiple domains is concerning and falls below the pooled prevalence of 52.4% reported in the systematic review and meta-analysis by Anbesu and Asgedom (2023) across Sub-Saharan Africa. This discrepancy may reflect the predominantly rural nature of ONELGA, as Anbesu and Asgedom (2023) identified urban residence as a significant predictor of better knowledge. The knowledge levels observed in this study are also lower than those reported by Nwachukwu et al. (2025) in Cross River State, where nearly three-quarters of adolescent girls demonstrated high knowledge of menstruation. These comparisons suggest that girls in ONELGA may have less access to comprehensive menstrual health education compared to their counterparts in other parts of Nigeria.

The specific knowledge gaps identified in this study are particularly noteworthy. Only 29.0% of respondents correctly identified the normal menstrual cycle length of 21–35 days, with the majority holding misconceptions about cycle duration. Similarly, only 57.1% knew the recommended frequency for changing sanitary materials (every 2–6 hours), leaving a substantial proportion at risk of infrequent changing and its associated health consequences. These findings are consistent with those of Eze et al. (2023) in Enugu State, where only 28.4% of respondents changed materials at the recommended interval. The persistence of these knowledge gaps across multiple Nigerian states suggests that menstrual health education programs are not adequately addressing key factual content.

The finding that mothers (65.1%) and teachers (42.9%) were the primary sources of information about menstruation has important implications. While mothers provide essential support, they may also transmit intergenerational silence and misconceptions about menstruation. Abulfathi et al. (2025) found that the majority of out-of-school adolescent girls in Maiduguri did not know about menstruation before menarche, suggesting that mothers in some communities remain silent until menstruation occurs. The Social Cognitive Theory (Bandura, 2020) explains this pattern through observational learning: girls learn not only the practical information their mothers share but also their mothers' attitudes, levels of comfort, and willingness to discuss menstrual matters openly. When mothers model secrecy and shame, daughters internalize these responses as normative.

The attitudinal findings of this study present a more concerning picture than the knowledge findings. Only 25.3% of respondents expressed consistently positive attitudes towards menstruation, while the majority held moderate or negative views characterized by secrecy, shame, and reluctance to discuss menstrual matters openly. This finding resonates with the work of Dorgbadzi et al. (2024), who reported that the majority of participants in their Abuja study experienced menstruation-related stigma and restrictions despite relatively good knowledge levels. Similarly, Nwachukwu et al. (2025) found that over two-fifths of



respondents strongly agreed that menstruation is something they "just had to tolerate because they had no choice," indicating a sense of resignation rather than empowered acceptance.

The persistence of negative attitudes alongside adequate factual knowledge suggests that information alone is insufficient to transform deeply embedded cultural beliefs about menstruation. The Health Belief Model (Rosenstock, 2019) provides a useful framework for understanding this phenomenon. According to this model, perceived barriers, including social stigma, cultural taboos, and fear of embarrassment, appear to outweigh perceived benefits of open and positive engagement with menstruation. Girls weigh the immediate risks of social exposure and ridicule against the distant and uncertain benefits of positive attitudes, and the immediate concerns consistently prevail. For behavior and attitude change to occur, the perceived benefits of positive engagement must outweigh the perceived barriers, which is clearly not the case for many girls in this study.

The finding that 76.7% of respondents preferred to keep their menstruation a secret from others, and only 38.0% were willing to discuss menstruation openly in school, reflects the powerful influence of cultural norms that demand secrecy. Fennie et al. (2022), in their scoping review, documented that cultural perceptions and beliefs surrounding menstruation across Sub-Saharan Africa consistently reinforce silence and shame. Jimoh and Joseph-Shehu (2024) found that stigma and cultural beliefs were major barriers to effective menstrual hygiene management among adolescent girls in Nigeria. These cultural norms are not merely passive background factors but active forces that shape girls' daily experiences and constrain their ability to seek information, ask questions, and manage their periods with confidence.

The finding that 44.9% of respondents reported discomfort changing sanitary materials in school, and 42.0% preferred to stay home from school during menstruation, highlights the real-world consequences of negative attitudes. Hennegan and Montgomery (2016), in their systematic review, documented that school absenteeism during menstruation ranged from 20% to 50% across low- and middle-income countries, with fear of staining and lack of private changing spaces identified as primary drivers of absenteeism and anxiety among schoolgirls. These findings underscore that negative attitudes are not merely psychological phenomena but have tangible impacts on girls' educational participation and long-term opportunities.

The relatively positive finding that 92.7% of respondents affirmed maintaining personal hygiene during menstruation suggests that most girls recognize the importance of cleanliness, even if they hold negative attitudes about menstruation itself. This finding aligns with the work of Onuwa et al. (2024), who found that 92.5% of respondents in Rivers State knew that bathing at least twice daily during menstruation is important. The coexistence of positive hygiene intentions with negative attitudes about menstruation highlights the complexity of girls' experiences and suggests that interventions must address both knowledge and attitudes simultaneously.

