School absenteeism during menstruation and associated factors: a school-based study among adolescents in the Tamale Metropolis.

Abstract

Introduction: *Menstruation is a natural physiological process that can have significant implications for adolescent girls, particularly in low-resource settings where knowledge gaps and cultural taboos persist. In the Tamale Metropolis of Ghana, menstrual-related challenges contribute to school absenteeism, which can negatively impact educational outcomes and psychosocial well-being.* ***Aim:*** *This study seeks to enhance the existing knowledge by evaluating the frequency of schoolgirl absence due to menstruation in Tamale Metropolis, as well as the factors associated with it.* ***Methods:*** *The study used a cross-sectional study with 293 adolescent schoolgirls. The study recruited six (6) schools in the Tamale Metropolis using multistage sampling. The questionnaire was used to collect the data from these students. Stata was used to analyze the data and statistical significance was pegged at a p-value less than 0.05.* ***Results:*** *The majority of the respondents (87.4%) know about menstruation, and 85% are aware of menstrual hygiene. The main sources of information are family (47.1%) and school (33.1%), with fewer getting information from friends (12.6%) or media (7.2%). The study showed that 35.2% of respondents missed school due to menstruation. Among those who missed school, the majority missed 1-2 days (61.2%), while 29.1% missed 3-4 days and 9.7% missed more than 4 days. The majority of the respondents (78.6%) experience severe menstrual pain (dysmenorrhea). In terms of menstrual products, 43.7% report inadequacy, while 56.3% have adequate supplies. The study shows that 49.5% of respondents experience feelings of anxiety during menstruation, while 50.5% do not. About 43.3% feel embarrassed about menstruation, and 56.7% do not. The study established a significant association between school absenteeism and Grade/Class Level (0.001), religious affiliation (0.002), ethnicity (0.042), mother's education (0.026), mother's occupation (0.014), and father's occupation (0.017).* ***Conclusion:*** *School attendance among adolescent girls in Tamale Metropolis is influenced by menstrual health. Facilitating information acquisition, ensuring the availability of menstruation products, and establishing nurturing surroundings can enhance educational achievements.*

Keywords*: Menstruation, Menstrual hygiene, School Absenteeism, Adolescent Girls, Tamale Metropolis, Psychosocial Effects, Ghana*

Introduction

Menstruation, a ubiquitous biological phenomenon, signifies the initiation of reproductive maturation in females across the globe. Menstruation, although widespread, faces considerable obstacles, especially in low- and middle-income countries (LMICs)[1, 2]. In these countries, menstruation is typically linked to social stigma, inadequate management of menstrual hygiene, and restricted availability of essential resources[3, 4]. The issues mentioned might have a substantial effect on the lives of adolescent girls, especially in educational environments. Menstruation has been recognized as a crucial element that contributes to school absenteeism[5].

The problem of absenteeism connected to menstruation is a worldwide concern since research suggests that a considerable percentage of female students are unable to attend school during their menstrual cycles due to a range of difficulties[6–8]. In low- and middle-income countries (LMICs), these difficulties are frequently worsened by poor water, sanitation, and hygiene (WASH) facilities in schools, limited availability of affordable and suitable menstruation products, and inadequate teaching on menstrual health[9]. A study conducted in Sub-Saharan Africa revealed that more than 20% of female students reported being absent from school because of menstruation, with the inadequate availability of water, sanitation, and hygiene (WASH) facilities being a major contributing factor [10].

The presence of cultural taboos and stigmas related to menstruation adds complexity to the problem, resulting in feelings of shame and humiliation among girls[3, 11]. These negative emotions can discourage them from attending school when they are menstruating. Across various societies, menstruation is commonly regarded as a topic that should be kept confidential, resulting in a dearth of knowledge and comprehension about menstruation among both males and females. The absence of knowledge can sustain false beliefs and misunderstandings, hence intensifying the social disapproval associated with menstruation[12]. In certain regions of Sub-Saharan Africa, menstruation girls are regarded as dirty and are actively prevented from engaging in routine activities, such as attending school[13].

