**ENSIGN GLOBAL UNIVERSITY, KPONG**

**DEPARTMENT OF COMMUNITY HEALTH**

**A RESEARCH DISSERTATION**

**ON**

# KNOWLEDGE, ATTITUDE, AND PRACTICES REGARDING MENSTRUAL HYGIENE AMONG ADOLESCENT SENIOR HIGH SCHOOL GIRLS IN THE KRACHI EAST MUNICIPALITY OF GHANA

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## DECLARATION

I hereby declare that this research, entitled "KNOWLEDGE, ATTITUDE, AND PRACTICES REGARDING MENSTRUAL HYGIENE AMONG ADOLESCENT SENIOR HIGH SCHOOL GIRLS IN THE KRACHI EAST MUNICIPALITY OF GHANA," is my original work. The research was conducted under the guidance and supervision of my assigned supervisor at Ensign Global University. This thesis is submitted in partial fulfilment of the requirements for my master's degree in public health. All sources of information and literature used in this work have been duly acknowledged through complete citations and a comprehensive reference list. No part of this work has been previously submitted for any other degree or qualification at this or any other institution.

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## DEDICATION

This work is dedicated to the Almighty Yahweh and to my entire family (the Kyei Baffour Family), especially my late mum (Diana Peprah), who has been my backbone throughout my nursing education and my dad (Joseph Kyei Baffour), who has been there for me throughout my entire life.

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## ABSTRACT

**Background:** Menstrual hygiene management is a critical aspect of adolescent health, yet many young girls face challenges due to lack of knowledge, negative attitudes, and inadequate resources. In Krachi East Municipality, Ghana, cultural stigmas and limited access to menstrual hygiene products further exacerbate these issues, impacting the overall well-being and educational opportunities of adolescent girls.

**Aim:** This study assessed the knowledge, attitudes, and practices regarding menstrual hygiene among adolescent girls in Krachi East Municipality.

**Methods:** A cross-sectional study was conducted among 371 adolescent girls aged 10-19 at three (3) senior high schools in Krachi East Municipality, selected via a multistage sampling. Data was collected through structured questionnaires, analysed using STATA Version 17.0, employing frequency, percentage, chi-square, and binary logistic regression. Statistical significance was set at $p<0.05$.

**Results:** This study found that 73.1% of the respondents had adequate knowledge of menstruation and menstrual hygiene, 57.4% had good attitudes towards menstruation and menstrual hygiene, and 55.3% of the respondents had adequate menstrual hygiene practices. It was found that fathers' educational level and participants' attitudes were significantly associated with menstrual hygiene knowledge. Additionally, participants' age, religion, mothers' and fathers' educational levels, as well as their knowledge and practices, were statistically significant factors influencing attitude. Furthermore, ethnicity, family structure, income, and attitude were significantly associated with menstrual hygiene practices.

**Conclusion:** Factors influencing knowledge and practices included parental education, age, and ethnicity. Fathers' education significantly impacted girls' menstrual hygiene knowledge, while older adolescents showed more positive attitudes. Ethnicity also influenced practices, with some groups more likely to follow better hygiene methods. Despite some progress, the study emphasised the need for focused efforts to address misinformation, cultural taboos, and limited resources.

## LIST OF ABBREVIATIONS/ACRONYMS

| | |
|---|---|
| AOR | Adjusted Odds Ratio |
| CHPs | Community-Based Health Planning and Services |
| COR | Crude Odd Ratio |
| GES | Ghana Education Services |
| GHS | Ghana Health Service |
| GSS | Ghana Statistical Service |
| KAP | Knowledge, attitudes, and practices |
| MHM | Menstrual Hygiene Management |
| MMDA's | Metropolitan Municipal and District Assemblies |
| SBHC | School-Based Health Coordinators |
| SCG's | Sustainable Development Goals |
| SHEP | School Health Education Programme |
| SHS | Senior High School |
| UNICEF | United Nations Children's Fund |
| WHO | World Health Organization |

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# CHAPTER ONE

# 1.0 INTRODUCTION

## 1.1 Background

Adolescence is a transitional phase from girlhood to womanhood, marking the onset of puberty. During this period, which spans from approximately 10 to 19 years of age, individuals undergo significant physiological, behavioural, and psychological changes. Among these, the onset of menstruation is particularly noteworthy, signifying the attainment of reproductive maturity (Neupane et al., 2020). According to Ene et al. (2024), approximately 26% of the global female population is of reproductive age, with the majority experiencing menstruation for 3 to 7 days each month. Evidence further indicates that an estimated 300 million women worldwide menstruate daily (Akoth et al., 2024). The maintenance of proper menstrual hygiene is a crucial determinant of female health; however, it is consistently overlooked as a priority, indicating a persistent gap in health focus across various populations worldwide (World Health Organization [WHO], 2024). In most traditional African cultures, menstruation is regarded as a taboo and stigmatizing subject, which is rarely addressed in public discourse (Amatya et al., 2018; Asumah et al., 2022; Ene et al., 2024).

Globally, it is estimated that at least 500 million adolescent girls and women are unable to achieve proper menstrual hygiene due to lack of access to essential sanitary supplies (Kpodo et al., 2022). Consequently, a significant proportion of adolescent females remain uninformed regarding the crucial importance of proper menstrual hygiene management, a deficit particularly pronounced in developing countries (Anchebi et al., 2017). The majority of these adolescent girls enter puberty without adequate preparation due to lack of sufficient information. The limited information they receive, often from sources such as religious institutions, peers, or family members, is frequently

selective and accompanied by misconceptions (Sommer et al., 2015; Belayneh and Mekuriaw, 2019).

Moreover, menstrual hygiene management is insufficiently covered in the curricula of most secondary schools, and some girls lack access to adequate menstrual hygiene facilities (World Bank Group, 2023). As a result, these girls often cannot afford or obtain appropriate sanitary materials to manage their menstrual flow and are forced to rely on substandard products such as fabric and cotton wool (Enzler and Gass, 2018).

Furthermore, studies conducted in Nigeria and India among adolescent girls found that majority of adolescent girls lacked an understanding of the causes of menstruation (Fehintola et al., 2017). This trend is also evident in Ghana, where research by Nsemo et al. (2020) indicated that most adolescent girls in their study were unaware of the source of menstrual blood. Similarly, Boakye-Yiadom et al. (2018) reported that a significant number of adolescent girls in their study in Ghana did not understand the cause of menstrual flow. In Ghana, a study by Ameade and Garti (2016) found that factors such as respondents' knowledge of menstruation, socioeconomic status, and residence influenced their practice of good menstrual hygiene management. Similarly, knowledge of menstruation, place of residence, and type of school emerged as significant factors associated with effective menstrual hygiene practices in Kpando, Ghana (Kpodo et al., 2022).

