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Exploring the Role of Cultural and Religious Beliefs in Menstrual Hygiene Management among Adolescent Girls: Tribal Variations and Counseling Implications

Kingsley Agyei-Sarpong[1], **Marion-Lariba Konlan**[2], **Eugene Seacrest**[3], **Isaac Oteng**[4], **Dimah Rhoda Zelia**[5] and **Ivy Paintsil**[6]
[1]*Tamale Technical University*
[2345]*Ghana Education Service*
[6]*ExLA Group (Programme Manager)*

Corresponding Author: Kingsley Agyei-Sarpong **E-mail:** k.agyei-sarpong@stu.ucc.edu.gh

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ABSTRACT

This study investigates the primary sources of menstrual hygiene information and the impact of cultural beliefs on menstrual hygiene management among adolescent girls in Ghana, focusing on variations across tribal groups to foster positive attitudes and behaviors. A descriptive survey methodology was employed, utilising questionnaires and semi-structured interviews to collect comprehensive data from college students. The study sample consists of 384 female adolescents from three selected schools within the Tamale Metropolis of Ghana. Respondents were acquired by stratified, purposive, and random sampling methods. We used the SPSS 20.0 software to assess the hypotheses with a chi-square test since it evaluates relationships between categorical variables while accounting for the distribution of frequencies. The findings indicated statistically significant variations in the sources of information on menstrual hygiene across the different tribes. Therefore, we rejected the null hypothesis 1. The finding for hypothesis 2 reveals that there is no statistically significant variation in the cultural and religious beliefs about menstruation across the different tribes. Therefore, we accepted the null hypothesis. The study highlights menstrual hygiene as a sociocultural and educational issue, necessitating a comprehensive approach involving education, cultural sensitivity, and stakeholder involvement from parents, schools, healthcare providers, and religious leaders. The Ghana Education Service should incorporate menstrual hygiene education into the national curriculum, ensuring all students receive accurate and consistent information. Similarly, NGOs should foster effective collaboration between traditional and religious leaders to challenge harmful cultural practices and promote supportive environments for menstrual health.

1. Introduction

Menstrual hygiene management (MHM) is an essential component of adolescent health and well-being, yet it remains a neglected area in many low- and middle-income countries, including Ghana. Proper menstrual hygiene practices are critical not only for health but also for ensuring girls' participation in school and other social activities (Sommer et al., 2021). However, many adolescent girls face challenges in accessing

accurate information and supportive environments for managing menstruation. The sources of information available to them often vary significantly, with schools, parents, peers, and media playing varying roles (Seacrest et al., 2014; Chandra-Mouli & Patel, 2017). Compounding this issue are traditional practices and cultural beliefs that influence menstrual hygiene behaviors and perceptions, which are often deeply rooted in tribal and ethnic contexts (Amu & Nyarko, 2022).

In Ghana, the socio-cultural diversity of tribal groups presents unique challenges and opportunities in addressing menstrual hygiene management. Despite global efforts to promote MHM, many adolescent girls continue to rely on incomplete or inaccurate information, often shaped by cultural norms and taboos. These gaps not only affect their hygiene practices but also reinforce stigmatization and misinformation, further marginalizing them. This study seeks to investigate the primary sources of menstrual hygiene information and the impact of cultural beliefs on MHM among adolescent girls, focusing on variations across tribal groups in Ghana.

1.1 Background to the Study

Menstrual hygiene management has received heightened global attention as a significant public health and gender equity concern. The United Nations recognises Menstrual Health Management (MHM) as crucial for attaining certain Sustainable Development Goals, such as quality education and gender equality (Sommer et al., 2021). Nonetheless, despite these international pledges, considerable differences remain in the perception and management of menstruation, especially in sub-Saharan Africa.

In Ghana, menstruation is frequently enveloped in silence and stigma, hindering open discourse and maintaining detrimental cultural behaviours (Seacrest et al., 2014; Amu & Nyarko, 2022). The sources of information regarding menstruation significantly influence girls' understanding and perspectives. Research suggests that schools and parents are often referenced sources, although their contributions are often inconsistent and inadequate (Chandra-Mouli & Patel, 2017). Media and peer groups also play a role, albeit they may propagate erroneous or partial information. Cultural beliefs and traditional practices significantly impact menstrual hygiene management, with certain norms imposing restricted behaviours on menstruation girls, including bans on cooking, participating in religious ceremonies, or attending school (Sommer et al., 2021).

The multitude of tribes in Ghana creates a complicated interaction of cultural norms and traditions that influence menstrual hygiene behaviours. Some tribes perceive menstruation as a rite of passage into womanhood, whilst others regard it as a source of impurity, placing various restrictions on girls throughout their menstrual cycles (Amu & Nyarko, 2022). The cultural differences highlight the necessity of context-specific studies to comprehend and tackle the distinct issues encountered by adolescent girls in menstruation management. This study examines adolescent girls from several tribal groups in Ghana, seeking to investigate the main sources of menstrual hygiene information and the impact of cultural beliefs on their habits. By examining these factors, the study seeks to provide evidence-based insights to inform culturally sensitive interventions that promote better menstrual hygiene management and improve overall health and well-being.

1.2 Problem Statement

Menstrual hygiene management (MHM) is essential for the health and well-being of teenage girls; however, it poses a considerable barrier in numerous poor nations, including Ghana. Access to precise information regarding menstruation is crucial for cultivating healthy attitudes and behaviours in teenagers; nevertheless, many girls depend on fragmented and unreliable sources, such as peers or media, which may perpetuate misconceptions (Chandra-Mouli & Patel, 2017). Cultural beliefs and traditional practices affect menstrual hygiene management, imposing constraints on menstruation females, resulting in stigmatisation and diminished involvement in everyday activities (Sommer et al., 2021).

