Optimum Science Journal

Journal homepage: https://optimumscience.org

Original Research Article

The Attitudes and Perceptions of Schoolboys Towards Menstruation in Ghana: Her Catamenia, Our Taboo

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ARTICLE INFO

Received 03 March 2025

Accepted 12 May 2025

Available Online 19 May 2025

Keywords:

Attitude

Factors

Menstruation

Perception

Schoolboys

ABSTRACT

Menstruation is a natural process yet in many African communities, it is surrounded by taboos that hinder proper menstrual hygiene management. Consequently, girls often face stigma, embarrassment, and lack of support, particularly in school environments. Males lack accurate knowledge about menstruation, reinforcing harmful attitudes and limiting support for female relatives. This study explored the attitudes, perceptions and factors influencing schoolboys' attitudes towards menstruation in the Hohoe Municipality. A cross-sectional study design was employed. A total of 273 schoolboys were sampled. Data analyses were carried out in STATA V.16.0. Logistic regression was fitted to identify significant factors at 95% CI and a p-value < 0.05. The study revealed that 166 (60.8%) of the participants had a poor perception of menstruation. Predominant 145 (53.1%) also had poor attitudes towards menstruation. Further analysis revealed that participants in JHS three (AOR=0.46, 95% CI [0.33, 0.95]) and who had a good perception (AOR= 0.38, 95% CI [0.16, 0.84]) about menstruation were less likely to have poor attitudes towards menstruation. The study concluded that there is an urgent need for targeted educational interventions to close knowledge gaps, foster positive attitudes among boys, and promote gender equity and well-being in school settings.

To cite this article: Oklu, P., Salu, S., Ananga, M. K. & Charles-Unadike, V. O. (2025). The attitudes and perceptions of schoolboys towards menstruation in Ghana: Her catamenia, our taboo. *Optimum Science Journal,* 4, 1-16. http://doi.org/10.5281/zenodo.15399478

1. Introduction

Menstruation is a natural and widespread occurrence that occurs during the reproductive age of females (Belayneh & Mekuriaw, 2019). Surprisingly, many traditional African societies view menstruation as a taboo and embarrassing

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E-ISSN: 3023-817X ♦2025 HASON Publishing

topics that is seldom openly discussed (Asumah et al., 2022a). These societal stigmas, cultural norms, and religious constraints are significant obstacles to effective menstrual hygiene management (Kaur et al., 2018). As such, girls in their menses face several challenges, including embarrassment, distress, and misperception; managing issues of menstruation with deficient information; absence of social support; scarcity of water; and hygienic and waste disposal amenities in the school environment field (Asumah et al., 2022b). Before the COVID-19 pandemic, of the 1.9 billion individuals who menstruated worldwide, an estimated 500 million were unable to attain menstrual health (Babbar et al., 2022).

The role of the male counterparts in reproductive health has been acknowledged as an important contributor to menstrual hygiene (Srinivasan et al., 2019). Despite being decision-makers, many males lack knowledge about menstruation's normal physiology and hygienic practices (Srinivasan et al., 2019). In some families, menstruation is exclusively a female issue, with males remaining ignorant of the health and hygiene needs of their wives, mothers, and children (Mason et al., 2017). Acknowledgment and incorporation of the gender-specific aspects of women's reproductive health are lacking, with minimal priority placed on gender equality issues and positive sexual and reproductive health outcomes, resulting in menstrual hygiene management issues being overlooked (Thakur et al., 2014). There is little or no knowledge and poor attitudes towards menstruation among males, whether they may be effective champions in helping to resolve menstrual hygiene issues alongside women, especially in societies where women are not empowered (Mason et al., 2017).

Negative attitudes towards menstruation among male counterparts can have various consequences, including decreased body satisfaction, heightened emotions, and physical pain associated with menstruation (Hennegan et al., 2019). These attitudes can lead to the perception of menstruation as an overall negative event, resulting in the development of means of avoiding menstruation, such as not talking about it and avoiding sexual encounters with menstruating partners (Fishman, 2014). Additionally, male students have been found to express more negative attitudes towards menstruation than their female counterparts, which can be influenced by factors such as limited comprehensive education, gender inequality, restricted dialogue, and peer influence (Mahon et al., 2015). Furthermore, boys' negative attitudes, including period teasing and stigma, can lead to harassment linked to girls' menstruation, and ignorance about the menstrual cycle and women's reproductive health may result in an increased risk of pregnancy complications and sexually transmitted infections (Benshaul-Tolonen et al., 2020a).

