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# Menstruation-Related School Absenteeism: An Urban Centre Study in the Northern Region of Ghana

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**Abstract:** Menstruation-related school absenteeism significantly affects girls' academic progress and general wellbeing. This study aimed to assess menstruation-related school absenteeism in an urban population in the Northern Region of Ghana. A school-based cross-sectional study was conducted to determine the prevalence of school absenteeism among girls using a structured questionnaire, which was pretested. The data were analyzed using Stata 16. Descriptive and inferential statistics, including cross-tabulation, the chi-square test, and binary logistic regression, were performed. The majority (59%) was between the ages of 15 and 19 years. Approximately one fifth of all respondents missed school during menstruation. Reasons assigned to missing school were menstrual pains (57%), stained clothes (43%), heavy bleeding (40%), and self-stigmatization (2%). The majority (95%) of respondents used some form of materials to absorb menstrual blood. About 88% of respondents used sanitary pads, 11% used cloth, and 1% used tissues to absorb their menstrual blood. The multivariable analysis showed that school girls < 15 years old (AOR: 3.69, 95% CI: 2.02–6.73), first year of Junior High School (AOR: 4.68, 95% CI: 2.14–10.22), and public school (AOR: 3.57, 95% CI: 1.83–6.94) were associated with increased odds of menstruation-related school absenteeism. Menstruation-related school absenteeism is considered high and could affect girls' educational attainment. School absenteeism due to menstruation, particularly in public schools, warrants attention by the Ghana Education Service.

**Keywords:** menstruation; menstrual hygiene management; school absenteeism; schoolgirls



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## 1. Background

Menstruation is a normal biological process characterized by monthly discharge of blood and tissues from the uterine lining via the vagina [1]. Girls and women are required to practice good menstrual hygiene management (MHM) [2–6], a challenging

task in developing countries [3,7] because of a lack of knowledge and widespread societal misconceptions about menstruation. This is further worsened by the lack of quality sanitary materials and water, sanitation, and hygiene (WASH) facilities [8–10]. Poor MHM has several implications for the attainment of the Sustainable Development Goals, particularly, Gender Equality (SDG 5), Good Health and Wellbeing (SDG 3), Quality Education (SDG 4), Clean Water and Sanitation (SDG 6), Decent Work and Economic Growth (SDG 8), and, to some extent, Sustainable Cities and Communities (SDG 11) and Partnerships for the Goals (SDG 17) [11]. Menstruation and school absenteeism are major global issues, particularly in developing countries [2,12–15].

A previous report by the United Nations Children's Fund indicated that one in ten girls in Sub-Saharan Africa misses' school during their menstrual periods. This translates to about 20.0% of school days missed annually by girls in Sub-Saharan Africa. According to Hennegan et al. [16], the prevalence of menstruation-related school absenteeism among girls aged 15 to 24 years in Niger, Burkina Faso, and Nigeria are 15.0%, 17.0%, and 23.0%, respectively.

In Ghana, many girls miss school during their menstrual periods. Menstruation-related school absenteeism ranges from 19% in a nationally representative survey and 27.5% to 40.0% in some parts of Ghana [17–19]. Factors accounting for menstruation-related school absenteeism have been highlighted in previous studies in Ghana, such as [10,17,19]. The causes of menstruation-related school absenteeism can be categorized into school factors [5], social factors [3], and individual factors [6]. School factors primarily focus on schools' preparedness for MHM [5], whereas social factors explain the role of society and economic factors that affect menstrual health [18]. The factors driving individual menstruation-related school absenteeism include poor knowledge of menstrual hygiene and practices [20].

Menstruation-related school absenteeism significantly affects girls' academic progress [8,21]. Girls who miss school during their menstrual periods fall behind in their studies and may eventually drop out of school [22]. This can have long-term consequences for their educational and economic opportunities and overall health and wellbeing [9,23]. Much effort is needed to ensure that all girls have access to the menstrual hygiene products and facilitate their need to stay in school. Ongoing efforts to improve access to these resources, continuing menstrual health education, and awareness programs will be critical in addressing the issue of menstruation-related school absenteeism in Ghana and other developing countries. Therefore, the present study assessed menstruation-related school absenteeism in an urban population in the Northern Region of Ghana. Findings in this study will help shape existing and new policies to address school absenteeism and promote girl child education.

This study aimed to assess the extent of school absenteeism due to menstruation and determine the associated factors.