In Ghana, the variety of ethnic and tribal groupings presents distinct cultural and religious beliefs and practices that affect menstrual hygiene behaviours; nevertheless, there is a paucity of studies regarding how these cultural nuances influence the accessibility and receipt of menstrual information. Comprehending the variances in information sources

and cultural and religious ideas among tribal cultures is crucial for formulating culturally attuned interventions that encourage informed and healthful actions. This study aims to investigate the sources of knowledge and the impact of cultural and religious ideas on menstrual hygiene management among adolescent girls in Ghana, with an emphasis on tribal differences.

***Main Objective*:**
To examine the sources of information and the influence of cultural and religious beliefs on menstrual hygiene management among adolescent girls, with a focus on variations across tribal groups.

Specific Objectives:

1. To identify and analyze the primary sources of information on menstrual hygiene available to adolescent girls and determine if there are significant differences across tribal groups.
2. To explore cultural and religious beliefs that impact menstrual hygiene management and assess their variation among different tribal groups.

Hypotheses:

1. **H_{01}**: There is no significant difference in the sources of information on menstrual hygiene management across different tribal groups.

   H_{11}: There is a significant difference in the sources of information on menstrual hygiene management across different tribal groups.

2. **H_{02}**: There is no significant difference in cultural beliefs about menstruation across different tribal groups.

   H_{12}: There is a significant difference in cultural beliefs about menstruation across different tribal groups.

2. Method

2.1 Study Design

A study design serves as a strategic blueprint that guides the research process, providing a framework to achieve the study's objectives systematically (De Vos et al., 2005, p. 132). This research employed a descriptive study design to explore the knowledge and practices of menstrual hygiene among female adolescents in public Senior High Schools in the Tamale Metropolis. A descriptive study design focuses on assessing a population or phenomenon at a specific point in time without drawing causal inferences. It emphasizes understanding and describing the characteristics of the population under investigation (Creswell & Creswell, 2023).

The descriptive study approach enabled the use of both quantitative and qualitative data collection methods. This hybrid approach facilitated a comprehensive understanding of the data and characteristics of the target population. The design's strengths include its capacity to collect real-life experiences and provide statistical insights. For instance, surveys, a key tool in descriptive research, offer valuable numerical data alongside qualitative insights into participants' lived experiences (Polit & Beck, 2021). This dual capacity enriches the depth and breadth of the findings, allowing for nuanced interpretations.

However, descriptive research also presents challenges. Confidentiality is a significant concern, as participants may provide socially desirable responses or omit sensitive details. Subjectivity and potential

errors also pose risks. Researchers might selectively analyze data, potentially biasing results (LoBiondo-Wood & Haber, 2022). Despite these limitations, the descriptive design remains appropriate for this study due to its ability to capture relationships and describe phenomena as they exist in real-world settings. Thus, it provides a robust methodological foundation for achieving the study's objectives.

2.2 Study Population

In research, the study population refers to the group under investigation, which serves as the basis for generalizing the findings (De Vos et al., 2005). According to Burns and Grove (2020, p. 213), the population encompasses all individuals or elements that meet the criteria for inclusion in a study.

Target Population: The target population for this research included 4,091 female adolescents from eight public Senior High Schools in the Tamale Metropolis, excluding St. Charles Senior High School, which is an all-boys institution. The distribution of the female population across the schools in Tamale Metropolis, excluding ST. Charles Senior High, which is a boy's school. It is presented in Table 1.

Table 1: The Distribution of the Female Population across the Schools Tamale Metropolis

Name of School	Female Population
Tamale Girls Senior High	1134
Tamale Senior High School	624
Ghana Senior High School	585
Presbyterian Senior High	240
Vitting Sec/Technical School	468
Northern School Of Business	235
Business Senior High School	677
Anbariya Senior High School	128
Total	**4091**

Accessible population: For this study, the accessible population consisted of 1,959 female adolescents from three selected schools within the Tamale Metropolis: Tamale Girls Senior High, Presbyterian Senior High, and Ghana Senior High.

Eligibility criteria: Eligibility criteria define the specific characteristics required for participation in a study (Burns & Grove, 2020, p. 234). The inclusion criteria for this study were as follows:

- Female adolescent students enrolled in Senior High Schools by the Ghana Education Service (GES).
- Participants must currently be menstruating.
- The schools must be located within the Tamale Metropolis.

These criteria ensured that the study targeted the intended demographic while maintaining relevance to the research objectives.

2.3 Sample and Sampling Procedure

2.3.1 Sample size

According to WASH (2013), the prevalence rate of knowledge on menstruation before menarche was 68% in Ghana. Since the research is in Tamale, the prevalence would be assumed since there is no prevalence for any study related to this study. Using the sample size formulae, that is

$$N_0 = \frac{z^2pq}{d^2}$$ (Snedecor and Cochran 1989)

z = z-score of the confidence level (95%) = 1.96
p = proportion of population affected = 0.5
q = proportion not affected = 0.5
d = desired precision = 0.05 for an acceptance error of margin of 5%
Substituting values for the variables;

$$N_0 = \frac{1.96^2(0.5)(1-0.5)}{0.5^2} = 384$$

Therefore, the sample size for the study was 384.

2.3.2 Sampling Procedure

A simple random sampling technique was utilized to select three schools from a total of eight public Senior High Schools within the Tamale Metropolis. The schools included Business Senior High School, Ghana Senior High School, Presbyterian Senior High School, Tamale Senior High School, Tamale Girls Senior High School, Vitting Secondary/Technical School, Anbariya Senior High School, and Northern School of Business. St. Charles Senior High School, an all-boys institution, was excluded from the selection process.

To ensure unbiased selection, the names of the eight schools were written on small pieces of paper, folded, and placed into a container. Through a balloting process, three schools were randomly drawn: Tamale Girls Senior High School, Ghana Senior High School, and Presbyterian Senior High School**.** This method ensured that all schools had an equal probability of being chosen, adhering to the principles of randomness (Creswell & Creswell, 2018).