Men and boys have the power to break the barriers and stigma surrounding menstruation, invest in menstrual products or sanitary facilities to enhance the menstrual health of women and girls, and set a positive example for their sons by advocating for menstrual health (Mohammed & Emil Larsen-Reindorf, 2020). However, there is a lack of research on men's and boys' perspectives and knowledge regarding menstruation and menstrual hygiene management, particularly concerning the challenges that adolescents face in school environments during their periods (Coast et al., 2019). This lack of awareness significantly contributes to negative attitudes regarding the impact of menstruation on female sexuality and emotional behavior (Chang et al., 2012). Limited research has explored males' attitudes and perceptions of menstrual hygiene management in developing countries. Three studies conducted in sub-Saharan

Africa were identified (Kansiime et al., 2020; Shah et al., 2019; Tamiru et al., 2015), in contrast to the extensive focus on girls' menstrual hygiene management in this context (Benshaul-Tolonen et al., 2020b; Phillips-Howard et al., 2016; Sommer et al., 2018). Against this backdrop, several critical questions remain unanswered. What are schoolboys' perceptions of menstruation? What attitudes do they hold toward menstruation? Which factors influence these attitudes? To address this gap in the literature, the present study explored the perceptions, attitudes, and underlying factors shaping schoolboys' views of menstruation in the Hohoe Municipality of Ghana.

2. Methodology

This study used a cross-sectional design. This design was selected because it is particularly appropriate for assessing the prevalence and relationships between variables at a single point in time (Wang & Cheng, 2020). Given the study's objective of exploring schoolboys' attitudes and perceptions towards menstruation and the factors associated with these attitudes, the cross-sectional approach was ideal for providing a snapshot of these variables within the study population. This study was conducted in the Hohoe Municipality in the Volta Region of Ghana. Hohoe Municipality is one of 18 districts in the Volta Region. The city of Hohoe, whose district was named, serves as the capital and administrative or local government center. It shares borders with the Republic of Togo in the east and southeast by the Afadzato district and southwest by Kpando Municipality, in the north by the Jasikan district, and in the northwest by the Biakoye districts. Its capital, Hohoe, is approximately 78 km from Ho, the regional capital, and 220 km from Accra, the national capital. The Municipality consists of 112 communities with a population of 172.316 projected from the 2021 National Population Census. The educational sector can boast about 308 schools, 109 kindergartens, 106 primary schools (73 public and 33 private schools), 79 Junior High Schools, nine Senior High Schools, two Colleges of Education, one Nursing and Midwifery School, and one Public University and two special schools for the deaf and physically challenged (Ghana Education Office, Hohoe Municipal). Data were collected from April 2021 to July 2021.

2.1. Research Population and Sample

This study focused on schoolboys in the Hohoe Municipality. The students were selected based on the following inclusion criteria: (1) they must be residents and attend school in the municipality, (2) must be available in school at the time of data collection, and (3) must assent to participate in the study. Therefore, non-resident schoolboys were excluded from the study. Additionally, schoolboys who were seriously ill or absent during the data collection period were excluded.

2.2. Study Variables

2.2.1. Outcome variable

The outcome variable measured in the current study was the attitude of the schoolboys towards menstruation. Selecting attitude as the outcome variable aligns with the study's aim of gaining a comprehensive understanding of schoolboys' perspectives towards menstruation, emphasizing the emotional and evaluative dimensions that can significantly impact social interactions and the effectiveness of potential interventions. Attitudes were assessed using the nine items in the questionnaire. Two response options were provided: All schoolboys who were recruited to

participate in the study were assessed including all likely responses; "yes" and "no". The questions precisely covered the respondents' general attitude towards schoolgirls who menstruate and their general health and well-being during menstruation, adapted from previous studies (Benshaul-Tolonen et al., 2020b; Boakye et al., 2018). Each correct attitude item reported was awarded a score of '1' point. Conversely, the incorrect attitude was coded '0.' In this study, if "yes" is the correct answer, then "yes" is a score of 1 point and "no" is a score of 0 points, or otherwise reverse. All responses were summed to generate a mean score ($\bar{x}$=7.4) for attitudes. Thus, scores equal to or more than 7.4 were judged to have a good attitude, whereas scores below 7.4 were judged to have a poor attitude.