The influence of absenteeism linked to menstruation on education is significant. Female students who are absent from school because of menstruation frequently have educational setbacks, resulting in knowledge gaps and potentially decreased academic achievement[14, 15]. Over some time, these disparities can build up, leading to a higher likelihood of students leaving school prematurely [16]. Studies[6, 17, 18] conducted in Ghana have demonstrated that menstruation is a substantial factor in school absenteeism, particularly in rural and impoverished regions. Asumah et al. [11] emphasized that cultural taboos, insufficient MHM infrastructure, and restricted availability of sanitary goods are significant contributors to menstruation-related absenteeism in the Northern Region of Ghana.

Moreover, the significant influence of menstruation on the psychological and social well-being of schoolgirls should not be disregarded. Girls frequently experience emotions of isolation, anxiety, and low self-esteem due to the stigma and secrecy associated with menstruation[11]. This is exacerbated by the apprehension of being ridiculed or harassed by peers, which can create an inhospitable atmosphere for girls experiencing menstruation in school [19]. A study conducted in Ethiopia revealed that females who encountered mocking or harassment specifically linked to menstruation exhibited a higher propensity to be absent from school throughout their menstrual cycles [20]. Asumah et al.,[21] have emphasized the psychological strain that menstruation imposes on girls in Ghana. They have observed that the absence of supporting settings in schools leads to many girls choosing to remain at home during their menstrual cycles.

Interventions targeting menstruation-related absenteeism have been conducted in different settings, yielding different levels of success. To decrease absenteeism, many measures have been implemented, including the distribution of complimentary sanitary products, enhancements in WASH facilities in schools, and the implementation of menstrual health education programs. Nevertheless, the efficacy of these interventions is frequently constrained by enduring cultural obstacles and insufficient infrastructure. A study conducted in Kenya discovered that although the distribution of sanitary pads and education on menstrual health had a positive impact on attendance in certain situations, these interventions alone were not enough to completely resolve the issue, especially in environments where cultural obstacles and insufficient infrastructure remained prevalent [22]. In Ghana, such initiatives have demonstrated potential but have not yet completely remedied the problem of absenteeism associated with menstruation [1].

Due to the intricate nature of the problem, it is crucial to do further study that investigates the precise elements that contribute to absenteeism related to menstruation in diverse situations and evaluates the efficacy of different remedies[2, 23]. Gaining insight into the specific circumstances of the community is essential for creating focused approaches that can successfully assist girls in handling their menstruation and decreasing their absence from school. This study seeks to enhance the existing knowledge by evaluating the frequency of schoolgirl absence due to menstruation in the Tamale Metropolis, as well as the factors associated with it. The study aims to evaluate the knowledge level of adolescent girls, the frequency of school absenteeism related to menstruation, the factors that contribute to school absenteeism during menstruation, and the psychological and social effects of menstruation on school attendance among adolescent girls in the Tamale Metropolis. This research aims to identify the primary obstacles that prevent regular school attendance during menstruation. The goal is to use this information to establish policies and interventions that promote gender equality in education and enable girls to reach their maximum potential.

Methods and materials

Study setting

The research was carried out in the Tamale Metropolis. The Tamale Metropolitan Assembly (TMA) is one of the 261 Metropolitan, Municipal and District Assemblies (MMDAs) in Ghana. It is one of the 16 MMDAs located in the Northern Region. In 2004, the Tamale Metropolitan Assembly was promoted to the status of a Metropolis. Tamale, the capital of the Metropolis, is located in latitude 9.16° to 9.34° North and longitudes 00.36° to 00.57°.

Tamale Metropolitan is situated in the middle region of the Northern Region and has an elevation of roughly 180 meters above sea level. The terrain is predominantly undulating, with some shallow troughs that function as watercourses. Additionally, there are a few solitary hills, although they do not impede physical progress. The Metropolis is adjacent to the Savelugu Municipality in the north, the Yendi Municipal Assembly in the east, the Tolon District in the west, the Central Gonja District in the southwest, and the East Ganja Municipal in the south. As per the 2021 population and housing census, the population of the Metropolis is currently 374,744, with 185,051 males and 189,693 females.

Study design

This study employs a descriptive cross-sectional design to investigate the influence of menstruation on school attendance among schoolgirls in the Tamale Metropolis. The cross-sectional architecture facilitates the collecting of data at a certain moment, enabling a thorough comprehension of the matter. The study's descriptive character facilitates an in-depth examination of current conditions and behaviors, enabling the identification of prospective areas for change. The use of a quantitative approach guarantees the collection of data that can be measured, hence increasing the objectivity and dependability of the findings. This design offers a thorough and statistically sound analysis of absence linked to menstruation.