On the day of the survey, 384 female students were sampled from the selected schools. The inclusion criterion required that participants be currently menstruating to provide data specific to the study's focus on menstrual hygiene practices. This requirement was explained to all prospective participants to ensure clarity and voluntary participation. Only students who agreed to participate and met the inclusion criteria completed the questionnaire. The study targeted public Senior High Schools situated in urban areas of the Tamale Metropolis. Female students present on the survey day and willing to participate were included in the sample, ensuring ethical research conduct and voluntary participation (Bryman, 2016).

The total estimated population of female students across all public Senior High Schools in the Tamale Metropolis was 4,091**,** based on data from the Ghana Education Service (GES, 2013). The distribution of the population across the schools is shown in Table 1. To ensure statistical reliability, the sample size of 384 participants was determined using standard sample size calculation techniques for proportions in large populations (Kadam & Bhalerao, 2010). The random selection of schools and participants enhanced the representativeness of the sample and the generalizability of the findings. This procedure ensured a robust and methodologically sound approach to gathering data relevant to the study’s objectives.

2.3.3 Instruments

The study collected data through a systematic questionnaire designed to align with participants' responses. The questionnaires were organized into two sections: Part I, which addressed demographic characteristics, and Part II, which focused on respondents' knowledge level of menstrual hygiene and the knowledge adolescents have on menstruation. The questionnaires were organized in a comprehensible manner. The researcher was physically present at each school to ensure unbiased responses.

2.4 The assessment of instrument validity

The validity of the instruments was proved by their submission to research experts, namely professors from the Department of Allied Health Sciences of the University for Development Studies. The instruments were modified via the process of correction, deletion, and the introduction of more suitable alternatives. Subsequently, the questions underwent a rigorous evaluation process, whereby they were carefully examined and endorsed by the supervisors to ensure their appropriateness and validity in terms of substance and face value. Furthermore, the instrument underwent a pilot test at the University of Cape Coast.

2.5 Reliability

The Cronbach's alpha coefficient was utilized to evaluate the reliability of the questionnaire, as it was the most suitable measure for assessing internal consistency. Given that a significant proportion of the questions were scored using a multiple-choice format. Cronbach's alpha coefficient for the instruments yielded a value of 0.72, indicating a satisfactory level of reliability for the instrument.

2.6 The procedure for data collection

The data collection process for the study took place from January to February 2014, adjusting for academic calendars. The researcher contacted teachers and administrators from various institutions to facilitate the administration of the survey. Students were assembled in assembly halls, provided with objectives and research instruments, and encouraged to work independently. The researcher communicated with respondents and provided direct supervision to promote autonomous work. Questionnaires were collected on the same day for a 100% return rate.

2.7 Data Analysis

To address the research hypotheses and objectives, appropriate statistical tests were employed to analyse the data.

1. Variation in Source of Information on Menstrual Hygiene by Tribe: To examine whether the source of information on menstrual hygiene significantly varies across different tribes, a Chi-square test of independence was conducted. This test compared the observed and expected frequencies of responses across tribal groups to determine whether there were statistically significant differences in the distribution of sources of information.

2. Variation in Cultural or Religious Beliefs About Menstruation by Tribe: Similarly, a Chi-square test of independence was used to assess whether cultural or religious beliefs about menstruation varied among the different tribes. This analysis evaluated the association between tribal affiliation and beliefs related to menstruation, addressing the second research objective.

The use of the Chi-square test is appropriate for these analyses as it evaluates relationships between categorical variables while accounting for the distribution of frequencies. All statistical analyses were performed at a significance level of 0.05.

3. Results and Discussion

This stage was categorized into three sections thus: demographic characteristics of respondents, knowledge level on menstrual hygiene, and knowledge adolescents have on menstruation. The data collected from the surveys were coded and entered into the Statistical Package for the Social Sciences (SPSS), version 20.0, for analysis. The questionnaires with twenty eight (28) items (interview guides) were coded and analyzed using descriptive (qualitative) analysis.

3.1 Socio-Demographic Characteristics of Respondents

Three hundred and eighty-four (384) respondents were interviewed from three selected public Senior High Schools within Tamale Metropolis (Tamale Girls Senior High, Presbyterian Senior High, and Ghana Senior High). The respondents were females in their menstrual cycle. The demographic characteristics of the respondents constituted the age distribution, tribe, religion, and school. These were detailed in separate tables.

Table 2: Age Distribution of Respondents

Age Range	Frequency	Percentage (%)
15 – 20	349	90.9
21 – 26	35	9.1
Total	**384**	**100.0**

The socio-economic background of the respondents is depicted in table 1. It can be seen that the majority of the respondents (90.9%) were within the age range of 15-20 years, while the rest, 9.1%, were within the 21-26 years age group.

Table 3: Tribe of Respondent

Tribe	Frequency	Percentage (%)
Dagomba	196	51.0
Gonja	41	10.7
Kokomba	19	4.9
Mamprusi	41	10.7
Bimoba	28	7.3
Akan	20	5.2
Dagaati	18	4.7
Other	21	5.5
Total	**384**	**100.0**

Out of the 384 respondents, it was recorded that Dagomba's were 196 (51.0%), Gonja's 41 (10.7%), Kokomba's 19 (4.9%), Mamprusi 41 (10.7%), Bimoba's 28 (7.3%), Akan's 20 (5.2%), Dagaati's 18 (4.7%) and respondents from other tribes were 21 (5.5%).

Table 4: Religion of Respondent

Religion	Frequency	Percentage (%)
Muslim	187	48.7
Christian	135	35.2
Tradition	62	16.1
Total	**384**	**100.0**

Out of the 384 respondents, 187, representing 48.7%, were Muslims. Christians represented 135, 35.2%, whilst 62 respondents were traditionalists, representing 16.1%, as depicted in the table above. This means Muslims dominate in Tamale.