2.2.2. Explanatory variables

2.2.2.1 Sociodemographic characteristics

Five sociodemographic variables were considered in the estimation. This included age, class, type of school, religion, and number of females in the household.

2.2.2.2. Perception

Perception was measured using the mean scores. This was calculated using the eight perception-specific questions listed in Table 3. All reported positive perception items were coded as 1', and all negative perception items were coded as 0.' All the responses were summed to generate a mean score for perception ($\bar{x}$=1.8). Thus, scores equal to or more than 1.8 were judged to have good perception and scores less than 1.8 as poor perception.

2.3. Operational Definitions

2.3.1. Attitude

Attitude in this study refers to the predisposed feelings, opinions, and evaluations of schoolboys towards menstruation. It includes emotional responses, beliefs, and judgments regarding various aspects related to menstruation, such as girls' experiences, physical changes, and societal expectations. Attitude was measured through a set of survey items that gauged boys' subjective viewpoints and sentiments about menstruation, focusing on their preferences, opinions, and emotional responses.

2.3.2. Perception

Perception, within the scope of this study, denotes the cognitive understanding and interpretation of menstruation-related phenomena in schoolboys. It includes awareness, beliefs, and interpretations of the circumstances surrounding menstruation, including societal norms, behavioral expectations, and biological aspects. Perception was assessed through survey items that captured boys' cognitive understanding of menstruation, focusing on their awareness, interpretations, and cognitive evaluations.

2.3.3. Sample size and sampling procedure

Using Cochrane's single-proportion formula, a sample size of 259 was estimated as follows:

n= (z^2 p(1-p))/d^2, considering a 5% margin of error, 95% confidence interval =1.96 and a proportion of positive attitude among males of 21.4% from a study conducted by (Srinivasan et al., 2019). Where;

n = Estimated sample size

p = 0.214

q= (1-p)

d = margin of error (0.05)

Z = Test Statistic (1.96)

Adding 5% to cater to non-response increased the estimated sample size to 273.

There are 106 basic schools in the Hohoe Municipality. A multi-stage sampling procedure was employed to recruit participants for the study. This process involved four sampling stages. The first stage involved clustering all schools in the municipality into public and private schools. The second stage employed lottery method sampling to select two public and two private schools randomly from each cluster. The third stage employed stratified sampling, which was performed by stratifying the selected schools into JHS One to JHS Three to have four JHS One classes, four JHS Two classes, and four JHS Three classes. In total, 16 classes from all four schools were selected. Stage four involved a simple random selection of 17 students from each of the 16 classes from the four schools selected to arrive at 272. Purposive sampling was then used at the fifth stage to select one student to make up for the remaining 1 respondent, which brought the sample size to a total of 273 for the study.

2.4. Data Collection

A well-structured questionnaire comprising close-ended questions was used for data collection. The questionnaire consisted of 17 items designed to explore schoolboys' views on menstruation divided into three sections: socio-demographic characteristics, attitudes, and perceptions. Specifically, nine questions were designed to measure attitudes, assess respondents' feelings, and evaluate their judgments about menstruation and menstruating girls. Eight questions measured perception, focusing on schoolboys' beliefs, understanding, and interpretation of menstruation-related issues. The questions had "Yes" or "No" response options. These items were adapted from previously validated tools in related studies (Benshaul-Tolonen et al., 2020b; Boakye-Yiadom et al., 2018) and contextualized to reflect the cultural and educational setting of the study population. The questionnaire was first designed in English, then converted to local dialects, and translated back into English to ensure the reliability and simplicity of the question.

Two primary school teachers were recruited and trained to help with questionnaire administration. The questionnaire was pre-tested in one of the suburbs of Hohoe Municipality (Lolobi) among twenty-two (22) students in a selected school to ensure the validity and reliability of the questionnaire. This study covers the period from March to July 2021. The Cronbach's alpha values for the attitude and perception scales were (α=0.79) and (α=0.86), respectively, indicating good internal consistency. Based on feedback from pre-testing, minor revisions were made to improve clarity and cultural relevance. The final version of the structured questionnaire was administered face-to-face and all responses were anonymized to ensure confidentiality and encourage honest feedback.