## 2. Methods and Materials

### *2.1. Study Setting*

The study was conducted in the Tamale Metropolis in the Northern Region of Ghana. Tamale is the regional capital of Ghana's fastest-growing region, the Northern Region. According to a recent population and housing census report (2021), the Metropolis has an overall population of 374,744, with females being the majority (50.6%), whereas males represent 49.4% of the total population. It is located between the latitudes of 9.16° and 9.34° North and the longitudes of 00.36° and 00.57°. The percentage of people dwelling in urban areas (80.8%) is more than those dwelling in rural areas (19.2%). The Metropolis has a youthful population of nearly 40.0% under the age of 15 (GSS 2021).

The Metropolis has 742 schools, comprising senior high/vocational/technical schools, preschools (kindergartens), primary schools, and junior high schools. The literacy rate is 60.1%.

### 2.2. Study Design

The study employed a school-based analytical cross-sectional study to assess the prevalence of menstruation-related school absenteeism and associated factors among girls.

### 2.3. Study Population

The targeted population was schoolgirls in junior high schools (JHS) within the Tamale Metropolis. The study included schoolgirls who had reached menarche (i.e., have had their first menses) and were in JHS in the Tamale Metropolis

### 2.4. Sample Size Determination

The sample size was estimated using the Cochrane and Snedecor formula [24].

$$n_o = \frac{Z^2 pq}{e^2}$$

$e$ Margin of error
$p$ Population proportion
$z$ Use Z Table

Using the $Z$ score table, the 95.0% confidence level has a $Z$ score of 1.96, the margin of error ($e$) is 5% (0.05), and the prevalence of school absenteeism due to menstruation in Northern Ghana is 27.5% [17]. $q = 1 - p$, thus $q = 0.725$.

Thus,

$$n_o = \frac{(1.96)^2 \times 0.275 \times 0.725}{(0.005)^2} = 306.4$$

To make up for the non-response rate, 10.0% of the calculated sample size was added. Thus, the sample size for this study will be 338.

### 2.5. Sampling Techniques

The study used multistage sampling techniques to recruit the respondents. First, the Metropolis was divided into two strata (i.e., Tamale Central and South sub-metropolis). In the second stage, five schools were chosen randomly with the Microsoft Excel software from each sub metropolis. In the third phase, simple random sampling was employed to recruit the girls using the balloting approach.

### 2.6. Data Collection Tools and Procedures

A structured questionnaire was used to collect the data from the schoolgirls. The data collection tool was designed after reviewing previous studies [17–19]. The questionnaire was modified to suit the study objectives (File S2 denotes the structured questionnaire).

To ensure that the schoolgirls freely expressed their views, five (5) midwives were recruited to take the data. The data enumerators were trained on the study protocols for two days. For each school, an office was identified where others did not hear the conversation between the interviewee and interviewer and further assured confidentiality. The administration of the questionnaires took 20 to 30 min to complete. The respondents were made to understand the study protocols, and consent was secured before the data collection commenced.

Data Quality, Validity, and Reliability: First, the questionnaire was reviewed by experts. A pretest was followed in private and public schools in the Sagnarigu Municipality, Northern Region, Ghana. The pretest study was conducted among 45 respondents. This offered the enumerators the chance to practicalize their training and to obtain a standard way of asking the questions to obtain a uniform response. The questionnaire was restructured based on the outcome of the pretest. The questionnaire was re-pretested in the same Municipality to ensure that all issues identified in the initial pretesting had been adequately addressed. Second, we confirmed that the data were complete, and the entries were double checked to avoid missing values and inaccurate entries.

### 2.7. Data Analysis and Presentation

A total of 350 questionnaires were administered to eligible respondents, with 342 returning them (97.7%). After checking for the correctness and accuracy of attempted items on the

questionnaire, 338 questionnaires were included in the data analysis. The questionnaires were entered into Microsoft Excel 2016 and cleaned before exporting to Stata 16 for analysis. Descriptive and inferential statistics were performed and presented in the form of tables and figures. Binary logistic regression was performed to identify the predictors of school absenteeism during menstruation. Variables with $p$ value less than 0.05 were considered statistically significant.

### *2.8. Ethical Considerations*

This research was conducted following the Declaration of Helsinki Ethical Principles for Medical Research involving Human Subjects [25]. Ethical clearance was obtained from the University for Development Studies Institutional Review Board (UDS/RB/025/23). Before data collection, the study protocol was explained to the recruited respondents, and written consent was obtained. For respondents under 18 years of age, an assent form was sent to their parents/guardians. Respondents who returned the assented forms were subsequently included in the study.