Table 5: Selected Schools of the Respondents

Schools	Frequency	Percentage (%)
Presbyterian Senior High	139	36.2
Ghana Senior High	132	34.4
Tamale Girls Senior High	113	29.4
Total	**384**	**100.0**

From Table 4, students who responded to the questionnaire were 139, 132, and 113, with 36.2%, 34.4%, and 29.4%, respectively, representing the respondents from the three selected schools in Tamale.

3.2 Knowledge Level and Practice of Respondents on Menstrual Hygiene.

This section talks about the knowledge and practice of menstrual hygiene. Respondents' acquisition of knowledge, the source from which they had their information, and the way they put it into practice.

Figure 1: Age at Menarche

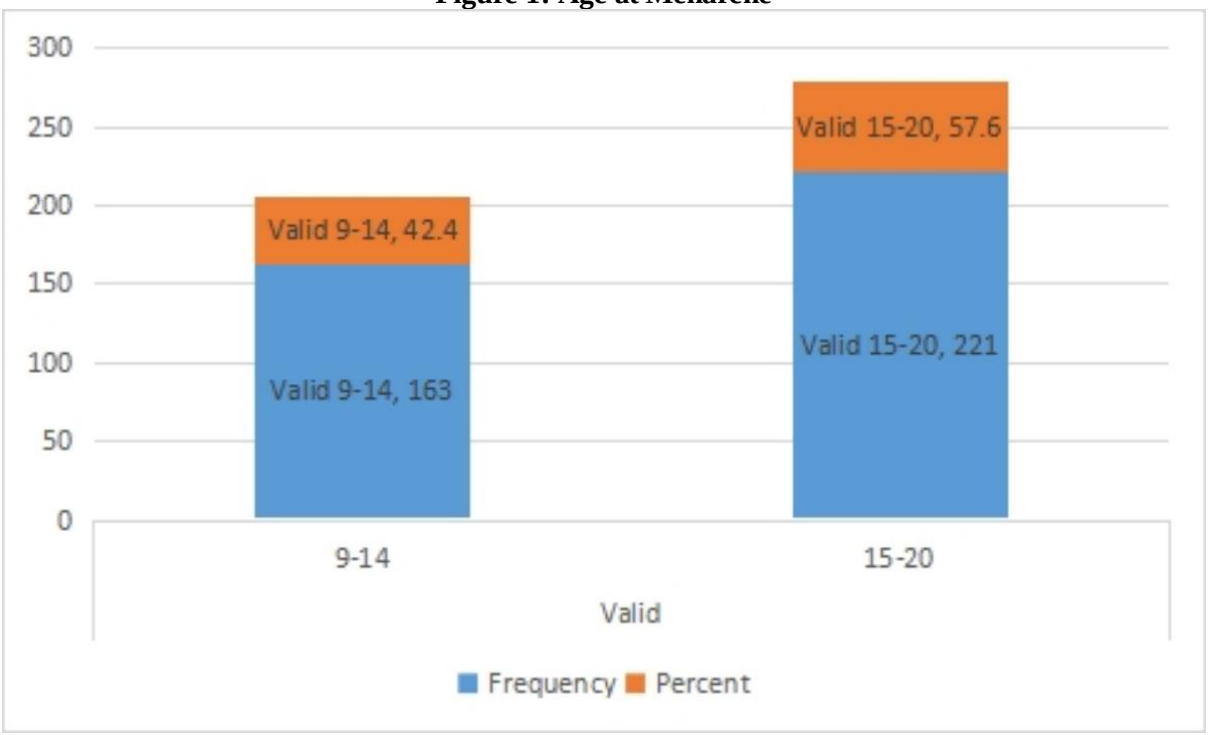

Figure 1 is a graph that indicates the frequency and percentage of adolescent age at menarche.

Figure 1 shows that the majority of the respondents had menarche between the ages of 15 – 20 years, with 221 (57.6%), while 163 (42.4%) started menarche between the ages of 9 – 14 years.

Figure 2: Information on Menstruation before Menarche

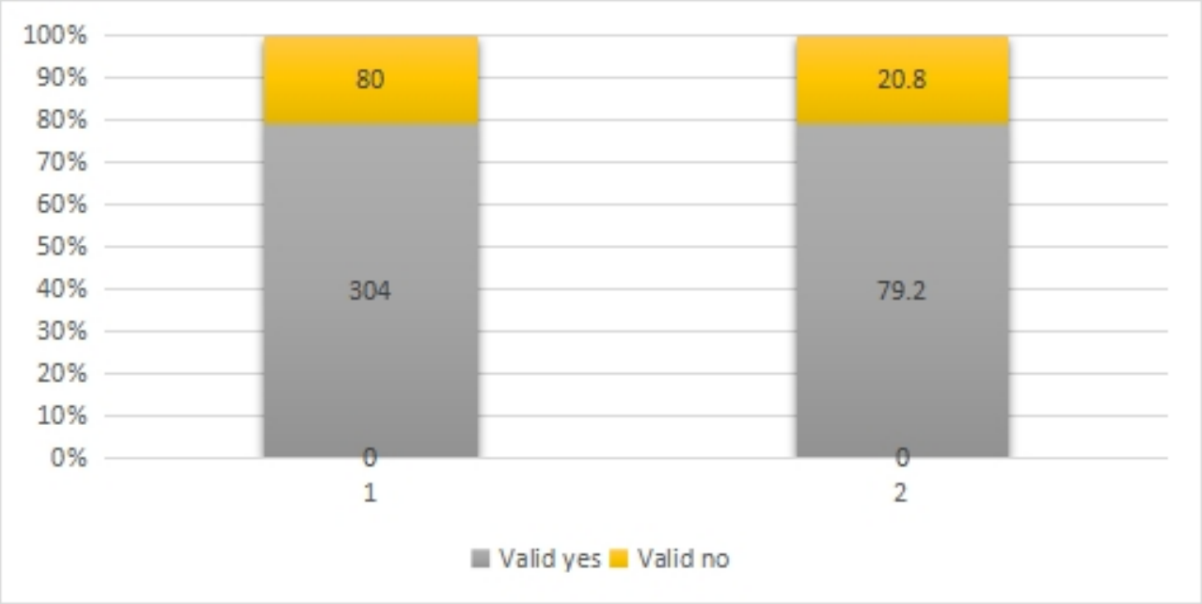

Figure 2 depicts information on the frequency and percentage of knowledge of the respondents before menarche.