2.4.1. Data processing and analysis

Data from the field were screened and checked for completeness by the principal investigator before data entry. To guarantee the accuracy of the extracted data, a double-entry process was implemented to rectify any discrepancies that may have arisen during the data extraction phase. Data were entered into Epi Data Entry Client version 4.6.0.2

and exported to STATA V.16.0 (StataCorp. 2019. Stata Statistical Software: Release 16. College Station, TX: StataCorp LLC.) for analysis. Categorical variables were expressed as frequencies and percentages. The results are displayed in tables and graphs, according to the study variables. Further inferential statistics were employed to examine the factors influencing schoolboys' attitudes towards menstruation. Significance was set at $p < 0.05$, and 95% confidence intervals were reported. Multicollinearity was assessed using the variance inflation factor (VIF) to ensure the reliability of our findings. The results indicated no collinearity between the variables, with a mean VIF of 1.09.

3. Results and Discussions

Table 1 shows the sociodemographic characteristics of the respondents. From the table, 183 (67.0%) schoolboys were within the age group of 10-15 years. The majority 238 (87.2%) of them were Christians. Almost half of 114 (41.8%) were in JHS 3, while 69 (25.3%) were in JHS 1. Furthermore, the majority 151 (55.3%) were from public schools, while the remaining 122 (44.7%) were from private schools.

Table 1. Distribution of the socio-demographic characteristics of the respondents (n=273)

Variable	Frequency (f)	Percentage (%)
Age		
SD (14.7, ±1.85)		
10-15	183	67.0
16-18	90	33.0
Religion		
Christian	238	87.2
Muslim	29	10.6
Traditional	6	2.20
Class		
JHS 1	69	25.3
JHS 2	90	33.0
JHS 3	114	41.7
Type of School		
Public	151	55.3
Private	122	44.7
Number of females in a household		
<5	19	72.9
5-10	61	22.4
≥10	13	4.7

3.1 Attitude of Schoolboys towards Menstruation

Table 2 presents the attitudes of the schoolboys towards menstruation. From the table, the majority of 238 (87.1%) schoolboys indicated that girls generally had positive feelings about menstruation. More than two-thirds 191 (70.0%) reported that girls could accurately sense when their period was approaching. Moreover, 222 (81.3%) of participants believed that girls face challenges or discomfort during menstruation. Among schoolboys, 218 (78.9%) reported that boys have advantages over girls because they do not experience monthly menstrual periods. A comparative majority,

206 (75.5%) of them, also agreed that they thought girls should be fit during menstruation as they do during any other time of the month.

Table 2: Attitude of schoolboys towards menstruation (n=273)

Variables	Response Options	
	Yes f (%)	No f (%)
Should girls generally have positive feelings about menstruation?	238 (87.2)	35 (12.8)
Do girls face challenges or discomfort during menstruation?	222 (81.3)	51 (18.7)
Should girls accurately sense when their period is approaching?	82 (30.0)	191 (70.0)
Should girls expect support from their friends when they are menstruating?	167 (61.2)	106 (38.8)
Do girls predict their menstrual periods based on mood changes?	92 (33.7)	181 (66.3)
Do girls generally get easily upset during menstruation?	190 (69.6)	83 (30.4)
Should girls be treated specially when they seem upset during menstruation?	146 (53.5)	127 (46.5)
Do boys have advantages over girls due to not experiencing monthly menstrual periods?	218 (79.8)	55 (20.2)
Are girls expected to be fit during menstruation as they do during any other time of the month?	67 (24.5)	206 (75.5)

Figure 1 shows the overall attitude of the schoolboys towards menstruation. A higher proportion of them, 145 (53.1%), had poor attitudes towards menstruation.