Study population

The study includes all schoolgirls between the ages of 10 to 19 years residing in the Tamale.

Inclusion and exclusion criteria

Inclusion Criteria:

The survey encompassed female students between the ages of 10 and 19 who were living in the Tamale Metropolis. The chosen age range was intended to represent a broad spectrum of adolescent experiences about menstruation. To maintain the appropriateness for the local community, only those who were registered at educational institutions located within the Tamale Metropolis were considered for inclusion. The schoolgirls were required to give informed permission to participate, and for those who were under 18 years old, parental or guardian approval was also requested. Furthermore, only adolescent females who had reached menarche (i.e., started menstruating) were qualified to take part, as the study aimed to examine the influence of menstruation on school attendance.

Exclusion Criteria:

The study eliminated any female students who were younger than 10 or older than 19 years of age, or who did not live inside the Tamale Metropolis. Non-enrolled schoolgirls were also excluded from the study, as it focused solely on investigating the correlation between menstruation and school attendance. Individuals who had not yet undergone menarche were not included in the study, as their experiences were not pertinent to the study's objectives. Ultimately, any female student who did not give knowledgeable agreement, or whose parent or legal guardian did not permit if she was below the age of 18, was not included in the research.

Sample size calculation

The study would be calculated using the Snedecor and Cochran, [24] formulae. The critical value (z score) at a 95% confidence level is 1.96, the margin of error is 5% (0.05) and the prevalence of school absenteeism during menses in Tamale Metropolis is 22.2% [6]. From above, the sample size is 266. To make up for non-

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compliance or non-response rate, 10.0% was added to the calculated sample size making the estimated sample size to be 293.

Sampling techniques

The study employed a multistage sampling technique, beginning with the selection of six schools in the Tamale Metropolis, consisting of four public and two private schools, to ensure representation across different school types. A total sample size of 293 schoolgirls aged 10 to 19 years was targeted, with the number of participants from each school determined proportionally based on the size of the eligible student population. Within each selected school, systematic sampling was used to select participants. After listing all eligible schoolgirls, a sampling interval was calculated, and starting from a random point, every nth student was chosen until the required sample size was reached. This method ensured that the sample was representative of the broader population and minimized selection bias.

Data collection tools and procedures

The study eliminated any female students who were younger than 10 or older than 19 years of age, or who did not live inside the Tamale Metropolis. Non-enrolled schoolgirls were also excluded from the study, as it focused solely on investigating the correlation between menstruation and school attendance. Individuals who had not yet undergone menarche were not included in the study, as their experiences were not pertinent to the study's objectives. Ultimately, any female student who did not give knowledgeable agreement, or whose parent or legal guardian did not permit if she was below the age of 18, was not included in the research.

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Data analysis and presentation

The data analysis in this study was conducted using Stata version 18, which involved thorough cleaning and preparation of the dataset. Descriptive statistics were employed to provide a concise summary of the data, encompassing the socio-demographic characteristics of the participants, their level of awareness regarding menstruation, and the frequency of school absenteeism associated with menstruation. Chi-square tests were performed to investigate the relationships between socio-demographic characteristics and school absenteeism linked to menstruation. A significance level of $p < 0.05$ was employed to establish statistical significance.

Ethical clearance

This study was conducted by ethical guidelines, specifically adhering to the principles outlined in the Declaration of Helsinki. The Declaration of Helsinki sets forth ethical principles for conducting medical research involving human subjects, ensuring respect, protection, and well-being of participants.

Before data collection, informed consent was obtained from the parents or guardians of the adolescent girls. This process involved providing detailed information about the study's purpose, procedures, potential risks, and benefits, ensuring that parents could make an informed decision about their child's participation. Additionally, assent was obtained directly from the adolescent girls, ensuring that they voluntarily agreed to participate in the study and understood the nature of their involvement.

Throughout the study, the confidentiality and privacy of the participants were strictly maintained. Personal identifiers were kept anonymous, and data was stored securely with restricted access to authorized personnel only. This approach safeguarded the participants' identities and ensured that their responses remained confidential.