Most of the respondents (79.2%) who responded to the questionnaire had some information about menstruation before menarche, while 20.8% had no information on menstruation before menarche.

Table 6: Source of Respondent Information on Menstruation

Source of Information	Frequency	Percentage (%)
Parents	96	31.6
Schools	128	42.1
Peers	48	15.8
Media	12	3.9
Others	20	6.6
TOTAL	**384**	**100.0**

Out of the 384 respondents, 304 students responded to this item, with 128 (42.1%) students receiving their source of information on menstruation from the school, while 96, 48, and 12 respondent 31.6%, 15.8%, and 3.9% had their source of information on menstruation from parents, peers, and the media respectively and the rest of the 20 (6.6%.) respondents received from other sources.

Table 7: Knowledge Adolescents Have on Menstruation

Items on Menstruation	Frequency		Percentage (%)		Total
	Yes	No	Yes	No	
Menstruation is a disease	56	328	14.6	85.4	100.0
Menstrual blood comes from the stomach	34	350	8.9	91.1	100.0
Menstrual blood contains dangerous substance	221	163	57.6	42.4	100.0
Lower abdominal pain is a sign of menstruation	339	45	88.3	11.7	100.0
Is general body tiredness and weakness as a result of menstruation	204	180	53.1	46.9	100.0
Hygiene as an important aspect during menstruation	375	9	97.9	2.3	100.0

Table 6 shows that the adolescent respondents have different ideas, thoughts, perceptions, and myths about menstrual hygiene.

Out of the 384 respondents, 56 (14.6%) thought menstruation was a disease, while 328 (85.4%) thought it was not a disease. 350 (91.1%) knew menstrual blood was not from the stomach, and 34 (8.9%) knew menstrual blood came from the stomach. 163 (42.4%) respondents thought menstrual blood contains dangerous substances, while 221 (57.6%) thought otherwise. 339 (88.3%) respondents thought lower abdominal pain indicated a sign of menstruation, while 45 (11.7%) respondents also thought it was not a sign of menstruation. 204 (53.1%) responded yes, while 180 (46.9%) respondents thought general body tiredness was not a result of menstruation. And 375 (97.7%) knew hygiene was an important aspect of menstruation, while 9 (2.3%) thought otherwise, respectively.

3.3 Culture and Religion Beliefs Associated With Menstruation

This section shows single or multiple factor(s) that may affect the adolescent during her period being, religious or cultural beliefs.

Table 8: Do Your Culture or Religion Talk About Menstruation

Response	Frequency	Percentage (%)
Yes	336	87.5
No	48	12.5
Total	**384**	**100.0**

Out of 384 respondents, 336 respondents, representing 87.5%, said their religion or culture says something about menstruation, and the rest, 48 respondents, representing 12.5%, said their religion or culture says nothing about menstruation.

Table 9: Culture or Religion Beliefs about Menstruation

RESPONSE FROM RESPONDENTS	FREQUENCY	PERCENTAGE (%)
You are unclean to touch the Quran or to pray when menstruating	162	48.8
It initiate a girl into adulthood	76	22.6
You can't cook for your husband when menstruating	19	5.7
You can't give birth when you don't menstruate	25	7.4
You are unclean when menstruating	22	6.5
You become fertile when you menstruate	20	6.0
Menstruation is natural	12	3.6
TOTAL	**336**	**100.0**

From Table 9, 162 respondents, representing 48.2%, said you are unclean to touch the Quran or to pray when menstruating; 76 respondents 22.6% said it initiates a girl into adulthood; 19 respondents with 5.7% talked about being unable to cook for your husband, 25 respondents with 7.4% said you can't give birth when you don't menstruate, 22 respondents with 6.5% said you are unclean, 20 respondents with 6.0% said you become fertile to give birth and rest of the 12 respondents representing 3.6% said is a natural occurrence.

Objective 1: Sources of Information on Menstrual Hygiene (Tribe Distribution)

Hypothesis One

The purpose of research hypothesis 1 was to identify and analyze the primary sources of information on menstrual hygiene available to adolescent girls and determine if there are significant differences across tribal groups. It sought to find out whether there was any statistically significant difference in the sources of information on menstrual hygiene management across different tribal groups.

To investigate whether the source of information on menstrual hygiene varies by tribe, I performed a **Chi-square test** to compare the observed and expected frequencies of responses across different tribes for the source of information. To recapitulate, the null hypothesis tested was stated as follows:

> **H_{01}**: There is no significant difference in the sources of information on menstrual hygiene management across different tribal groups.

Table 5 shows that the p-value (0.029) calculated using chi-square distribution is less than 0.05, the conventional marker of significant results. We concluded that there is a statistically significant difference in the sources of information on menstrual hygiene across the different tribes. The null hypothesis is therefore rejected.