## 3. Results

### *3.1. Socio-Demographic Characteristics*

Out of the 338 respondents, the majority (59.2%) was between the ages of 15 and 19 years; 77.5% was Dagomba, 94.4% was Muslim, 53.0% attended public school, and 64.5% of the school girls stayed with their parents. Most respondents (34.6%) were in JHS 2. Two thirds of the respondents' fathers had no formal education. Also, over half (56.2%) of the mothers had no formal education (Table 1).

**Table 1.** Socio-demographic characteristics of respondents ($n$ = 338).

| Variable | Category | Frequency | Percentage |
|---|---|---|---|
| Age | Less than 15 years | 138 | 40.8 |
| | 15 to 19 years | 200 | 59.2 |
| Which class are you | | | |
| | JHS 1 | 109 | 32.2 |
| | JHS 2 | 117 | 34.6 |
| | JHS 3 | 112 | 33.1 |
| Ethnicity | | | |
| | Dagomba | 262 | 77.5 |
| | Gonja | 37 | 10.9 |
| | Mamprusi | 14 | 4.1 |
| | Others | 25 | 7.4 |
| Religion | | | |
| | Christianity | 19 | 5.6 |
| | Islam | 319 | 94.4 |
| Category of school | | | |
| | Private | 159 | 47.0 |
| | Public | 179 | 53.0 |
| Whom do you live with | | | |
| | Both parent | 218 | 64.5 |
| | Father or mother only | 76 | 22.5 |
| | Relatives | 44 | 13.0 |

**Table 1.** *Cont.*

| Variable | Category | Frequency | Percentage |
|---|---|---|---|
| Father's educational level | | | |
| | No formal education | 128 | 37.9 |
| | Basic education | 103 | 30.5 |
| | Secondary education | 67 | 19.8 |
| | Tertiary | 40 | 11.8 |
| Mother's educational level | | | |
| | No formal education | 190 | 56.2 |
| | Basic education | 92 | 27.2 |
| | Secondary education | 37 | 10.9 |
| | Tertiary | 19 | 5.6 |
| Occupation category of mother | | | |
| | Employed | 37 | 11.0 |
| | Self-employed | 274 | 81.1 |
| | Unemployed | 27 | 8.0 |
| Occupation category of father | | | |
| | Employed | 73 | 21.6 |
| | Self-employed | 250 | 74.0 |
| | Unemployed | 15 | 4.4 |
| JHS-Junior High School | | | |

### *3.2. Hygiene Management during Menses*

Most respondents (95.2%) used some form of materials to absorb menstrual blood. Of this, 87.6% used sanitary pads, 11.2% used cloth, and 1.2% used tissue. Only 20.5% were reported to be reusable materials. Among those who reused absorbent materials, 77.3% cleaned it with soap and wash, and 47.0% dried it in the sunlight before reuse. Most respondents (78.3%) wrapped the absorbent material with plastic bags before disposing, 63.0% changed their absorbent materials twice a day, and 49.1% disposed of used materials in dustbins (Table 2).

**Table 2.** Hygiene practices during menstruation (*n* = 338).

| Variable | Category | Frequency | Percentage |
|---|---|---|---|
| Used material to absorb bleeding | | | |
| | Yes | 322 | 95.2 |
| | No | 16 | 4.7 |
| Type of materials used to absorb bleeding (*n* = 322) | | | |
| | Sanitary pad | 282 | 87.6 |
| | Cloth | 36 | 11.2 |
| | Tissue | 4 | 1.2 |
| Reused absorbent material (*n* = 322) | | | |
| | Yes | 66 | 20.5 |
| | No | 256 | 79.5 |