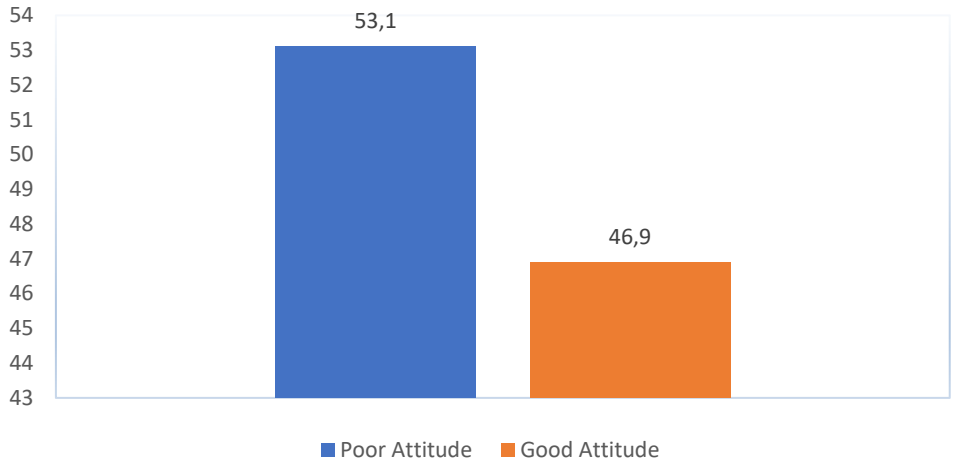

Figure 1. Overall level of attitude towards menstruation among schoolboys.

This study examined the menstrual attitudes of schoolboys in the Hohoe Municipality of Ghana. The results indicated that a substantial proportion of schoolboys exhibited a poor attitude towards menstruation. This finding aligns with a cross-sectional study conducted by Srinivasan et al. (2019) in Bengaluru Urban District, South India, which investigated perceptions of menstruation and menstrual hygiene among college students. The study revealed that a higher percentage of young men (78.5%) displayed negative attitudes towards menstruation than young women (48.4%). Additionally, Benshaul-Tolonen et al. (2020a) conducted a study in northern Tanzania focusing on males' attitudes towards menstruation in four co-educational secondary schools. Their findings revealed that a majority of the surveyed boys maintained negative attitudes towards menstruation despite possessing a relatively high level of biomedical knowledge about menstruation.

Specifically, previous studies indicate that a significant proportion of boys believe that menstruation is linked to discomfort in girls. For instance, a considerable percentage of boys perceive that they have advantages over girls because they do not experience menstruation (Holmes et al., 2021). Similarly, a study by Bear et al., (2025) found that experiences and emotions associated with menstruation among adolescents often lean towards negative feelings such as shame and disgust. These studies highlighted consistent findings regarding negative attitudes towards menstruation among males, observed across different regions and cultural contexts. The consistencies observed can be attributed to various factors, such as sociocultural norms, limited comprehensive education, gender inequality, restricted dialogue, and peer influence, which can all contribute to the persistence of negative attitudes. This emphasizes the need for targeted interventions and comprehensive menstrual health education programs to address and transform these negative attitudes towards menstruation (Evans et al., 2022; Khan et al., 2023; Sommer et al., 2021). In contrast, few studies have reported findings that contradict those of the present study. For example, a study conducted by Yagnik (2015) in India presented results that differed from those of the current study. The aforementioned study observed that attitudes and cognitive involvement in menstruation and menstrual practices were high, whereas behavioral involvement in such practices was low. Their findings revealed that both male and female students displayed predominantly negative attitudes towards menstruation, which differs from the current study where only males were found to exhibit negative attitudes towards menstruation. This difference may be attributed to the fact that the present study focused only on schoolboys. These contrasting results suggest that attitudes towards menstruation can vary across different cultural and geographic contexts. Factors such as sociocultural influences, educational backgrounds, and societal norms may contribute to the divergent findings among studies (Kpodo et al., 2022; Mohammed & Emil Larsen-Reindorf, 2020).

3.2. Perception of Schoolboys towards Menstruation

Table 3 below showcases the perception of schoolboys towards menstruation. Out of the total, the majority 170 (62.3%) of the schoolboys believe there is a social stigma associated with menstruation in their school. Similarly, the predominant 185 (67.7%) among them reported that in their opinion, is it acceptable for girls to miss school when experiencing menstrual cramps. Surprisingly, a higher proportion of 205 (75.1%) of them think girls in their school are not well informed about maintaining good menstrual hygiene practices. Notably, a significant majority of 175 (64.1%) also reported that current menstrual education programs are not helping to shape perceptions among schoolboys.