A review of the current literature reveals a dearth of available reports specifically detailing adolescent girls' knowledge of, and practices regarding, menstrual hygiene within the Krachi East Municipality. Therefore, this study is specifically designed to assess the level of knowledge and subsequent menstrual hygiene practices exhibited by adolescent girls in this Municipality.

## 1.2 Problem Statement

Inadequate menstrual hygiene practices have been shown to contribute to reproductive and genitourinary tract infections, cervical cancer, school absenteeism or dropout, diminished academic performance, lower self-esteem and a reduced quality of life among adolescent girls (Tegegne & Sisay, 2014). The United Nations Children's Fund (UNICEF) similarly highlights that poor menstrual-hygiene management adversely affects girls' health and education, since those unable to manage menstruation effectively are more likely to miss school or discontinue their education, thereby limiting their academic and economic potential (Belayneh & Mekuriaw, 2019).

At the national level in Ghana, the Ghana Demographic and Health Survey (GDHS) 2022 found that only 24% of the population had access to at least basic sanitation services, meaning improved facilities not shared with other households (Ghana Statistical Service [GSS], 2021). Furthermore, research indicates that many school-going girls in Ghana's rural zones face significant WASH (Water, Sanitation and Hygiene) deficits, limiting their capacity to practise good MHM (Kumbeni et al., 2020). To address these challenges, the Ghana Education Service (GES) and the Ghana Health Service (GHS), through the School Health Education Programme (SHEP), provide reproductive-health education (including menstruation and hygiene), while UNICEF and Plan International support by training School-Based Health Coordinators (SBHCs) and supplying essential hygiene facilities such as toilets and hand-washing stations (Kpodo et al., 2022).

Despite these national efforts, the largely rural Krachi East Municipality in the Oti Region faces a markedly greater challenge. Studies indicate that this district, with its predominantly rural setting, is underserved in terms of menstrual hygiene resources and education, limiting adolescent girls' access to essential facilities and information (Owusu, 2020). Cultural norms and menstrual-taboo stigma also prevail among certain traditional groups in the area, exacerbating girls' absenteeism

and educational disruption (Dodzi, 2021). Although national frameworks and education programmes exist, the magnitude and nature of menstrual-hygiene barriers experienced by adolescent girls in Krachi East remain underexplored.

Budiharsana, Wahyuningsih & Heywood (2022) emphasise the need for localised evidence to bridge the gap between policy and practice, particularly in underserved rural districts. In order to fulfil the targets of Sustainable Development Goal 3.7, ensuring universal access to sexual and reproductive-health services, information and education by 2030, it is therefore imperative to investigate adolescent girls' menstrual-hygiene practices, barriers and impacts in Krachi East. The findings will provide the critical local data needed to inform policies, allocate resources effectively and strengthen menstrual-health interventions in Ghana.

### 1.3 Rationale of the Study

Menstrual hygiene is a critical component of adolescent health that significantly impacts educational outcomes, psychological well-being, and overall quality of life among girls. The rationale for this study is underscored by the fact that a substantial proportion of adolescent girls in Ghana lack adequate knowledge and resources to manage their menstrual hygiene effectively. According to a study conducted by Boakye-Yiadom et al. (2018), although adolescent girls in Ghana have adequate knowledge of menstrual hygiene, this awareness does not translate into a positive attitude toward effective menstrual hygiene management practices. This disconnect can be attributed to negative socio-cultural norms and practices, among other factors, that contribute to the stigma surrounding menstruation. This study aligns with the Sustainable Development Goals (SDGs), particularly Goal 3, which emphasizes ensuring healthy lives and promoting well-being for all at all ages, Goal 4, which emphasizes ensuring inclusive and equitable quality education for all, and Goal 5, which aims to achieve gender equality and empower all women and girls (Morton,

Pencheon and Squires, 2017). Addressing menstrual hygiene management is crucial for achieving these goals, as it directly affects girls' participation in education and their overall health. Therefore, this study is not only timely but also necessary for informing policies and practices that can enhance the quality of life for adolescent girls in Krachi East Municipality and beyond.

### 1.4 Research Questions

1. What is the level of knowledge about menstruation and menstrual hygiene among adolescent girls in Krachi East Municipality?
2. What are adolescent girls' attitudes towards menstruation and menstrual hygiene management in Krachi East Municipality?
3. What are the menstrual hygiene practices of adolescent girls in Krachi East Municipality?
4. What factors influence the knowledge, attitudes, and practices regarding menstrual hygiene among adolescent girls in Krachi East Municipality?

### 1.5 General Objective

To assess the knowledge, attitudes, and practices concerning menstrual hygiene among adolescent girls in Krachi East Municipality.

#### 1.5.1 Specific Objectives

1. To assess the level of knowledge about menstruation and menstrual hygiene among adolescent girls in Krachi East Municipality.
2. To evaluate the attitudes of adolescent girls towards menstruation and menstrual hygiene management in Krachi East Municipality.

3. To identify and analyse the menstrual hygiene practices of adolescent girls in Krachi East Municipality.
4. To determine the factors that influence the knowledge, attitudes, and practices regarding menstrual hygiene among adolescent girls in Krachi East Municipality.

### 1.6 Scope of the study

This study focuses on the knowledge, attitudes, and practices related to menstrual hygiene among adolescent girls in public senior high schools in the Krachi East Municipality of the Oti Region, Ghana. It specifically targets female students aged 10 to 19 years who have started their periods. By focusing on the Krachi East Municipality and selecting three schools, Dambai Senior High School, Asukawkaw Senior High School, and Yabram Senior High School, it provided a clear context for data collection. The research concentrated solely on measuring key variables, including social and demographic factors, knowledge about menstruation, attitudes toward menstrual hygiene management, and current hygiene practices. It is important to note that the study did not include an evaluation of school health programs, a cost-benefit analysis of interventions, or an in-depth exploration of the socio-cultural origins of taboos. This careful limitation was necessary to maintain clarity and depth within the research.

### 1.7 Organisation of the study

This study is divided into six chapters. The first chapter introduces the study. It covers the background, problem statement, rationale, research questions and objectives, scope and organisation of the study. The second chapter reviews relevant literature. It builds the theoretical foundation by looking at existing studies on menstrual knowledge, attitudes, practices, and influencing factors both globally and in Ghana, and the conceptual framework. The third chapter

explains the methodology. It describes the research design, study site, population, sampling techniques, data collection procedures, and the statistical methods used for analysis. The fourth chapter presents the study's results. It shows the data through descriptive statistics, tables, and figures that address each research objective. The fifth chapter discusses these findings critically. It interprets the results in relation to the literature reviewed earlier and explains their implications. Finally, the sixth chapter concludes the dissertation. It summarises the key findings, draws conclusions, and offers practical recommendations for policy, practice, and future research based on the study's evidence.