In addressing the challenges identified in this study, John Kotter's eight-step change management model provides a valuable framework for designing and implementing effective health education interventions. Kotter's model emphasizes the importance of creating urgency for change, forming a powerful coalition, developing a vision and strategy, communicating the vision, empowering broad action, generating short-term wins, consolidating gains, and anchoring new approaches in organizational culture. Applying this framework to menstrual health education in ONELGA would involve first creating awareness among school



administrators, teachers, parents, and community leaders about the urgency of addressing menstrual health knowledge gaps and negative attitudes. A coalition of stakeholders, including the Ministry of Education, school principals, teachers' unions, parent-teacher associations, and community leaders, would then be formed to champion the cause. The vision would be to create a supportive environment where adolescent girls can manage menstruation with dignity, confidence, and access to accurate information. This vision must be communicated consistently across all channels, empowering teachers with training and resources to deliver comprehensive menstrual health education. Short-term wins, such as improved knowledge scores or increased comfort discussing menstruation, should be celebrated to sustain momentum, while long-term efforts focus on embedding menstrual health education into school culture and curriculum.

Moreover, the findings of this study emphasize the need for school health education as a course of its own, as captured in the Nigerian national curriculum for senior secondary schools. This is particularly important in the context of this study, as Harlton, Ikeoke, and Egunu (2020) found that only 38 out of 424 schools teach Health Education as a subject. Without a dedicated curriculum, menstrual health education remains fragmented, inconsistent, and dependent on individual teachers' comfort and initiative. Establishing Health Education as a standalone subject would ensure that all students receive comprehensive, age-appropriate instruction on menstrual hygiene, reproductive health, and the life skills necessary to navigate adolescence with confidence. This approach would provide the structured, systematic framework needed to address both the knowledge gaps and negative attitudes documented in this study.

Study Limitations and Strengths

To mention the strengths of the present study, we conducted a community-based study among adolescent girls in secondary schools across ONELGA, which decreased participation bias. The use of stratified random sampling ensured representation across different geographical areas and class levels. The sample size of 352 respondents provided adequate statistical power for descriptive analyses. The use of validated instruments adapted from previous studies enhanced the reliability of findings. The pilot testing and establishment of test-retest reliability ($r = 0.86$) and internal consistency (Cronbach's $\alpha = 0.82$) strengthened the validity of the data collection instrument.

Regarding limitations, the present study was conducted in one Local Government Area in Rivers State, and its results may not be generalizable to other communities with different attitudes, customs, cultures, and lifestyles. The reliance on self-reported data introduces the potential for social desirability bias, as respondents may have provided answers they perceived as acceptable rather than completely accurate descriptions of their knowledge and attitudes, particularly given the sensitive nature of menstruation and surrounding cultural taboos. However, the strength of the study is that the results can be generalized to adolescent girls in secondary schools in ONELGA and similar rural and semi-urban settings in the Niger Delta region. Additionally, the community-based design, adequate sample size, and use of structured, pre-tested instruments strengthen the validity and reliability of the findings.



CONCLUSION

This study showed that among adolescent girls in secondary schools in Ogba/Egbema/Ndoni Local Government Area, basic awareness of menstruation as a normal physiological process is nearly universal, but comprehensive knowledge across multiple domains remains limited, with only about one-third of girls demonstrating good knowledge. Negative attitudes characterized by secrecy, shame, and discomfort are predominant, with only one-quarter of girls expressing consistently positive attitudes towards menstruation. Mothers and teachers are the primary sources of information, highlighting the importance of strengthening both home-based and school-based menstrual health education. With only about one-third of respondents having good knowledge in the face of negative attitudes, there is need to intensify efforts to ensure Health Education as a standalone course in schools. This will give more attention to specific issues on personal menstrual hygiene as one of the new public health concepts, Family Life and Sex Education. The findings of this study have implications for adolescent health policies and programs in Rivers State and similar settings in Nigeria. The significant gaps in comprehensive knowledge and the predominance of negative attitudes suggest that current approaches to menstrual health education are inadequate. There is need for targeted, comprehensive, and culturally sensitive interventions that address not only factual knowledge but also the deeply embedded cultural norms that perpetuate stigma and shame.

RECOMMENDATION

Based on the findings of this study, the Rivers State Ministry of Education should establish Health Education as a standalone subject in secondary schools, ensuring comprehensive menstrual health education that addresses knowledge gaps, promotes positive attitudes, and integrates Family Life and Sex Education concepts into the curriculum.

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