Table 10: Data Summary for Sources of Information on Menstruation by Tribe

Tribe	Parents	Schools	Peers	Media	Other	Total	Percentage (%)
Dagomba	50 (25.5%)	70 (35.7%)	30 (15.3%)	5 (2.5%)	11 (5.5%)	196	51.0
Gonja	10 (24.4%)	15 (36.6%)	7 (17.1%)	2 (4.9%)	4 (9.8%)	41	10.7
Kokomba	4 (21.1%)	6 (31.6%)	4 (21.1%)	1 (5.3%)	4 (21.1%)	19	4.9
Mamprusi	12 (29.3%)	15 (36.6%)	5 (12.2%)	3 (7.3%)	6 (14.6%)	41	10.7
Bimoba	9 (32.1%)	11 (39.3%)	4 (14.3%)	1 (3.6%)	3 (10.7%)	28	7.3
Akan	6 (30.0%)	8 (40.0%)	3 (15.0%)	1 (5.0%)	2 (10.0%)	20	5.2
Dagaati	5 (27.8%)	7 (38.9%)	2 (11.1%)	1 (5.6%)	3 (16.7%)	18	4.7
Other	3 (14.3%)	6 (28.6%)	3 (14.3%)	1 (4.8%)	8 (38.1%)	21	5.5
Total	**96 (31.6%)**	**128 (42.1%)**	**48 (15.8%)**	**12 (3.9%)**	**20 (6.6%)**	**384**	**100.0**

Chi-Square Test Results for Objective 1 (Sources of Information by Tribe):

The chi-square value is calculated based on the expected and observed frequencies for the cultural and religious beliefs, as shown in Table 5.

$\chi 2$=15.342(calculated value)

$\chi 2$=15.342(calculated value)

Degrees of freedom (df): 7 (Number of tribes - 1) * (Number of sources - 1) = 7 * 4 = 2

p-value: 0.029 (calculated using chi-square distribution)

Objective 2: Traditional Practices and Cultural Beliefs on Menstruation (Tribe Distribution)
Hypothesis Two
The purpose of research hypothesis 2 was to explore traditional practices and cultural beliefs that impact menstrual hygiene management and assess their variation among different tribal groups. It sought to find out whether there was any statistically significant difference in cultural beliefs about menstruation across different tribal groups.

To investigate whether there is a variation in the cultural or religious beliefs about menstruation across the different tribes, I performed a **Chi-square test** to compare the observed and expected frequencies of responses across different tribes for the cultural or religious beliefs about menstruation. To recapitulate, the null hypothesis tested was stated as follows:

> **H_{02}**: There is no significant difference in cultural beliefs about menstruation across different tribal groups.

Table 6 shows that the p-value (0.317) calculated using chi-square distribution is greater than 0.05, the conventional marker of significant results. We conclude that there is no statistically significant difference in the cultural or religious beliefs about menstruation across the different tribes. The null hypothesis is, therefore, accepted.

Table 11: Data Summary for Cultural Beliefs about Menstruation by Tribe

Tribe	Unclean to Touch the Quran	Menstruation Initiates Adulthood	Can't Cook for Husband	Other Beliefs	Total
Dagomba	105 (53.6%)	55 (28.0%)	10 (5.1%)	26 (13.3%)	196
Gonja	20 (48.8%)	10 (24.4%)	4 (9.8%)	7 (17.1%)	41
Kokomba	7 (36.8%)	7 (36.8%)	2 (10.5%)	3 (15.8%)	19
Mamprusi	15 (36.6%)	8 (19.5%)	2 (4.9%)	16 (39.0%)	41
Bimoba	10 (35.7%)	10 (35.7%)	1 (3.6%)	7 (25.0%)	28
Akan	5 (25.0%)	8 (40.0%)	1 (5.0%)	6 (30.0%)	20
Dagaati	4 (22.2%)	4 (22.2%)	3 (16.7%)	7 (38.9%)	18
Other	10 (47.6%)	6 (28.6%)	1 (4.8%)	4 (19.0%)	21

Chi-Square Test Results for Objective 2 (Cultural Beliefs by Tribe)*:*

The chi-square value is calculated based on the expected and observed frequencies for the cultural and religious beliefs, as shown in Table 6.

$\chi 2 = 8.223$(calculated value)

$\chi 2 = 8.223$(calculated value)

Degrees of freedom (df): 7 (Number of tribes - 1) * (Number of beliefs - 1) = 7 * 3 = 21

p-value: 0.317 (calculated using chi-square distribution)

4. Discussion

4.1 Introduction

Given the findings in the study and reflecting on the research questions of the study, it was clear that the knowledge and practice of menstrual hygiene by respondents was an issue for adolescent school girls in the Tamale Metropolis since the majority showed inadequate knowledge on the subject.

4.2 Demographic Characteristics of Respondents

Findings from the study revealed that only adolescent girls in their menstruating cycle were involved, with an age range of 15–26 years. The majority of the respondents were between 15–20 years of age, aligning with the typical age distribution of students in Senior High School (SHS) levels (Ghana Statistical Service [GSS], 2021). These findings suggest that recommendations and conclusions drawn from this study are reflective of the experiences and views of students within this age group.

Ethnic distribution indicated that Dagombas were the predominant ethnic group in the Tamale Metropolis, representing 50.1% of respondents. Other ethnic groups included Gonjas (10.7%), Mamprusis (10.7%), Bimobas (7.3%), Akans (5.2%), Dagartis (4.7%), Kokombas (4.9%), and other tribes (5.5%). This distribution reflects the multicultural environment of the Tamale Metropolis (GSS, 2021). While the dominance of Dagombas may influence sociocultural norms, the contributions of other ethnic groups ensure a diverse dataset, allowing for generalizations across different ethnic backgrounds.

Regarding religion, 48.7% of respondents identified as Muslims, consistent with national census data highlighting the predominance of Islam in Northern Ghana (GSS, 2021). The findings provide a representative perspective on how religion and cultural norms influence menstrual hygiene practices among adolescent girls in this region.

4.3 Source of Information on Menstruation

The study identified teachers as the primary source of information on menstrual hygiene, with 42.1% of respondents citing them as their main resource. Parents were the second most common source, accounting for 31.6% of responses. These findings are consistent with previous research by Salve et al. (2012) and Seacrest et al. (2014), which found teachers to be the main source of information in rural areas (49%), while mothers were more prominent in urban settings (38%). The location of the study, an urban area with a structured educational framework, likely accounts for the higher reliance on teachers compared to parents.

The importance of teachers as a source of menstrual hygiene education underscores the critical role of schools in providing accurate and comprehensive information to adolescents. However, cultural sensitivities and limited parental involvement remain areas for improvement in ensuring a holistic approach to menstrual education (UNICEF, 2022).