**Table 2.** *Cont.*

| Variable | Category | Frequency | Percentage |
|---|---|---|---|
| How do you clean reusable absorbent material (*n* = 66) | | | |
| | Only Water | 7 | 10.6 |
| | Soap and water | 51 | 77.3 |
| | Others | 8 | 12.1 |
| Where to dry reusable absorbent material (*n* = 66) | | | |
| | Inside the room | 15 | 22.7 |
| | Sunlight | 31 | 47.0 |
| | Others | 20 | 30.3 |
| Item used to wrap absorbent before disposal (*n* = 322) | | | |
| | Plastic bag | 252 | 78.3 |
| | Paper | 18 | 5.6 |
| | Others | 28 | 8.7 |
| | No wrap | 24 | 7.5 |
| Frequency of changing pad in a day (*n* = 322) | | | |
| | Once | 15 | 4.7 |
| | Twice | 203 | 63.0 |
| | Three & more | 104 | 32.3 |
| Place of disposing of old/used absorbent materials (*n* = 322) | | | |
| | Drain | 19 | 5.9 |
| | Dustbin | 158 | 49.1 |
| | Open field | 23 | 7.1 |
| | Toilet | 68 | 21.1 |
| | Others | 54 | 16.8 |
| Bathing frequency during menses | | | |
| | Daily | 10 | 3.0 |
| | Twice daily | 256 | 75.7 |
| | Thrice daily | 53 | 15.7 |
| | >3 times daily | 3 | 0.9 |
| | No response | 16 | 4.7 |
| What do you use to clean your genitalia during menses | | | |
| | Only Water | 130 | 38.5 |
| | Tissue paper | 10 | 3.0 |
| | Towel | 2 | 0.5 |
| | Water and Soap | 196 | 58.0 |

### *3.3. School Absenteeism and Related Issues during Menses*

The study showed that 22.2% of schoolgirls missed school during menstruation. During menstruation, most girls missed school for two (2) days, with a mean of 2.43 and a standard deviation of 1.06. The majority of the respondents (85.3%) believed there was enough time during break to change soiled absorbent materials, and 88.8% could leave the class to clean themselves in case of leakage of menstrual blood. Less than half (37.3%) had concentration challenges during menses (Table 3).

**Table 3.** School absenteeism and related issues during menses.

| Variable | Category | Frequency | Percentage |
|---|---|---|---|
| Absent from school due to menses | | | |
| | Yes | 75 | 22.2 |
| | No | 263 | 77.8 |
| How many days on average do you absent from school ($n$ = 75) monthly | | | |
| | a day | 15 | 20 |
| | 2 days | 30 | 40 |
| | 3 days | 13 | 17.3 |
| | 4 days | 17 | 22.7 |
| | Mean ± SD | | 2.43 ± 1.06 |
| Difficulty concentrating in class during menses? | | | |
| | Yes | 126 | 37.3 |
| | No | 212 | 62.7 |
| Is the breaktime enough to change soiled menstrual items | | | |
| | Yes | 290 | 85.8 |
| | No | 48 | 14.2 |
| Able to leave class to wash in case of a leak? | | | |
| | Yes | 300 | 88.8 |
| | No | 38 | 11.2 |

### *3.4. Reasons for Missing School during Menses*

The study showed that the majority of those who missed school during menses cited menstrual pains (57.3%) as their reason, followed by staining dress (42.6%), heavy bleeding (40.0%), stigma (2.1%), and shyness (1.8%) (Figure 1).