### 1.8 Conceptual Framework

The framework in Figure 1 illustrates the interrelationships between various constructs relevant to menstrual hygiene management. It consists of four main constructs: Socio-demographic characteristics and Education, Knowledge of Menstrual Hygiene, Attitude towards Menstrual Hygiene, and Practices towards Menstrual Hygiene. These constructs are interconnected and collectively contribute to the outcome of Improved KAP on Menstrual Hygiene. The first construct, Socio-demographic characteristics and Education, encompasses factors such as age, religion, educational level, parental education, socioeconomic status, and access to menstrual hygiene education. These variables are positioned as foundational elements that influence the other constructs in the framework. The knowledge on the Menstrual Hygiene construct includes awareness of the menstrual cycle, knowledge of menstrual hygiene practices, understanding of menstrual products, disposal methods, and awareness of menstrual health issues. The Attitude towards Menstrual Hygiene construct encompasses the perceived importance of menstrual hygiene, cultural beliefs and taboos, self-confidence during menstruation, attitudes towards menstrual products, perceived severity of poor hygiene practices, and willingness to discuss

menstrual issues. The Practices towards Menstrual Hygiene construct includes the use of menstrual products, frequency of changing products, hygiene practices during menstruation, disposal methods of menstrual waste, pain management, and seeking medical help for menstrual issues. Socio-demographic characteristics and education are shown to influence knowledge, attitudes, and practices. Knowledge is depicted as influencing both attitudes and practices, while attitudes are also shown to impact practices. The framework culminates in the Improved KAP on Menstrual Hygiene construct, which represents the desired outcome of satisfactory knowledge, positive attitudes, and good practices. This final construct encapsulates the overarching goal of the research and provides a measurable endpoint for assessing the effectiveness of any interventions or education programs that may be developed based on the study's findings.


**Figure 1.1: Knowledge, Attitude, and Practice towards Menstrual Hygiene (Adapted from: Mutaru et al., 2023)**

# CHAPTER TWO

# 2.0 LITERATURE REVIEW

## 2.1 Introduction

This chapter shows the compilation of various works by several authors relating to the topic "knowledge, attitude, and practices regarding menstrual hygiene among adolescent senior high school girls in the Krachi East Municipality of Ghana". The chapter reviewed literature on the level of knowledge about menstruation and menstrual hygiene among adolescent girls in Krachi East Municipality, the attitudes of adolescent girls towards menstruation and menstrual hygiene management in Krachi East Municipality, the menstrual hygiene practices of adolescent girls in Krachi East Municipality, and the factors that influence the knowledge, attitudes, and practices regarding menstrual hygiene among adolescent girls in Krachi East Municipality.

### 2.1.1 Definition of terms

#### *2.1.1.1 Menstrual health*

Menstrual health refers to the overall well-being related to the menstrual cycle, encompassing physical, mental, and social aspects. It includes understanding and managing menstrual symptoms, maintaining hygiene, and addressing any menstrual disorders. Good menstrual health is crucial for reproductive health, emotional well-being, and quality of life for menstruating individuals.

#### *2.1.1.2 Menstrual hygiene*

Menstrual hygiene refers to the practices and products used to manage menstruation in a safe and clean manner. It involves using various menstrual products, such as sanitary pads, tampons, menstrual cups, and period underwear, which help absorb or collect menstrual fluid.

## 2.2 Level of Knowledge about Menstruation and Menstrual Hygiene among Adolescent Girls

Menstrual hygiene management (MHM) is a crucial aspect of adolescent health that influences physical well-being, emotional stability, school attendance, and gender equality. Understanding menstruation and its management is not only a matter of personal hygiene but also a public health and human rights concern. However, evidence from global and local studies indicates that many adolescent girls still lack adequate knowledge, hold misconceptions, and face cultural restrictions that affect how they perceive and manage menstruation. This literature review explores existing evidence on menstrual hygiene knowledge, attitudes, and practices among adolescent girls, highlighting global trends, regional findings, and insights from Ghanaian contexts to identify existing gaps and inform future interventions.

Globally, about 1.8 billion girls menstruate each month, yet a large proportion of them lack adequate knowledge and basic facilities to manage their menstruation appropriately and hygienically (WHO, 2021). he findings, as documented by the United Nations International Children's Emergency Fund (UNICEF), many girls do not have a complete and accurate understanding of menstruation as a normal biological process. The 2019 UNICEF report further revealed that numerous girls experience tension and anxiety at menarche because they lack essential information about menstruation. These knowledge gaps are often the result of taboos surrounding puberty and sexual and reproductive health education, which delay or prevent the delivery of accurate information. Consequently, many girls receive such education only after their first period or not at all. To address this, UNICEF (2019) emphasises the need for girls to be taught the biology of the menstrual cycle before menarche and to be guided on how to manage their periods hygienically and comfortably.

Similar challenges have been reported in other contexts. For instance, a national survey in Bangladesh revealed that only 6% of schools include health and hygiene in their curricula, and merely 36% of girls had prior knowledge of menstruation before their first period (World Bank Group, 2023). Inadequate knowledge and comprehension of menstrual physiology can precipitate poor hygiene management, thereby escalating the risk profile for several adverse outcomes. These risks encompass heightened susceptibility to reproductive tract infections, an increased likelihood of cervical cancer, and significant impairments to educational engagement, specifically manifesting as poor academic performance and school absenteeism. Ultimately, these consequences collectively lead to a reduction in subjective quality of life..

In sub-Saharan Africa, comparable trends have been documented. A study among adolescent girls in southern Ethiopia found that 68.3% had poor knowledge of menstruation. Importantly, poor menstrual knowledge was significantly associated with poor menstrual hygiene practices [OR = 1.48; 95% CI (1.04, 2.1)] (Belayneh & Mekuriaw, 2019). In Ghana, Mohammed and Larsen-Reindorf (2020) similarly observed that 53.6% of schoolgirls demonstrated poor knowledge about menstruation, with only 46.4% showing good knowledge.

While some Ghanaian studies reported similar knowledge gaps, others have indicated relatively higher awareness levels. For example, Boakye-Yiadom et al. (2018) found that most adolescent girls in their study did not know the cause of menstrual flow. Conversely, studies by Nsemo et al. (2020) and Ameade and Garti (2016) revealed that most Ghanaian adolescents could correctly describe the normal menstrual cycle. However, even in these cases, misconceptions persisted, as many girls lacked accurate information on the source and cause of menstruation.

Consistent with these findings, Baku et al. (2020) examined menstrual knowledge among girls in a peri-urban senior high school in the Volta Region of Ghana and found that 74.7% accurately

stated that menstruation occurs monthly, while 52.8% correctly identified its duration. Nonetheless, 63% of participants still viewed menstrual blood as unsanitary a perception that was significantly associated with the year of study ($P < 0.001$). This suggests that despite some progress in knowledge acquisition, misconceptions and negative beliefs about menstruation remain prevalent among Ghanaian adolescents.