Results

Socio demographics characteristics

The majority of the respondents (58.4%) were aged 15-19 years, and 65.5% were Muslims. Most of the respondents (37.2%) were in Junior High School 3 and nearly half (49.5%) belonged to the Mole-Dagomba ethnic group. Family income levels are predominantly low (57.0%). Educational attainment varies among parents, with 38.6% of mothers and 35.2% of fathers having no formal education. Occupation-wise, 41.3% of mothers and 47.4% of fathers were self-employed. Most respondents live with both parents (53.2%) and have access to basic needs (82.9%) ***(Table 1).***

Knowledge of menstruation among respondents

The majority of the respondents (87.4%) know about menstruation, and 85% are aware of menstrual hygiene. The main sources of information are family (47.1%) and school (33.1%), with fewer getting information from friends (12.6%) or media (7.2%). About 59% understand the menstrual cycle correctly, while 41% do not. Most respondents (63.1%) know that hormonal changes cause menstruation, although 36.9% do not know the cause. Finally, 66.6% believe menstrual hygiene is very important ***(Table 2).***

School absenteeism due to menstruation

The study showed that 35.2% of respondents missed school due to menstruation. Among those who missed school, the majority missed 1-2 days (61.2%), while 29.1% missed 3-4 days and 9.7% missed more than 4 days ***(Table 3).***

Factors influencing school absenteeism due to menstruation

The majority of the respondents (78.6%) experience severe menstrual pain (dysmenorrhea). In terms of menstrual products, 43.7% report inadequacy, while 56.3% have adequate supplies. Fear of staining clothes affects 65% of respondents, and 69.9% experience embarrassment or anxiety related to menstruation. Nearly half, 47.6%, lack access to proper facilities for menstrual hygiene, and 38.8% are influenced by cultural or religious beliefs concerning menstruation ***(Table 4).***

Psychological and socio-effect of menstruation

The study shows that 49.5% of respondents experience feelings of anxiety during menstruation, while 50.5% do not. About 43.3% feel embarrassed about menstruation, and 56.7% do not. They further revealed that 38.2% avoid social activities due to menstruation, and 31.7% feel isolated during this time. Additionally, 35.8% report that menstruation impacts their relationships with peers, while 64.2% do not experience any such impact ***(Table 5).***

Association between School absenteeism due to menstruation and socio-demographic characteristics

The study established a significant association between school absenteeism and Grade/Class Level (0.001), religious affiliation (0.002), ethnicity (0.042), mother's education (0.026), mother's occupation (0.014), and father's occupation (0.017) ***(Table 6).***

Discussion

The findings from this study reveal a high level of awareness and knowledge about menstruation among respondents, with 87.4% indicating awareness of menstruation and 85% recognizing the importance of menstrual hygiene. These results are consistent with recent studies conducted in Ghana, such as those by Asumah[1, 21] and Neupane et al. [25], which report similarly high levels of menstrual health awareness.

This alignment suggests that ongoing educational efforts, especially those delivered through family and school-based programs, are effectively improving menstrual health literacy among adolescents.

The primary sources of information about menstruation for the respondents are family (47.1%) and school (33.1%), which aligns with the findings of Asumah [1]. This indicates that family and school-based education are crucial in disseminating menstrual health information. However, the relatively minor role of media (7.2%) as a source of information underscores a potential area for improvement. Increasing media engagement could help reach a broader audience and enhance overall menstrual health education.

Despite the high awareness levels, there are notable gaps in understanding. Approximately 59% of respondents correctly understand the menstrual cycle, and 63.1% know that hormonal changes cause menstruation. The 41% of respondents who lack an understanding of the menstrual cycle and the 36.9% who do not know the cause of menstruation suggest that while general education is effective, there is still a need for more detailed instruction on menstrual physiology. This discrepancy highlights the need for enhanced educational content focusing on the biological aspects of menstruation. To address these gaps, educational programs should provide more comprehensive information about the physiological processes involved in menstruation. Additionally, the limited role of media in providing menstrual health information suggests an opportunity to increase media involvement through targeted campaigns and educational content, which could complement existing family and school-based efforts.