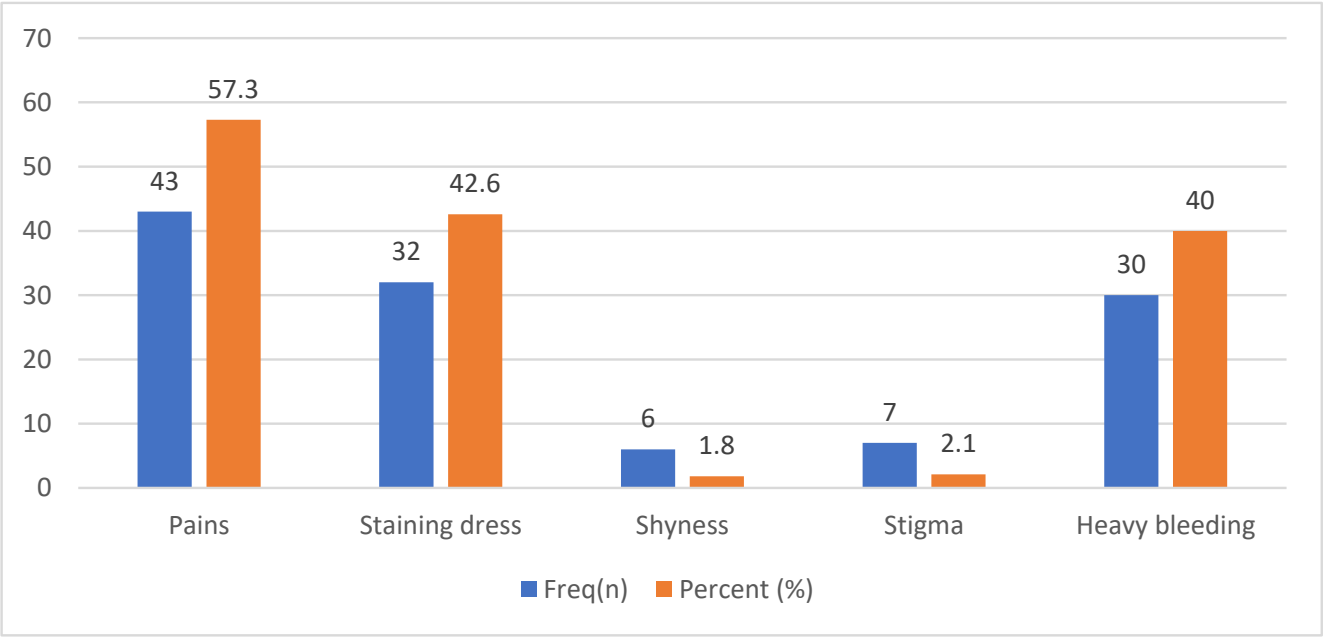


**Figure 1.** Reasons for missing school during menstruation ($n$ = 75).

### *3.5. Predictors of School Absenteeism during Menstruation*

In the multiple logistic regression, the study indicated that schoolgirls who were less than 15 years were 3.69 more likely to absent themselves from school during menses as compared to their colleagues, who were 15 to 19 years (AOR: 3.69, 95% CI: 2.02–6.73). Also, schoolgirls in JHS (1) were 4.68 more likely to miss school during menses than those in JHS 3 (AOR: 4.68, 95% CI: 2.14–10.22). Furthermore, it has been established that public school girls were 3.57 times more likely to miss school during menses compared to those in private schools (AOR: 3.57, 95% CI: 1.83–6.94) (Table 4).

**Table 4.** Predictors of school absenteeism during menses.

| Predictors | Category | COR (95% CI) | *p*-Value | AOR (95% CI) | *p*-Value |
|---|---|---|---|---|---|
| Age | 15 to 19 years | Ref* | | Ref* | |
| | <15 years | 4.30 (2.48–7.44) | $p < 0.001$ | 3.69 (2.02–6.73) | $p < 0.001$ |
| Class of girls | | | | | |
| | JHS 3 | Ref* | | Ref* | |
| | JHS 2 | 1.24 (0.60–2.53) | $p = 0.560$ | 0.81 (0.37–1.77) | $p = 0.598$ |
| | JHS 1 | 3.34 (1.73–6.46) | $p < 0.001$ | 4.68 (2.14–10.22) | $p < 0.001$ |
| School category | | | | | |
| | Private | Ref* | | Ref* | |
| | Public | 2.62 (1.51–4.55) | $p = 0.001$ | 3.57 (1.83–6.94) | $p < 0.001$ |
| Father's educational level | | | | | |
| | Less than SHS | Ref* | | Ref* | |
| | SHS and above | 0.94 (0.54–1.64) | $p = 0.834$ | 0.71 (0.35–1.45) | $p = 0.349$ |
| Mother's educational level | | | | | |
| | Less than SHS | Ref* | | Ref* | |
| | SHS and above | 1.51 (0.79–2.89) | $p = 0.210$ | 1.02 (0.41–2.52) | $p = 0.965$ |
| Employment Status of mothers | | | | | |
| | Employed | Ref* | | Ref* | |
| | Self-employed | 0.55 (0.26–1.16) | $p = 0.114$ | 0.78 (0.28–2.15) | $p = 0.626$ |
| | Unemployed | 0.60 (0.19–1.86) | $p = 0.372$ | 0.50 (0.12–2.02) | $p = 0.331$ |
| Employment Status of fathers | | | | | |
| | Employed | Ref* | | Ref* | |
| | Self employed | 0.73 (0.40–1.34) | $p = 0.306$ | 0.60 (0.26–1.38) | $p = 0.228$ |
| | Unemployed | 1.42 (0.43–4.69) | $p = 0.564$ | 1.20 (0.31–4.67) | $p = 0.793$ |

Ref*—Reference, COR—Crude odd ratios, AOR—Adjusted odd ratios, JHS—Junior High School, and SHS—Senior High School.