### 2.3 Attitudes of Adolescent Girls Towards Menstruation and Menstrual Hygiene Management

Globally, various beliefs and perceptions about menstruation exist that either promote or hinder adolescent girls' health and well-being. Studies have revealed that misconceptions, superstitions, and misinterpretations are more widespread than an accurate understanding of menstruation, menstrual hygiene, and self-care practices (Adika, 2013). Among adolescents, how they perceive and manage their menstrual cycles largely shapes their overall attitude toward menstruation.

Qualitative research by Mohammad et al. (2018) on attitudes, beliefs, and sociocultural restrictions during menstruation in Papua New Guinea, the Solomon Islands, and Fiji revealed deeply rooted taboos. In these contexts, menstrual blood was believed to be dirty, and menstruating women were thought to bring bad luck to men upon contact. Consequently, menstruating women were often excluded from social and religious activities. Some participants reported being isolated or forced to sit apart from others during worship, while others described being restricted from entering workplaces or harvesting fruits, for fear it would harm the plants. These findings highlight how cultural and religious beliefs can lead to stigma, social exclusion, and psychological distress among menstruating women and girls.

According to Johnston-Robledo and Chrisler (2020), women's psychological experiences strongly influence their beliefs and attitudes, which in turn shape behaviour. They argue that cultural background significantly determines how menstrual experiences such as menarche and menopause are learned, interpreted, and expressed. This suggests that negative attitudes toward menstruation are not merely personal but are culturally transmitted and reinforced through generations.

In Nigeria, a study among in-school adolescent girls reported that 70.3% of respondents had negative attitudes toward menstruation (Uzoechi et al., 2023). The same research noted that the onset of menarche often triggered shame and fear, especially in relation to male family members such as fathers and brothers. Some girls expressed reluctance to disclose their menstrual status to men due to the negative perceptions and reactions they anticipated, indicating that menstrual stigma remains gendered and culturally reinforced.

Similarly, in Ghana, Boakye-Yiadom et al. (2018) found that only 13.6% of adolescent females in the Yendi Municipality had a positive attitude toward menstrual hygiene management, with the majority (86.4%) demonstrating negative attitudes. Consistent with these findings, Kpodo et al. (2022) reported that in the Volta Region, prevailing social and religious beliefs framed menstruation as evil or unclean. Such perceptions shaped community attitudes toward adolescent girls, often resulting in their isolation and restricted participation in social and religious activities.

Collectively, these studies demonstrate that attitudes toward menstruation are deeply shaped by socio-cultural and religious beliefs. Despite variations across regions, menstrual stigma remains a persistent barrier to girls' comfort, confidence, and social inclusion. Addressing these attitudes through culturally sensitive education and community dialogue is therefore essential to improving menstrual hygiene management and promoting gender equality.

## 2.4 Menstrual Hygiene Practices among Adolescent Girls

Globally, about 500 million females lack access to menstrual hygiene products and adequate facilities for managing menstruation safely and hygienically (World Bank Group, 2023). According to the WHO/UNICEF Joint Monitoring Programme, Menstrual Hygiene Management (MHM) refers to the use of clean menstrual materials to absorb or collect menstrual blood, changed in privacy as needed, alongside the use of soap and water for personal hygiene and access to safe disposal facilities. MHM also involves understanding the biological process of menstruation and managing it with dignity, free from discomfort, embarrassment, or stigma (Sommer & Sahin, 2013).

Despite this global framework, many adolescent girls continue to experience barriers to practising proper menstrual hygiene. For instance, studies in several African nations have revealed inadequate sanitation infrastructure in schools. Tamiru et al. (2015) reported that most teenage girls lacked access to clean, safe, and private restrooms and laundry facilities, a finding echoed in a multi-country study across five sub-Saharan African nations by Mason et al. (2018). Similarly, a review of the literature found that poor access to clean absorbents, soap, water, and private disposal spaces was strongly associated with unhygienic menstrual practices (Sommer et al., 2016).

Beyond infrastructural constraints, cultural taboos continue to exacerbate poor menstrual hygiene practices. Treating menstruation as a private or shameful topic often limits open discussion, leaving girls uninformed and fearful to seek advice (Sommer et al., 2015). Consequently, many adolescent girls and women are unaware of appropriate hygienic practices and face increased risks of urogenital infections, psychological distress, and reduced participation in school and work activities (Mathiyalagen et al., 2017). Studies have further shown that discomfort and shame

during menstruation lead to poor concentration and limited participation in class among schoolgirls (Hennegan et al., 2016).

In Ghana, the situation mirrors these broader trends. A study across public high schools found that less than half of the girls changed their menstrual pads at least twice daily, and about half reported cleaning their genital area only during bathing with soap and water (Abor, 2022). Although most participants used disposable sanitary pads, others relied on improvised materials such as cloth, paper, or tissue due to cost and accessibility constraints. Similarly, Kumbeni et al. (2020) observed that while sanitary pad use was the most common menstrual material among adolescent girls in the Northern Region, its use was significantly associated with school attendance. However, many schools lacked essential amenities such as water, soap, privacy, and waste disposal bins necessary for effective menstrual hygiene management. The study also reported unsatisfactory methods of disposing of used sanitary materials, posing environmental and health risks.

Overall, these findings underscore that menstrual hygiene practices among adolescent girls are shaped by multiple interrelated factors, including access to facilities, availability of materials, socio-cultural beliefs, and education. Addressing these challenges through school-based interventions, infrastructure improvement, and community awareness initiatives is vital to ensuring that girls manage menstruation safely and confidently, without compromising their health or education.

### 2.5 Factors that Influence the Knowledge, Attitudes, and Practices regarding Menstrual Hygiene among Adolescent Girls

In many low- and middle-income countries, school-aged girls experience menarche under challenging circumstances, often without access to toilets, clean water, or supportive adults to guide them through the changes in their bodies (Sommer & Sahin, 2013b). When adolescents seek

information about menstruation, adults, particularly parents and teachers, frequently feel shy or uncomfortable discussing it due to entrenched socio-cultural and religious taboos. As a result, many girls receive inadequate education about menstruation and lack the confidence to manage it hygienically and with self-esteem (Shah et al., 2019). Even when mothers provide guidance, it is often limited to menstrual restrictions and rituals rather than accurate biological or hygienic information (WaterAid, n.d.). This limited transmission of knowledge is further compounded by the fact that many adult women themselves are unaware of the biological facts of menstruation, perpetuating cultural taboos and restrictive practices (Abor, 2022).

Beyond social and cultural constraints, several demographic and socioeconomic factors have been found to influence menstrual hygiene management. A study in China identified maternal education, family income, family structure, and girls' individual characteristics such as age, grade, age at menarche, and frequency of sanitary pad changes as significant determinants of menstrual knowledge, attitudes, and practices (Borjigen et al., 2019). Similarly, a cross-sectional survey in Bangladesh found that higher education levels, younger age, student status, non-alcohol consumption, and regular menstrual cycles were associated with improved menstrual hygiene knowledge and behaviour (Siddique et al., 2023). These findings underscore that socioeconomic status, parental education, and personal factors collectively shape menstrual hygiene outcomes among adolescent girls.