The study revealed that 35.2% of respondents missed school due to menstruation, highlighting a significant issue in menstrual-related absenteeism. Among these students, the majority missed a relatively short duration of 1-2 days (61.2%). However, 29.1% missed 3-4 days, and 9.7% missed more than 4 days, indicating varying levels of disruption. These findings are in line with previous studies conducted in similar contexts. For instance, Asumah's research[6] found that menstrual-related school absenteeism is a notable issue in Ghanaian schools, though the percentages in this study may reflect regional differences or variations in data collection methods. The higher proportion of students missing only 1-2 days could be attributed to effective management of menstrual symptoms or supportive school policies. Conversely, the significant number of students missing 3 or more days underscores a need for improved menstrual health support systems within schools. This finding contrasts with studies in other regions that report varying impacts of menstruation on school attendance. For instance, research by Neupane et al. [25] indicates that while some students manage to attend school regularly, others experience more substantial disruptions due to menstrual issues.

The study highlights that nearly half of the respondents, 49.5%, experience feelings of anxiety during menstruation, while the remaining 50.5% do not. This anxiety could be linked to physical discomfort, social stigma, or both. The finding aligns with other research suggesting that menstruation can be a source of psychological stress for many individuals, as documented in studies by Asumah[1] and other recent literature in Ghana.

Furthermore, 43.3% of respondents feel embarrassed about menstruation, though a majority, 56.7%, do not share this sentiment. This embarrassment could be attributed to cultural taboos or inadequate education on menstrual health. The study's results reflect similar findings from other regions, where menstrual-related stigma persists, impacting individuals' comfort and self-esteem[3, 25]

The study also indicates that 38.2% of respondents avoid social activities due to menstruation, and 31.7% feel isolated during this period. These figures highlight the significant social impact of menstruation, affecting students' social interactions and participation. The avoidance of social activities and feelings of isolation are consistent with findings from previous studies that report menstruation as a barrier to social engagement[8]. Additionally, 35.8% of respondents report that menstruation affects their relationships with peers, while 64.2% do not perceive any impact. This suggests that while menstruation can influence social dynamics for some individuals, others manage to maintain their relationships unaffected. These results echo broader literature indicating varied impacts of menstruation on social interactions, with some individuals experiencing more significant effects than others [25].

The study's findings reveal significant associations between school absenteeism and several socio-demographic factors, aligning with and diverging from existing literature. Grade/Class Level was significantly related to absenteeism (p-value = 0.001), indicating that students in different educational stages experience varying levels of absenteeism due to menstruation. This observation is consistent with previous research by Asumah [1] which highlights that younger students often face more challenges managing menstruation compared to their older peers. The lower grades typically report higher absenteeism, reflecting the difficulties younger students may encounter in managing menstrual health and its impact on their school attendance.

Religious Affiliation also showed a significant association with school absenteeism (p-value = 0.002), suggesting that religious beliefs and practices may influence how menstruation is managed and perceived. This finding aligns with literature indicating that religious and cultural norms can significantly impact menstrual health and school attendance. The authors have noted that religious practices often impose restrictions or stigma related to menstruation, which can affect students' school participation.

The study found a significant association between Ethnicity and school absenteeism (p-value = 0.042), suggesting that cultural differences among ethnic groups influence menstruation-related school absenteeism. This is supported by previous research, which documents that ethnic and cultural practices shape menstrual health management. Asumah [11] has highlighted those varying cultural contexts impact menstruation practices and their effects on education, consistent with the current study's findings. Further studies are required to explain ethnicity in a better context.

Mother's Education Level was significantly associated with school absenteeism (p-value = 0.026), indicating that a mother's educational background affects her ability to support her child's menstrual health and school attendance. This aligns with existing literature, which shows that maternal education influences menstrual health management and school attendance. Educated mothers are often better able to provide support and resources, reducing absenteeism related to menstruation [1]

Similarly, the study identified a significant association between school absenteeism and Mother's Occupation (p-value = 0.014), reflecting how a mother's employment status impacts her ability to support her child during menstruation. This finding is consistent with literature suggesting that maternal employment status affects the support and resources available for managing menstruation. Self-employed or unemployed mothers may have more flexibility to address menstrual health issues than those with demanding jobs.