## 4. Discussion

The study assessed menstruation-related school absenteeism in an urban center. The study's findings show a prevalence of 22.2%, which is slightly higher than the national prevalence of 19% [18] but lower than the findings of other studies conducted in Ghana (ranging from 27.5% to 40%) [6,19]. In Uganda, Miiro et al. [26] reported that 19.7% of schoolgirls missed school during menstruation. A systematic review in India showed that menstruation-related school absenteeism ranged between 19% to 30% [7]. The variations in the reported proportions of menstruation-related school absenteeism are attributable to regional contexts. The current study was conducted in an urban center. In contrast, Kumbeni et al. [17] and Mohammed et al. [19] conducted their studies in rural areas, where menstruation-related challenges are likely to be more extensive. The proportions of menstruation-related school absenteeism in all these studies highlight the need for targeted interventions.

Despite ongoing efforts to address menstrual health in Ghana, schoolgirls continue to show suboptimal menstrual hygiene practices. This could contribute to menstruation-related school absenteeism. Previous studies in Ghana have highlighted inadequate menstrual hygiene management materials and facilities in school setups [6,10]. A pragmatic approach to addressing menstruation-related school absenteeism in Ghana would be for government and relevant authorities to reintroduce free sanitary pads to school girls [15,27].

Similarly, schools should provide WASH to support girls' menstrual health. For example, a cross-sectional study by Asumah et al. [10] showed that most schools in the West Gonja Municipal in the Savannah Region currently have inadequate menstrual hygiene management facilities. Addressing menstrual distress, including pain, staining, heavy bleeding, stigma, and shyness about body functions, is equally important for tackling school-related menstrual challenges. A similar observation was made by Asumah et al. [10] in Ghana, Edet et al. [12] in Nigeria, and Tegegne et al. [20] in Ethiopia. Promoting menstrual health awareness and creating a supportive environment within schools is a meaningful strategy to reduce absenteeism. Parent–teacher associations should complement this to ensure the availability of menstrual hygiene products in schools. Awareness creation and menstrual hygiene education programs are needed [20,28,29] because, according to Khamisa et al. [30], girls who receive such education before menarche are more likely to be in school [26].

Lack of concentration in class during menstrual periods was frequently reported. This finding is comparable to results by Tegegne et al. [20] in Ethiopia and Shah et al. [15] in Uganda. Although, the extent to which menstrual periods affect concentration varies widely among individuals.

Menstrual hygiene practices among respondents showed that most of them used sanitary materials. A significant number of the girls reused the materials and washed and dried them before reuse. Though cost-effective, this can pose a risk for infection [31,32], and, therefore, antiseptic use needs to be encouraged. The disposal practices of the respondents included wrapping the absorbent material with plastic bags and placing it in dustbins. Previous studies have suggested that menstrual pads require more environmentally friendly methods of disposal [3,33].

Kumbeni et al. [17] reported that most girls bury used sanitary materials or threw used pads away in open spaces. These practices pose health risks. Asumah et al. [10] reported that the school environment is not adequately prepared nor equipped to address the menstrual health of young girls.

Our study found that girls under 15 were more likely to be absent from school during menstruation than older girls. The finding was inconsistent with results from Miiro et al. [26] and Kumbeni et al. [6], who reported that older girls were more likely to miss school. The disparities in the findings were explained by variations in population characteristics and must be re-evaluated region by region. The lower risk of absenteeism among private school girls can be attributed to the family's socio-economic status, which impact their ability to purchase the necessary menstrual hygiene products.

School girls in public schools were more likely to miss school during menses than private school students. This can be attributed to the reason that private schools may provide an environment that is welcoming to promote good menstrual hygiene practices [34]; in addition, in Ghana, students in private schools are more likely to come from high- or middle-income households, whereas those who attended public schools were more likely to come from low-income households. Based on these, private school students were more likely to access menstrual hygiene management materials than public schools, which could explain the differences observed in school absenteeism between private and public schools.

## 5. Limitation

First, the study was a cross-sectional study with geographical limitations, and therefore cannot be generalized. The use of the data for decision making must be contextualized. Notably, the study provides valuable information that can be relied on to address menstruation-related school absenteeism in our study setting. It highlights the general need to address menstrual health problems among schoolgirls in Ghana.

## 6. Conclusions

Menstruation-related school absenteeism was high and could affect their educational attainment. This is due to inadequate school facilities and a general lack of understanding of body functions. It is a function of socio-economic as confirmed by the fact that the

problem is not as severe in private schools as it is in public schools. Reasons for missing school during menstruation should be given much attention by the School Health Unit in the Ghana Education Services. Public schools should be targeted for interventions.

**Supplementary Materials:** The following supporting information can be downloaded at: https://www.mdpi.com/article/10.3390/women3040038/s1.

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