Evidence from Ghana reinforces these associations. A pilot study by Montgomery et al. (2012) demonstrated that providing sanitary pads and counselling to adolescent girls improved school attendance, particularly during menstruation. However, attendance remained significantly affected by poverty and the lack of water and sanitation facilities in rural schools. Similarly, Dorgbetor (2015) found that girls who actively participated in class discussions on menstrual hygiene issues

displayed greater confidence and better menstrual hygiene practices than their peers in the control group, where menstrual hygiene management was not addressed. This highlights the critical role of education and teacher engagement in shaping positive menstrual hygiene behaviours.

Menstruation-related challenges have far-reaching implications beyond personal health. Frequent absenteeism and school dropouts due to menstruation hinder progress toward achieving Sustainable Development Goal (SDG) 4 is dedicated to ensuring the attainment of inclusive and equitable quality education for all individuals. Furthermore, cultural taboos and gendered restrictions, such as prohibiting menstruating girls from participating in religious or community activities, impede SDG 5, which focuses on achieving gender equality. Inadequate waste disposal facilities for menstrual products also threaten environmental sustainability, potentially undermining SDG 6 on clean water and sanitation (House & Cavill, 2013).

Collectively, these findings highlight that menstrual hygiene management is not merely a health issue but a multidimensional challenge shaped by cultural, educational, economic, and infrastructural factors. Addressing these barriers requires coordinated efforts across health, education, and sanitation sectors to promote inclusive, informed, and sustainable menstrual hygiene practices among adolescent girls.

# CHAPTER THREE

# 3.0 METHODOLOGY

## 3.1 Study Design

This research employed a cross-sectional, quantitative study design to assess the knowledge, attitudes, and practices (KAP) regarding menstrual hygiene among adolescent girls in Krachi East Municipality. The cross-sectional approach allows for data collection at a single point in time, providing a snapshot of the current situation. This quantitative design enables the collection of numerical data to statistically analyse and quantify the KAP indicators related to menstrual hygiene.

## 3.2 Study Site

The study was conducted in Krachi East Municipality, situated in the Oti Region of Ghana. Krachi East was chosen as the study site because it encompasses a blend of urban and rural communities, providing a diverse sample of adolescent girls from various socio-economic backgrounds and levels of access to menstrual hygiene resources. This diversity is essential for understanding the full scope of menstrual hygiene practices and challenges within different community contexts. Krachi East Municipality is a prominent city and the capital of the Oti Region in Ghana. Dambai, as part of Krachi East Municipality, serves as the administrative centre of the Krachi East Municipal, one of the 261 Metropolitan, Municipal, and District Assemblies (MMDAs) in Ghana.

According to the 2021 Population and Housing Census, the municipality's population stands at 110,435, comprising 50.9% males and 49.1% females. The municipality is one of eight within the Oti Region and is located in the northwestern part of the former Volta Region, between latitudes

7° 40’N and 8° 15’N, and longitudes 0° 6’E and 0° 20’E. The total area of the municipality is 2,759.4 square kilometres, with water bodies accounting for approximately 15% of this area.

Krachi East Municipal shares borders with several districts: Krachi West District to the southwest, Krachi Nchumuru District to the northwest, Biakoye District to the southeast, Kadjebi District to the east, and Nkwanta South District to the north. The area is connected by a network of roads, including 65 kilometres of trunk road from Asukawkaw to Krachi East Municipality, 212 kilometres of feeder roads, and 56 kilometres of community access roads. The municipality is equipped with four health centres and 16 Community-based Health Planning and Services (CHPS) compounds, staffed by approximately 227 healthcare professionals (GSS, 2021; Krachi East Municipal, 2024).

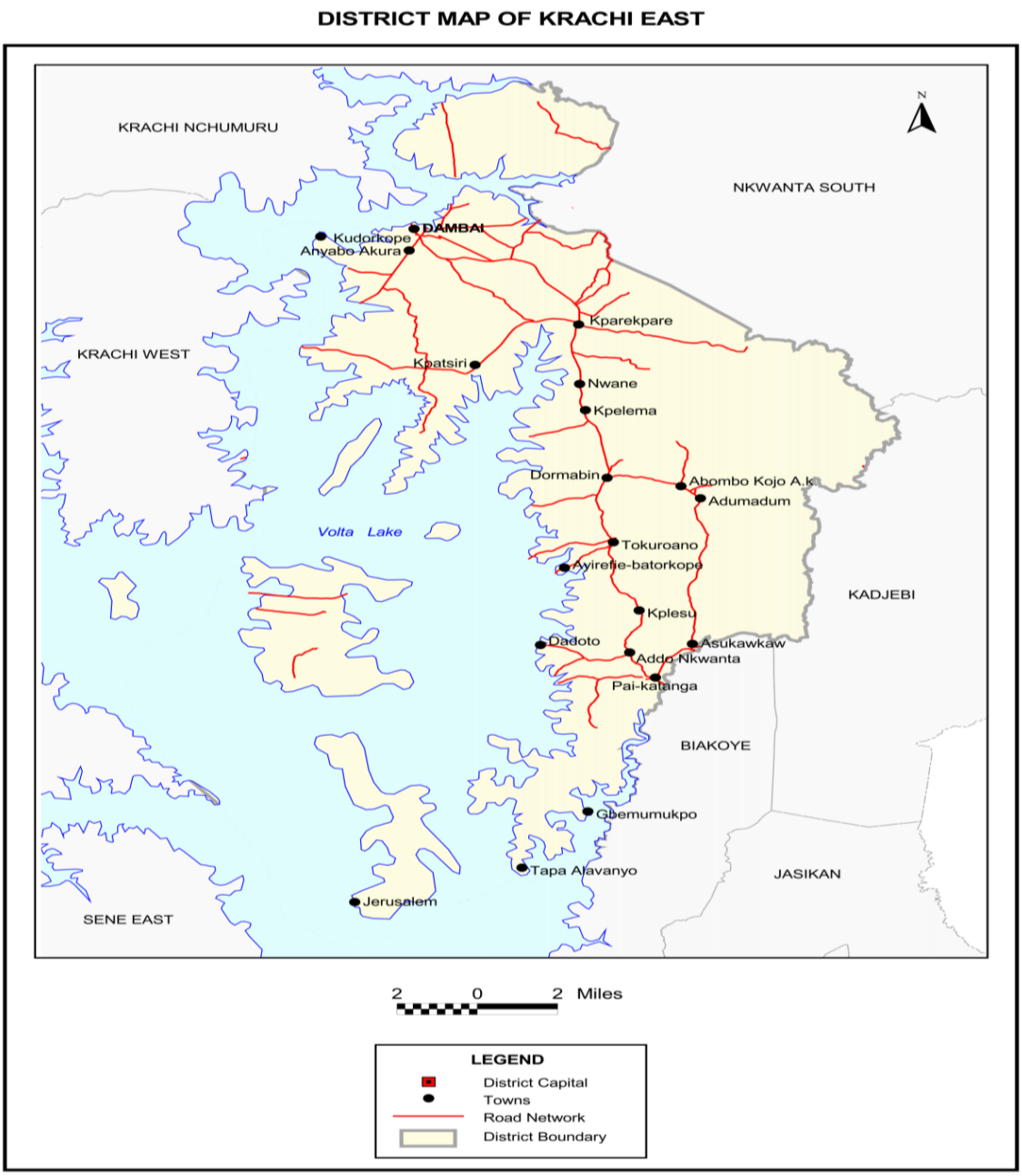


**Figure 2.1: Map of Krachi East Municipality (Krachi East Municipal, 2024)**

### 3.3 Study Population

The study population consisted of adolescent girls from three selected senior high schools in Krachi East Municipality, allowing for a comprehensive assessment of menstrual hygiene KAP across different stages of adolescent development.