Table 3. Perception of schoolboys on menstruation (n=273)

Variables	**Response Options**	
	Yes (%)	**No (%)**
Do you believe there is a social stigma associated with menstruation in your school?	170 (62.3)	103 (37.7)
In your opinion, is it acceptable for girls to miss school when experiencing menstrual cramps?	185 (67.7)	88 (32.3)
Do you think menstruation has an impact on girls' academic performance?	106 (38.8)	167 (61.2)
Do you think girls in your school are well informed about maintaining good menstrual hygiene practices?	68 (24.9)	205 (75.1)
Do you think current menstrual education programs are helping to shape perceptions among schoolboys?	98 (35.9)	175 (64.1)
Do you think periods/menstrual cramps are bothersome if a girl pays attention to them?	78 (28.6)	195 (71.4)

Do you think girls feel embarrassed to ask questions about menstruation?	215 (78.7)	58 (21.3)
Do you think peers have any influence in shaping schoolboys' perceptions about menstruation?	76 (27.8)	197 (72.2)

Figure 2 below presents the overall level of perception of schoolboys about menstruation. The findings from the current study revealed that the majority 166 (60.8%) of the schoolboys had a poor perception of menstruation.

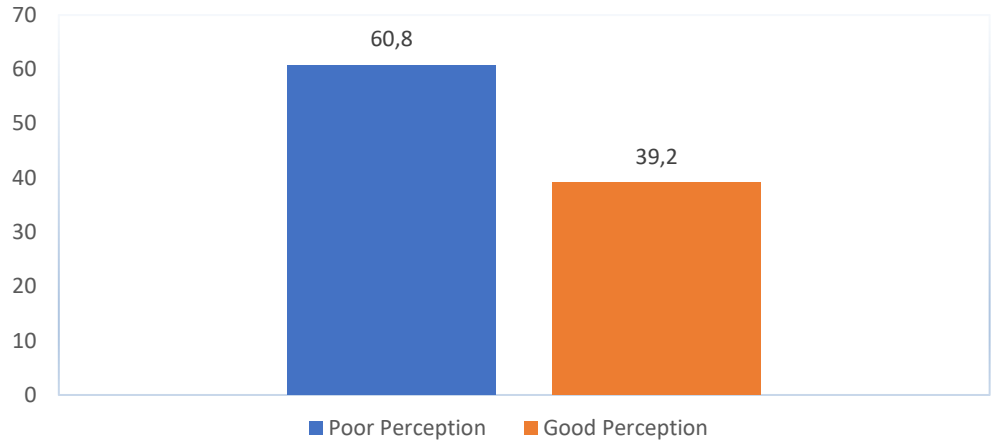

Figure 2. Overall level of perception among schoolboys on menstruation

The study revealed that the level of perception was poor among the participants. This finding aligns with a study conducted by Deepa et al., (2019) in the Bangalore Urban District, which also assessed perceptions regarding menstruation among youth in a peri-urban college. Their study found that only 29.6% of male students had adequate knowledge about menstruation, indicating a lack of comprehensive understanding among this population. These findings indicate a widespread stigma surrounding menstruation in diverse cultural contexts. A systematic review by Hennegan et al., (2019) illustrated that schools often implement punitive measures against menstruating girls for hygiene issues, which aligns with the stigma recognized in the present findings. This stigma can lead to an adverse impact on school attendance, as certain norms discourage open discussion about menstruation, resonating with the social isolation felt among adolescent girls in the study (Huseth-Zosel & Secor-Turner, 2022). Interestingly, our quantitative study appears to be one of the few that specifically focused on assessing the perception of schoolboys towards menstruation, highlighting the scarcity of research in this area.