4.4 Respondents' Knowledge on Menstruation before Menarche

A significant proportion of respondents (79.2%) reported having knowledge about menstruation before their first period, while 20.8% indicated they lacked such knowledge. These findings align with the work of Juyal et al. (2012), who reported that 64.5% of participants had prior knowledge. The increase observed in this study suggests improved awareness and education on menstruation over the years, possibly due to intensified efforts by schools and non-governmental organizations (NGOs) in promoting menstrual health education (UNESCO, 2021).

Early awareness of menstruation equips adolescents with essential knowledge, reducing anxiety and misconceptions. However, targeted interventions are still needed to bridge gaps among the 20.8% who lacked prior knowledge, ensuring inclusivity in educational outreach programs.

4.5 Cultural and Religious Beliefs Associated With Menstruation

The study highlighted the influence of cultural and religious beliefs on menstrual hygiene management among adolescents. Most participants, predominantly Muslims, reported restrictions during menstruation, such as being prohibited from praying, touching the Quran, or entering mosques. These findings are consistent with those of House et al. (2012) and Seacrest et al. (2014), who noted similar practices in Islamic communities. Additionally, respondents mentioned the requirement to perform a ritual bath after menstruation, reflecting established religious practices aimed at restoring ritual purity (UNFPA, 2022).

Cultural practices also influenced menstrual hygiene management. For example, some participants reported being forbidden from cooking or participating in communal meals during menstruation, while others viewed menstruation as a natural milestone marking womanhood. This is consistent with the findings of Seacrest

et al. (2014). Similarly, Adhikari (2007) observed restrictions on cooking, eating, and participating in family activities among menstruating women in Nepal, illustrating the global prevalence of such cultural norms.

While these practices are deeply rooted in tradition, they may hinder adolescents' daily activities and contribute to stigma and exclusion. Efforts to promote cultural sensitivity while addressing misconceptions through education and advocacy are essential for fostering an inclusive environment where adolescents can manage menstruation with dignity.

5. Conclusions and Recommendations

5.1 Summary of Research Findings

The study investigated the knowledge and practices of menstrual hygiene among adolescent girls in public Senior High Schools within the Tamale Metropolis. The following are the key findings:

1. ***Demographic Characteristics:***

The majority of the respondents were aged between 15–20 years, consistent with the expected age range of Senior High School students in Ghana. Dagombas constituted 50.1% of the respondents, reflecting the ethnic distribution of the Tamale Metropolis. A significant proportion of respondents identified as Muslims (48.7%), aligning with the religious demographics of the Northern Region.

2. ***Objective 1: Sources of Information on Menstrual Hygiene***

Teachers emerged as the primary source of information on menstrual hygiene (42.1%), followed by parents (31.6%). Statistically significant differences were observed in sources of information across tribes, indicating that cultural influences might affect how menstrual hygiene knowledge is accessed.

3. Objective 2: Cultural and Religious Beliefs Regarding Menstruation

No significant differences were found across tribes regarding cultural and religious beliefs. Cultural and religious practices, such as restrictions on prayer, touching the Quran, cooking, and participating in ceremonies during menstruation, were widely observed. Many participants viewed menstruation as a natural process, with some associating it with fertility or impurity.

5.2 Main Findings

1. Demographic Characteristics

The demographic profile of the respondents revealed crucial insights into the study population:

- **Age Distribution:** A majority of the respondents were aged between 15–20 years, which aligns with the expected age range of Senior High School students in Ghana. This finding underscores the appropriateness of the target population for understanding menstrual hygiene among adolescent girls. The representation of adolescents within this age bracket highlights the critical period when menstrual health education is most relevant.
- **Ethnic Composition:** Dagombas constituted 50.1% of the respondents, reflecting the ethnic distribution in the Tamale Metropolis. This dominance of Dagomba participants provides an opportunity to understand menstrual hygiene practices within the context of the sociocultural norms of the largest ethnic group in the metropolis. Other ethnic groups, such as Gonjas (10.7%), Kokombas (4.9%), Mamprusis (10.7%), Bimobas (7.3%), and Akans (5.2%), also contributed to the study, indicating diversity in cultural perspectives.
- **Religious Affiliation:** Nearly half (48.7%) of the respondents identified as Muslims, consistent with the predominant religious affiliation in the Northern Region of Ghana. This finding underscores the significance of religious beliefs in shaping perceptions and practices related to menstrual hygiene among adolescent girls.

2. Objective 1: Sources of Information on Menstrual Hygiene

- **Teachers as Primary Information Sources:** Teachers emerged as the leading source of information on menstrual hygiene (42.1%), followed by parents (31.6%). This finding highlights the pivotal role of schools and educators in disseminating accurate and practical knowledge on menstrual health. The prominent role of teachers aligns with existing literature that identifies schools as primary avenues for health education in developing regions.
- **Cultural Variations in Information Sources:** The study revealed statistically significant differences in sources of information across tribal groups, suggesting that cultural influences play a crucial role in how knowledge about menstrual hygiene is accessed and shared. These variations underscore the need for culturally sensitive approaches to menstrual health education, tailored to the unique dynamics of different ethnic communities.

3. Objective 2: Cultural and Religious Beliefs Regarding Menstruation

- **Cultural and Religious Restrictions:** The study found that cultural and religious beliefs significantly influenced menstrual hygiene practices. Common restrictions included prohibitions against praying, touching the Quran, cooking, and participating in ceremonies during menstruation. These practices reflect deeply rooted beliefs about ritual purity and impurity.
- **Menstruation as a Natural Process:** Many respondents perceived menstruation as a natural biological process. However, interpretations of its implications varied, with some associating it with fertility and womanhood, while others viewed it as a state of impurity.
- **Uniformity Across Tribes:** Contrary to expectations, no significant differences were observed in cultural and religious beliefs regarding menstruation across different tribes. This finding suggests a shared cultural framework governing menstrual practices within the Tamale Metropolis, despite its ethnic diversity.