### 3.4 Inclusion and Exclusion Criteria

#### 3.4.1 Inclusion Criteria

This study includes:

- Female adolescents
- Female adolescents who are part of the three selected schools in Krachi East Municipality.
- Have experienced at least one menstrual cycle
- Willing to participate in the study and provide informed consent (or assent with parental consent for minors)

#### 3.4.2 Exclusion Criteria

This study excluded:

- Adolescents with cognitive impairments that may affect their ability to provide informed responses
- Girls who have not yet experienced menarche
- Students not part of the selected schools

### 3.5 Sample Size

The sample size was calculated using Cochran's formula (Nanjundeswaraswamy and Divakar, 2021):

$n = [Z^2\alpha/2 * P(1-P)] / e^2$

Where:

n = required sample size

$Z^2\alpha/2 = 1.96$ (for 95% confidence interval)

P = expected prevalence of adequate menstrual hygiene knowledge

e = margin of error (5% or 0.05)

A 67.5% prevalence from a study by Boakye-Yiadom *et al.* (2018) was used. Thus

$$n = \frac{(1.96)^2 * 0.675(1-0.675)}{0.05^2}$$

n = 337

With a 10% non-response rate (34), the total number of participants required was 371.

**Table 3.1: Population in schools and sample size required**

| **Name of School** | **Total girls' population** | **Required sample size** |
|---|---|---|
| Oti Senior High School | 577 | 157 |
| Yabram Senior High School | 401 | 109 |
| Asukawkaw Senior High School | 383 | 105 |
| **Total** | **1361** | **371** |

### 3.6 Sampling Technique

This study employed a multi-stage sampling technique to select participants from three senior high schools in the Krachi East Municipality, Ghana. The multi-stage approach was chosen to ensure a representative sample while maintaining feasibility within the constraints of time and resources.

In the first stage, purposive sampling was used to select three senior high schools from the Krachi East Municipality. The selection criteria included: (1) schools representing a significant population of female students, (2) schools representing diverse socioeconomic backgrounds, and (3) schools that granted permission for the research to be conducted on their premises, thus Dambai Senior High School, Asukawkaw Senior High School, and Yabram Senior High School. The second stage involved stratified random sampling within each selected school. The strata were based on the academic year levels, thus Form 1, Form 2, and Form 3, which ensured representation across different age groups and educational backgrounds or stages. In the third stage, simple random sampling was applied within each stratum to select the final participants. This was achieved by obtaining the class rosters for each year's level and using a random number generator to select participants. The number of participants selected from the stratum was made proportional to the size of that stratum within the school's female student population, ensuring adequate representation.

### 3.7 Data Collection Procedure

Following ethical clearance and approval from local authorities in Krachi East Municipality, the data collection process began. Before data collection, research assistants were thoroughly trained on the study objectives, questionnaire administration, ethical considerations, and cultural sensitivity. Before administering the questionnaire, informed consent was obtained from each participant. For participants under 18 years, assent was obtained from the participant and consent from a parent or guardian.

The structured questionnaire was administered through face-to-face interviews by trained research assistants. Interviews were conducted in a private setting to ensure confidentiality and comfort for the participants. The questionnaire was administered in the local language (Twi or Ewe) or

English, depending on the participant's preference. Each interview lasted approximately 15-20 minutes. Data collection was conducted over a period of three weeks to reach all selected participants.

### 3.8 Data Collection Instruments

A structured questionnaire was developed based on validated tools from previous menstrual hygiene studies and adapted to the local context. The questionnaire covered demographic information, knowledge about menstruation and menstrual hygiene, attitudes towards menstruation, and current menstrual hygiene practices. Questions were primarily closed-ended, with some open-ended questions for additional insights. The questionnaire was administered by trained research assistants to ensure privacy and comfort for the participants.

#### 3.8.1 Pretesting

The questionnaire was pretested on a small sample from another senior high school with similar characteristics to the study population. This process helped identify any ambiguities, cultural sensitivities, or logistical issues in the data collection instrument. Necessary modifications were made based on the pre-test results before commencing the main study.

### 3.9 Statistical Analysis

Data analysis was conducted using STATA version 17. For descriptive statistics, frequencies and percentages were calculated for categorical variables, means and standard deviations for continuous variables, as well as median and interquartile range for non-normally distributed continuous variables. Chi-square tests were used to examine associations between categorical variables, while independent t-tests were employed to compare continuous variables between two groups. Moreover, logistic regression was used to identify factors influencing menstrual hygiene

knowledge, attitudes, and practices. A p-value < 0.05 was considered statistically significant for all analyses.

**Knowledge about menstruation and menstrual hygiene**

The level of knowledge on menstruation and menstrual hygiene among adolescent girls was assessed using six key questions. These questions covered essential aspects of menstrual health, namely: what menstruation is, the part of the body from which menstrual blood comes, the average length of the menstrual cycle, the normal length of menstrual flow, can a girl can become pregnant during her menstrual period and how often menstrual hygiene materials should be changed. Each item was subjected to a dichotomous scoring procedure, wherein correct responses were quantitatively assigned a score of 1, and incorrect responses were assigned a score of 0. This scoring approach ensured that each respondent's knowledge was objectively quantified. The total knowledge score for each participant was then obtained by summing the correct responses across the six questions, giving a possible range of 0 to 6 points. To classify the overall knowledge level, the median score of the distribution of total scores among the study population was used as the cut-off point. Participants whose scores fell below the calculated median were categorically classified as possessing poor knowledge, whereas those who attained a score at or above the median value were classified as demonstrating adequate knowledge of the subject matter.