It is worth noting that many existing studies on menstruation perception tend to be qualitative (Mahon et al., 2015; Mason et al., 2017; Peranovic & Bentley, 2017), and the others focusing on menstruation perception and knowledge are explored among females (Abreu-Sánchez et al., 2020; Ameade & Garti, 2016; Belayneh & Mekuriaw, 2019; Manhas, 2017). Few studies have quantitatively examined the perception of schoolboys towards this topic (Srinivasan et al., 2019), underscoring the need for further research to gain a comprehensive understanding of their perspectives. Overall, our study contributes to the existing literature by shedding light on the poor level of perception among schoolboys towards menstruation. It emphasizes the importance of promoting comprehensive menstrual education and fostering an open dialogue to address knowledge gaps and dispel misconceptions among this demographic. Further research in this area is warranted to explore effective strategies for improving the perception and knowledge

of schoolboys towards menstruation, ultimately promoting gender equality, empathy, and inclusive attitudes (Bradshaw, 2019; McCammon et al., 2020).

3.3. Factors Influencing Schoolboys' Attitude towards Menstruation

Regarding factors influencing schoolboys' attitudes towards menstruation, both bivariate and multivariate logistic regression analyses revealed that class and perception of schoolboys were factors associated with poor attitudes towards menstruation at a p-value < 0.05. Notably, schoolboys who were in JHS 3 were found to be 54% times less likely to have poor attitudes towards menstruation as compared to those in other classes (AOR=0.46, 95% CI [0.33, 0.95]). Additionally, schoolboys who had a good perception of menstruation were also found to be 62% times less likely to have poor attitudes towards menstruation (AOR=0.38, 95% CI [0.16, 0.84], Table 4).

Table 4: Factors influencing schoolboys' attitude towards menstruation

Variable	Attitude		Chi-square	p-value	COR [95% CI]	AOR [95% CI]
	Good n (46.9%)	**Poor n (53.1%)**				
Age			10.15	0.284		
10-15	87 (64.0)	96 (70.1)			1.00	-
16-18	49 (36.0)	41 (29.9)			2.86[0.29, 2.98]	-
Religion			3.88	0.144		
Christian	124 (91.2)	114 (83.2)			1.00	-
Muslim	10 (7.4)	19 (13.9)			1.66 [0.01, 2.31]	-
Traditional	2 (1.5)	4 (2.9)			2.95 [0.19, 3.42]	-
Class			5.46	**		
JHS 1	26 (19.1)	43 (31.4)			1.00	1.00
JHS 2	49 (36.0)	41 (29.9)			1.78[0.91, 3.45]	-
JHS 3	61 (44.9)	53 (38.7)			**0.96*[0.09, 0.99]**	**0.46*[0.33, 0.95]**
School Type			5.18	0.075		
Public	79(50.0)	98(61.6)			1.00	-
Private	50(34.5)	46(25.6)			1.96 [0.74, 2.32]	-
Number of females in a household			1.81	0.405		
<5	95 (69.9)	104 (75.9)			1.00	-
5-10	35 (25.7)	26 (19.0)			5.65 [0.58, 5.59]	-
≥10	6 (4.4)	7 (5.1)			2.35 [0.19, 4.42]	
Perception			12.56	*		
Poor	65 (27.4)	112 (72.6)			1.00	1.00
Good	42 (47.2)	54 (52.8)			**1.02***[1.01, 1.70]**	**0.38***[0.16, 0.84]**

COR= crude odds ratios; AOR= adjusted odds ratios; CI = Confidence Interval; * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; 1.00 = Reference category

The study found a significant association between students' class level, their perception of menstruation, and their attitudes toward it. Specifically, students in higher classes were less likely to hold negative attitudes toward menstruation compared to those in lower classes. This finding aligns with that of Ene et al., (2024), who reported that educational level significantly influences perceptions of menstrual hygiene. They observed that students with higher levels of education were more likely to demonstrate positive attitudes toward menstrual hygiene management, reinforcing the conclusions drawn in the present study. The impact of education supports the broader idea that increased knowledge about menstruation can foster more positive attitudes and healthier practices, as noted by (Parvin et al., 2023). Similarly, Zablock and Fei (2023) found in a U.S.-based study that over two-thirds of young

men believed menstrual education was essential or very important for all genders. Further evidence comes from Moon et al. (2020), who reported that participants in an innovative menstrual education program expressed high levels of satisfaction and showed improved knowledge and perceptions regarding menstruation and menstrual products.