The objective of this study is to investigate the influence of menstrual health on the attendance of teenage females in Tamale Metropolis. Nevertheless, this approach is constrained by its dependence on self-reported data, which can be influenced by recall or social desirability bias, as well as the cross-sectional design, which restricts the establishment of causal connections. The process of translating questionnaires into local languages has the potential to impact the accuracy of the data by introducing subtleties that were not captured during the translation. Notwithstanding these constraints, the study possesses some merits, such as a meticulously designed questionnaire, active participation of the research team, strict respect for ethical principles, and a varied sample from several educational institutions. The aforementioned strengths enhance the comprehensive comprehension of menstrual health and its influence on the attendance of teenage females in school.

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Conclusion and Recommendation

The research indicates that although a considerable number of girls possess a fundamental comprehension of menstruation, there exist notable deficiencies in their knowledge of the management of menstrual hygiene. The incidence of school absence caused by menstruation is significant, underscoring the need for focused interventions. Furthermore, the study emphasizes the psychological difficulties experienced by girls during menstruation, which worsens school absences. The educational experiences and academic achievements of adolescent girls in the region are significantly influenced by their menstrual health.

The recommendations encompass the integration of comprehensive menstrual health education into the curriculum, the provision of affordable and hygienic menstrual products, the establishment of support systems in schools, the engagement of parents and community leaders in discussions about menstruation, and the undertaking of further research to investigate the enduring effects of menstruation on educational outcomes. The implementation of these suggestions has the potential to establish a more conducive atmosphere for teenage girls, therefore enhancing their school attendance and academic proficiency. This draft presents a thorough conclusion and pragmatic suggestions derived from the findings of the investigation.

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Consent for publication

Not applicable

Data Availability

Data used to support this study are available from the corresponding author upon request.

Disclaimer (Artificial intelligence)

Authors at this moment declare that generative AI (ChatGPT) has been used during the editing of manuscripts.

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Table 1: Socio demographics of the respondents

Variables	Category	Frequency	Percentage
Age			
	10-14 years	122	41.6
	15-19 years	171	58.4
Grade/Class Level			
	JHS 1	88	30
	JHS 2	96	32.8
	JHS 3	109	37.2
Religious Affiliation			
	Islam	192	65.5
	Christianity	89	30.4
	Others (Traditional, etc.)	12	4.1
Ethnicity			
	Mole-Dagomba	145	49.5
	Gonja	85	29
	Akans	50	17.1
	Ewe	25	8.5
	Hausa	13	4.4
	Others	47	16
Family Income Level			
	Low	167	57
	Middle	106	36.2
	High	13	4.4
	Don't know	7	2.4
Mother's Education Level			
	No formal education	113	38.6
	Primary education	101	34.5
	Secondary education	54	18.4
	Tertiary education	25	8.5
Father's Education Level			
	No formal education	103	35.2
	Primary education	89	30.4
	Secondary education	61	20.8
	Tertiary education	40	13.7
Mother's Occupation			
	Self-employed	121	41.3
	Unemployed	112	38.2
	Employed	60	20.5
Father's Occupation			
	Self-employed	139	47.4
	Unemployed	111	37.9
	Employed	43	14.7
Who do you live with?			
	Both parents	156	53.2
	Mother only	76	25.9
	Father only	32	10.9
	Guardian	29	9.9
Number of Siblings			
	1 to 2	70	23.9
	3 to 5	145	49.5
	6 or more	78	26.6
Access to Basic Needs			
	Yes	243	82.9
	No	50	17.1

Table 2: Knowledge of menstruation among respondents

Variables	Category	Frequency	Percentage
Knowledge of Menstruation			
	Yes	256	87.4
	No	37	12.6
Awareness of Menstrual Hygiene			
	Yes	249	85
	No	44	15
Source of Information on Menstruation			
	Family	138	47.1
	School	97	33.1
	Friends	37	12.6
	Media	21	7.2
Understanding of the Menstrual Cycle			
	Correct	173	59
	Incorrect	120	41
Knowledge of the Causes of Menstruation			
	Hormonal changes	185	63.1
	Don't know	108	36.9
Importance of Menstrual Hygiene			
	Very important	195	66.5
	Important	79	27.0
	Not important	19	6.5

Table 3: School absenteeism due to menses among respondents

Variables	Category	Frequency	Percentage
Missed School Due to Menstruation			
	Yes	103	35.2
	No	190	64.8
Average Days Missed			
	1-2 days	63	61.2
	3-4 days	30	29.1
	More than 4 days	10	9.7