**Attitudes towards Menstruation**

For positively worded questions (e.g., "Menstruation is a normal process for women," "It is important to maintain good hygiene during menstruation," "Boys should be educated about menstruation," "Menstruation is a topic that should be openly discussed in society"), responses

were scored as follows: Strongly agree = 5, Agree = 4, Neutral = 3, Disagree = 2, Strongly disagree = 1. For negatively worded questions (e.g., "I feel embarrassed about having my period," "Girls should not participate in sports or physical activities during menstruation," "Girls should not cook or enter the kitchen during menstruation," "It is acceptable to miss school because of menstruation," "Menstruation is a sign that a girl is ready for marriage"), the scoring was reversed so that a higher score reflected a more positive attitude: Strongly agree = 1, Agree = 2, Neutral = 3, Disagree = 4, Strongly disagree = 5. The distribution of scores in this study ranged from 20 to 45, with a mean of 33.7 ± 4.5 and a median of 33. To classify respondents' overall attitudes, the median score (33) was used as the cut-off point. Respondents who scored below 33 were categorised as having a poor attitude, while those who scored 33 or above were classified as having a good attitude towards menstruation.

**Menstrual Hygiene Practices**

The menstrual hygiene practice score was computed from thirteen practice-related questions that assessed various aspects of how respondents managed their menstruation. Each of the thirteen questions was scored dichotomously based on whether the response represented an appropriate or recommended practice. Correct or hygienic practices were assigned a score of one (1)**,** while inappropriate or unhygienic practices were assigned a score of zero (0)**.** For each respondent, the total practice score was obtained by summing the scores across the 13 questions. In this study, the overall scores ranged between 3 and 15, with higher scores reflecting better menstrual hygiene practices. To classify the overall level of practice, the median score of the distribution was used as the cut-off point. The median was found to be 12. Respondents who scored below 12 were categorised as having inadequate menstrual hygiene practices, while those who scored 12 and above were categorised as having adequate menstrual hygiene practices**.**

### 3.10 Data Handling

All data were treated with strict confidentiality. Completed paper questionnaires were stored securely in locked cabinets, and electronic data was password-protected. Only the research team had access to the raw data. Participant identifiers were removed during data entry and analysis to ensure anonymity.

### 3.11 Ethical Considerations

Ethical approval was sought from the Institutional Review Board of Ensign Global College. Additional approval was obtained from the local authorities (Ghana Education Service Directorate and Heads of the selected Senior High Schools) in the Krachi East Municipality. Informed consent was also obtained from all participants aged 18 and above. For participants under 18, parental verbal consent and adolescent assent were obtained. Participation was voluntary, and participants were informed of their right to withdraw at any time without consequences. Given the sensitive nature of the topic, all data collection was conducted by trained research assistants in private settings. Psychosocial support was made available for participants who experienced distress during the study.

### 3.12 Limitations of the study

The design of this study provides a useful snapshot of the situation, but it cannot prove cause-and-effect relationships between the variables studied. Additionally, the data depend on self-reporting, which may lead to social desirability bias. Participants might have given answers they thought were more acceptable rather than reflecting their true practices or beliefs, especially on a sensitive topic like menstruation. The study's focus on three schools in one municipality also means the results may not apply broadly to other regions or to girls who are not in school. Lastly, while the

quantitative approach found key patterns, it did not delve into the personal experiences and cultural reasons behind the participants' knowledge, attitudes, and practices. These limitations do not lessen the value of the findings but point out areas for future research to explore.

### 3.13 Assumptions of the study.

The execution and interpretation of this research relied on several key assumptions that formed the basis of the methodology. First, it was assumed that the participants, the adolescent girls, would take part in the research with honesty and openness. Despite the personal nature of the topic, it was expected that they would give truthful answers to the questionnaire items, ensuring the data's integrity. Another important assumption was that the research tools and process were clear and easy to understand for all participants. This included the belief that the structured questionnaire, developed from validated tools and tested in a similar setting, accurately measured the knowledge, attitude, and practice it aimed to evaluate. Additionally, it was assumed that translations into local languages during the interviews were done accurately, preserving the original intent and meaning of each question to avoid misunderstandings.

# CHAPTER FOUR

## 4.0 RESULTS

### 4.1 Socio-demographic characteristics of participants

Table 4.1 presents the socio-demographic and socioeconomic characteristics of the 371 adolescent girls who participated in the study in the Krachi East Municipality. The response rate was 100%. The majority of respondents (90.0%) were aged between 15 and 20 years, with a smaller proportion aged below 15 years (7.3%), and only 2.7% were older than 20 years. Regarding educational attainment, all participants (371, 100.0%) were Senior High School students. In terms of religious affiliation, Christianity was the predominant religion (83.6%), followed by Islam (11.1%), traditional religion (5.1%), and other religions (0.2%). Almost half of the participants identified as Krachi/Nawuri/Nchumburu (49.1%), followed by Ewe (36.1%), Busanga/Nuhanu (6.7%), Ashanti (3.0%), and Ga/Ada/Ningo (3.0%). A small fraction (2.2%) identified with other ethnic groups. More than 60.9% of the respondents were living with both parents, while 20.0% lived with their mothers only. Others lived with guardians (10.8%), fathers only (5.9%), or in other arrangements (2.4%). Among mothers, 39.9% had no formal education, while 18.9% had completed Junior High School, and 12.1% had primary education. Only 11.6% and 4.6% had attained Senior High School and tertiary education, respectively, while 12.9% of participants did not know their mother's education level. Similarly, 28.7% of fathers had no formal education, 18.4% and 10.5% had Junior High and Primary School education. Senior High School and tertiary levels were reported for 17.8% and 10.0% of fathers, respectively, while 14.6% of participants were unaware of their father's educational attainment. A significant proportion (62.8%) of participants reported not knowing their family's income. Of those who did know, 14.5% reported monthly income below

GHS 500, 13.5% reported between GHS 500–1000, 3.5% between GHS 1001–2000, and 5.7% reported incomes above GHS 2000.

**Table 4.1: Socio-demographic characteristics of adolescent girls in Krachi East Municipality**

| **Variable** | **Frequency (**(n=371) | **Percentage (%)** |
|---|---|---|
| **Age** | | |
| <15 years | 27 | 7.3 |
| 15-20 years | 334 | 90.0 |
| >20 years | 10 | 2.7 |
| **Religion** | | |
| Christianity | 310 | 83.6 |
| Islam | 41 | 11.1 |
| Traditional | 19 | 5.1 |
| Other | 1 | 0.2 |
| **Ethnic Group** | | |
| Krachi/Nawuri/Nchumburu | 182 | 49.1 |
| Ewe | 134 | 36.1 |
| Busanga/Nuhanu | 25 | 6.6 |
| Ashante | 11 | 3.0 |
| Ga/Ada/Ningo | 11 | 3.0 |
| Other | 8 | 2.2 |
| **Family Structure** | | |
| Living with both parents | 226 | 60.9 |
| Living with father only | 22 | 5.9 |
| Living with guardians | 40 | 10.8 |
| Living with my mother only | 74 | 20.0 |
| Other | 9 | 2.4 |
| **Mother's Educational Level** | | |
| No formal education | 148 | 39.9 |
| Primary school | 45 | 12.1 |
| Junior high school | 70 | 18.9 |
| Senior high school | 43 | 11.6 |
| Tertiary | 17 | 4.6 |
| Don't know | 48 | 12.9 |
| **Father's Educational Level** | | |
| No formal education | 106 | 28.7 |
| Primary school | 39 | 10.5 |

| | | |
|---|---|---|
| Junior high school | 68 | 18.4 |
| Senior high school | 66 | 17.8 |
| Tertiary | 37 | 10. 0 |
| Don't know | 55 | 14.6 |
| **Family's Estimated Monthly Income (GHS)** | | |
| Less than 500 | 54 | 14.5 |
| 500-1000 | 50 | 13.5 |
| 1001-2000 | 13 | 3.5 |
| More than 2000 | 21 | 5.7 |
| Don't know | 233 | 62.8 |