Conversely, inadequate awareness and understanding of menstruation have been linked to negative attitudes toward menstrual hygiene, as highlighted by Uzoechi et al. (2023). These findings collectively suggest that comprehensive menstrual education plays a critical role in shaping positive perceptions and attitudes. When individuals are well-informed about menstruation, they are more likely to develop empathetic and supportive viewpoints. This is especially important in broader contexts, as illustrated by Peranovic and Bentley (2017), who emphasized that men's attitudes toward menstruation are shaped by educational, relational, and socio-political influences. The persistent lack of knowledge about the menstrual cycle and other aspects of female reproductive health contributes to societal stigma and perpetuates gender inequality (Zablock & Fei, 2023).

4. Conclusions

Overall, the findings from this study indicate that a significant majority of schoolboys have poor perceptions and attitudes towards menstruation. The majority of the participants demonstrated a lack of understanding and awareness regarding menstruation, while a substantial proportion held negative attitudes towards this natural biological process. However, the study identified student class level and having a positive perception of menstruation as factors associated with a more favorable attitude. These findings emphasize the immediate necessity for interventions targeted at bridging the knowledge gap and cultivating positive attitudes among schoolboys, ultimately fostering gender equality and, improving female sexuality and emotional behavior as well as good health and well-being.

4.1. Implications for Policy and Practice

Given the findings from the current study, it is crucial to implement comprehensive menstrual education programs that specifically target schoolboys, specifically to promote SDG 5 - gender equality. By incorporating menstrual health education into the school curriculum and providing teachers with adequate training and resources, schoolboys can be equipped to deliver accurate information and dispel myths surrounding menstruation. Additionally, efforts should also be made to engage boys as allies in menstrual health. Peer education programs and mentorship initiatives can empower older boys to become advocates for menstrual health, thereby promoting empathy, understanding, and support for menstruating individuals as these will help to advance good health and well-being (SDG 3) among the menstruating population. Finally, continuous evaluation and improvement of menstrual health education initiatives are necessary to ensure their effectiveness and relevance. Regular monitoring and feedback from students, teachers, and other stakeholders will enable policymakers to refine and adapt their approaches to meet the evolving needs of schoolboys and promote positive perceptions and attitudes towards menstruation.

4.2. Strengths and Limitations

The strength of the current study highlights the use of appropriate methodology to estimate the sample and analyze the data. However, there are some limitations encountered in the study. The current study cannot be interpreted as a representative sample of Ghana, as the study was conducted in only four schools which were selected randomly. Additionally, the cross-sectional nature of the study design might not depict the cause-and-effect relationships between the study variables. Also, the presence of class teachers in some classrooms may have caused some degree of social desirability bias in responses. Moreover, there are very few prior studies from other countries or regions with which we can compare our findings for the perception of schoolboys on menstruation. As such, it is difficult to conclude whether schoolboys in these schools, or schoolboys in Ghana, are more, less, or equally informed as compared to their female counterparts in different national contexts. The only comparable result we found was the study conducted by (Srinivasan et al., 2019). Finally, this study employed only a quantitative method of data collection. Therefore, further longitudinal and mixed approach study design with more exhaustive and mutually exclusive categories of variables is recommended.

Acknowledgment

We would be glad to express our sincere gratitude to everyone who helped us with this study. We also thank the Ghana Education Service in the Hohoe Municipality for its support in the study.

Declaration of Competing Interest and Ethics

The authors declare that they have no competing interests. The study was conceptualized and designed by P. Oklu and V. O. Charles-Unadike. P. Oklu conducted the field data collection under the supervision of V. O. Charles-Unadike. S. Salu analyzed the data collected from the field, wrote the discussion and drafted the initial manuscript. V. O. Charles-Unadike formatted the tables and finalized the manuscript. V. O. Charles-Unadike and M. K. Ananga provided critical revision of the manuscript. All authors read and approved of the final manuscript. Approval was sought from the University of Health and Allied Sciences Research Ethics Committee (UHAS-REC), with the identity [ID: UHAS-REC A.9 {79} 20-21]. All methods were in accordance with the Declaration of Helsinki. Official permission was sought from the Ghana Education Service in the Hohoe Municipality. The PI (principal investigator) and research assistants introduced themselves properly and obtained permission from the school authorities where the study was carried out. Written informed consent was also sought from the respondents before the administration of the questionnaire. Parental consent and child assent were sought from schoolboys who were below 18 years and consent were sought from schoolboys who were 18 years at the time of the study.

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