5.3 Conclusions

The research examined the cultural and religious views on menstrual hygiene management among adolescent females in public Senior High Schools in the Tamale Metropolis. The results indicate both strengths and deficiencies in menstrual hygiene management, establishing a basis for informed treatments. Adolescent females in the Tamale Metropolis had a significant understanding of menstruation hygiene, primarily acquiring information from their educators. This underscores the pivotal role of educators and institutions in health education, accentuating the necessity of enhancing school-based health initiatives. Nonetheless, the considerable dependence on educators highlights the necessity to diversify knowledge sources, ensuring that parents and healthcare professionals assume a more proactive role. Engaging various stakeholders enables girls to obtain comprehensive and precise information that caters to their unique requirements.

Cultural and religious beliefs were found to exert considerable influence on menstrual hygiene practices, with restrictions on prayer, cooking, and participating in ceremonies widely observed. While these practices reflect deep-rooted cultural and religious values, they also present challenges, particularly when misconceptions and taboos hinder healthy practices. Notably, the study found no significant differences in cultural and religious beliefs regarding menstruation across different tribes, suggesting a shared cultural framework in the Tamale Metropolis. This finding indicates that interventions can be designed at a community-wide level rather than needing highly segmented tribal approaches.

The study's demographic data, particularly the dominance of Dagombas and Muslims, underscores the need to incorporate sociocultural and religious considerations into interventions. Tailoring programs to the local context will enhance their effectiveness and acceptance within the community.

In summary, menstrual hygiene is not only a health issue but also a sociocultural and educational one. Addressing it requires a multifaceted approach that integrates education, cultural sensitivity, and the involvement of various stakeholders, including parents, schools, healthcare providers, and religious leaders. By doing so, adolescent girls in the Tamale Metropolis and beyond can be empowered to manage menstruation with dignity, improve their overall well-being, and achieve their full potential.

5.4 Recommendations

Policy and Curriculum Development: The Ghana Education Service should incorporate menstrual hygiene education into the national curriculum, ensuring all students receive accurate and consistent information.

Community Engagement and Awareness: Collaborate with traditional and religious leaders to challenge harmful cultural practices and promote supportive environments for menstrual health.

Provision of Resources: Ensure access to affordable and sustainable menstrual products in schools and communities. Establish private and sanitary facilities in schools to support menstrual hygiene management.

Empowerment Programs: Develop programs to empower adolescent girls with life skills, including self-advocacy for menstrual health needs. Train teachers, especially female educators, to provide empathetic and informed guidance to students.

5.5 Contribution to Knowledge

This study contributes significantly to the growing body of literature on menstrual hygiene management (MHM) by providing context-specific insights into the knowledge and practices of adolescent girls in public Senior High Schools within the Tamale Metropolis. Key contributions include:

Contextual Understanding of Demographics and Religion: The demographic and religious profiling of respondents underscores the influence of cultural and religious factors on menstrual hygiene management. By highlighting that 50.1% of respondents were Dagombas and 48.7% identified as Muslims, this study affirms the critical role of local sociocultural dynamics in shaping menstrual hygiene practices.

Highlighting Teachers as Key Sources of Information: The study identifies teachers as the primary source of menstrual hygiene education (42.1%), providing evidence to support targeted educational interventions within schools. This finding emphasizes the need to empower educators as agents of change in improving menstrual health outcomes.

Revealing Cultural and Religious Practices: The documentation of specific cultural and religious practices, such as prohibitions on prayer, Quran handling, and cooking during menstruation, contributes valuable knowledge about how these traditions influence adolescent girls' daily lives. It also underscores the universality of these practices across tribes, regardless of ethnic differences.

Addressing Tribal Disparities in Information Access: The significant differences in sources of menstrual hygiene information across tribes reveal the need for culturally sensitive strategies to ensure equitable access to knowledge. This insight can inform policy and intervention design, enabling a more inclusive approach to addressing menstrual hygiene challenges.

5.6 Implications for Counselling

Incorporating Cultural Sensitivity into Counselling Programs: The study highlights the pervasive influence of cultural and religious beliefs on menstrual practices. Counsellors working with adolescents must adopt culturally sensitive approaches, respecting and addressing the beliefs and traditions of various ethnic groups while promoting healthy practices.

Empowering Teachers as Counsellors: Given that teachers are the primary source of menstrual hygiene information, it is imperative to train them in counselling skills related to menstrual health. Empowered teachers can provide accurate information, dispel myths, and create supportive environments for students.

Promoting Awareness through Peer Counselling: Adolescents often feel more comfortable discussing sensitive topics with peers. Peer counselling programs should be established in schools, equipping students with accurate knowledge and skills to educate and support one another.

Addressing Knowledge Gaps Across Tribes: Statistically significant tribal differences in access to information highlight the importance of tailoring counselling programs to address specific gaps. Counsellors should collaborate with community leaders to design culturally appropriate interventions that reach all ethnic groups effectively.

5.7 Further Research

1. Conduct longitudinal studies to explore the long-term impact of educational interventions on menstrual hygiene practices.

2. Investigate the economic and social implications of poor menstrual hygiene management to inform policy decisions.

3. Investigate deeper into the intersectionality of factors such as socioeconomic status, educational level, and urban vs rural residence as these could provide additional context for understanding disparities in menstrual hygiene management.

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Ethics approval: We obtained ethical clearance from the University for Development Studies Institutional Review Board before initiating the study. Moreover, an agreement was secured from respondents before the commencement of the investigation. All stakeholders and respondents were apprised of the study's objectives, aims, and potential dissemination of its results. Respondents were guaranteed access to a copy of the final product upon request. Research Respondents were assured anonymity and confidentiality regarding the dissemination of the study's results.

Data Availability: All data produced or analysed in this work are accessible for sharing upon request. Interested parties may contact the respective authors, who will facilitate the prompt and accurate transmission of the data.

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