Table 4: Factors Influencing School Absenteeism During Menstruation

Variables	Category	Frequency	Percentage
Severe Menstrual Pain (Dysmenorrhea)			
	Yes	81	78.6
	No	22	21.4
Inadequate Menstrual Products			
	Yes	45	43.7
	No	58	56.3
Fear of Staining Clothes			
	Yes	67	65
	No	36	35
Embarrassment/Anxiety			
	Yes	72	69.9
	No	31	30.1
Lack of Access to Proper Facilities			
	Yes	49	47.6
	No	54	52.4
Cultural/Religious Beliefs			
	Yes	40	38.8
	No	63	61.2

Table 5: Psychological and Social Effects of Menstruation

Variables	Category	Frequency	Percentage
Feelings of Anxiety During Menstruation			
	Yes	145	49.5
	No	148	50.5
Feeling Embarrassed About Menstruation			
	Yes	127	43.3
	No	166	56.7
Avoidance of Social Activities			
	Yes	112	38.2
	No	181	61.8
Feeling Isolated During Menstruation			
	Yes	93	31.7
	No	200	68.3
Impact on Relationships with Peers			
	Yes	105	35.8
	No	188	64.2

Table 6: Association between school absenteeism and socio-demographic characteristics

Variable	Categories	Missed School Due to Menses (Yes)	Missed School Due to Menses (No)	p-value
Age	10-14 years	52 (42.6%)	70 (57.4%)	0.121
	15-19 years	51 (39.6%)	80 (60.4%)	
Grade/Class Level	JHS 1	36 (40.9%)	52 (59.1%)	0.001
	JHS 2	35 (36.5%)	61 (63.5%)	
	JHS 3	32 (29.4%)	77 (70.6%)	
Religious Affiliation	Islam	65 (33.9%)	127 (66.1%)	0.002
	Christianity	30 (33.7%)	59 (66.3%)	
	Others (Traditional, etc.)	8 (66.7%)	4 (33.3%)	
Ethnicity	Mole-Dagomba	49 (33.8%)	96 (66.2%)	0.042
	Gonja	25 (29.4%)	60 (70.6%)	
	Akans	13 (26.0%)	37 (74.0%)	
	Ewe	7 (28.0%)	18 (72.0%)	
	Hausa	5 (38.5%)	8 (61.5%)	
	Others	4 (8.5%)	43 (91.5%)	
Family Income Level	Low	67 (40.1%)	100 (59.9%)	0.189
	Middle	28 (26.4%)	78 (73.6%)	
	High	6 (46.2%)	7 (53.8%)	
	Don't know	2 (28.6%)	5 (71.4%)	
Mother's Education Level	No formal education	40 (35.4%)	73 (64.6%)	0.026
	Primary education	31 (30.7%)	70 (69.3%)	
	Secondary education	20 (37.0%)	34 (63.0%)	
	Tertiary education	12 (48.0%)	13 (52.0%)	
Father's Education Level	No formal education	32 (31.1%)	71 (68.9%)	0.083
	Primary education	29 (33.0%)	59 (67.0%)	
	Secondary education	22 (36.1%)	39 (63.9%)	
	Tertiary education	20 (50.0%)	20 (50.0%)	
Mother's Occupation	Self-employed	61 (33.3%)	122 (66.7%)	0.014
	Unemployed	29 (40.8%)	42 (59.2%)	
	Employed	13 (21.7%)	47 (78.3%)	
Father's Occupation	Self-employed	55 (39.6%)	84 (60.4%)	0.017
	Unemployed	32 (28.8%)	79 (71.2%)	
	Employed	16 (37.2%)	27 (62.8%)	
Who Do You Live With?	Both parents	50 (32.1%)	106 (67.9%)	0.269
	Mother only	28 (36.8%)	48 (63.2%)	
	Father only	12 (37.5%)	20 (62.5%)	
	Guardian	13 (44.8%)	16 (55.2%)	
Number of Siblings	1 to 2	20 (28.6%)	50 (71.4%)	0.21
	3 to 5	57 (39.3%)	88 (60.7%)	
	6 or more	26 (33.3%)	52 (66.7%)	
Access to Basic Needs	Yes	88 (36.3%)	155 (63.7%)	0.31
	No	15 (30.0%)	35 (70.0%)	