### 4.2 Knowledge about menstruation and menstrual hygiene among adolescent girls

Table 4.2 presents findings on the knowledge of menstruation and menstrual hygiene among adolescent girls in the Krachi East Municipality. A majority of the respondents (86.8%) reported first hearing about menstruation between the ages of 10 and 15 years. A smaller proportion learned about it before age 10 (3.0%) or after 15 years (10.2%). More than half (59.8%) cited their mother's main source of information on menstruation. Other sources included sisters (13.5%), teachers (10.8%), friends (8.4%), and health workers (6.7%). Very few obtained this information from other sources (0.8%). The majority (84.1%) correctly identified menstruation as a normal physiological process, with 5.7% perceiving it as a disease, 1.9% as a curse, and 8.3% expressing uncertainty. About the cause of menstruation, 40.0% attributed it to hormonal changes. Nonetheless, 37.0% believed it was a curse from God, 4.0% thought it was due to certain foods, and 19.0% indicated they did not know. More than half (88.4%) identified the vagina, while 5.9% mentioned the uterus as the source of menstrual blood.

A small fraction thought it came from the bladder (1.6%) or were unsure (4.1%). About the menstrual cycle length, 47.4% identified a 28-day cycle, 27.0% believed it was 14 days, and 8.6% thought it lasted 45 days. About 17.0% did not know the average length of a cycle. Most

respondents (78.7%) reported a typical menstrual flow duration of 3 to 7 days, although 12.2% indicated 10–14 days, 2.4% said 1–2 days, and 6.7% did not know. More than half, 59.3% believed that a girl can become pregnant during her menstrual period correctly, while 33.7% believed pregnancy was not possible during menstruation, and 7.0% were unsure.

More than half, 65.2% reported abdominal pain as a common symptom. Other reported signs included headache (14.3%), breast tenderness (8.9%), fatigue (4.9%), and mood changes (2.7%), while 4.0% indicated they did not know any symptoms. Over half (52.0%) used disposable sanitary pads, others used reusable cloth pads (32.6%), old rags (4.0%), menstrual cups (3.8%), tampons (1.2%), and toilet paper (2.4%) as materials for menstrual hygiene practices. A small proportion (4.0%) were unaware of the materials to use. Concerning the frequency of changing menstrual hygiene materials, 60.0% reported doing so every 4 to 6 hours. However, 21.1% changed them only when they felt uncomfortable, and 11.1% did so once daily. About 7.8% were unsure of the correct frequency. On disposal practices, 39.9% burned used materials, while 25.9% wrapped and disposed of them in a waste bin. Others flushed them down the toilet (21.0%) or threw them in open areas (7.3%). A minority (5.9%) did not know the proper disposal method.

**Table 4.2: Knowledge about menstruation and menstrual hygiene among adolescent girls**

| **Variable** | **Frequency (n=371)** | **Percentage (%)** |
|---|---|---|
| **Age first heard of menstruation.** | | |
| Less than 10 years | 11 | 3.0 |
| 10-15 years | 322 | 86.8 |
| Above 15 years | 38 | 10.2 |
| **Main source of information about menstruation** | | |
| Friends | 31 | 8.4 |
| Health worker | 25 | 6.7 |
| Mother | 222 | 59.8 |
| Sister | 50 | 13.5 |
| Teacher | 40 | 10.8 |

| | | |
|---|---|---|
| Other | 3 | 0.8 |
| **What is menstruation** | | |
| A curse | 7 | 1.9 |
| A disease | 21 | 5.7 |
| A normal physiological process | 312 | 84.1 |
| Don’t know | 31 | 8.3 |
| **Causes of menstruation** | | |
| Curse from God | 138 | 37.0 |
| Don’t know | 71 | 19.0 |
| Eating certain foods | 15 | 4.0 |
| Hormones | 147 | 40.0 |
| **Part of the body from which the menstrual blood comes** | | |
| Bladder | 6 | 1.6 |
| Uterus | 22 | 5.9 |
| Vagina | 328 | 88.4 |
| Don’t know | 15 | 4.1 |
| **Average length of menstrual cycle** | | |
| 14 days | 100 | 27.0 |
| 28 days | 176 | 47.4 |
| 45 days | 32 | 8.6 |
| Don’t know | 63 | 17.0 |
| **Length of menstrual flow** | | |
| 1-2 days | 9 | 2.4 |
| 3-7 days | 292 | 78.7 |
| 10-14 days | 45 | 12.2 |
| Don’t know | 25 | 6.7 |
| **Can a girl become pregnant during her menstrual period?** | | |
| No | 125 | 33.7 |
| Yes | 220 | 59.3 |
| Don’t know | 26 | 7.0 |
| **Signs of menstruation** | | |
| Abdominal pain | 242 | 65.2 |
| Headache | 53 | 14.3 |
| Breast tenderness | 33 | 8.9 |
| Mood changes | 10 | 2.7 |
| Fatigue | 18 | 4.9 |
| Don't know | 15 | 4.0 |
| **Materials used for menstrual hygiene** | | |
| Disposable sanitary pads | 193 | 52.0 |

| | | |
|---|---|---|
| Menstrual cups | 14 | 3.8 |
| Old cloth/rags | 15 | 4.0 |
| Reusable cloth pads | 121 | 32.6 |
| Tampons | 4 | 1.2 |
| Toilet paper | 9 | 2.4 |
| Don't know | 15 | 4.0 |
| **How often should menstrual hygiene materials be changed?** | | |
| Every 4-6 hours | 221 | 60.0 |
| Once a day | 41 | 11.1 |
| Only when it feels uncomfortable | 80 | 21.1 |
| Don't know | 29 | 7.8 |
| **Proper way to dispose of used menstrual hygiene materials** | | |
| Burns | 148 | 39.9 |
| Flush down the toilet | 78 | 21.0 |
| Throw in open areas | 27 | 7.3 |
| Wrap and dispose of in a waste bin | 96 | 25.9 |
| Don't know | 22 | 5.9 |

Overall, 271 (73.1%) of the respondents had adequate knowledge of menstruation and menstrual hygiene (Figure 3).

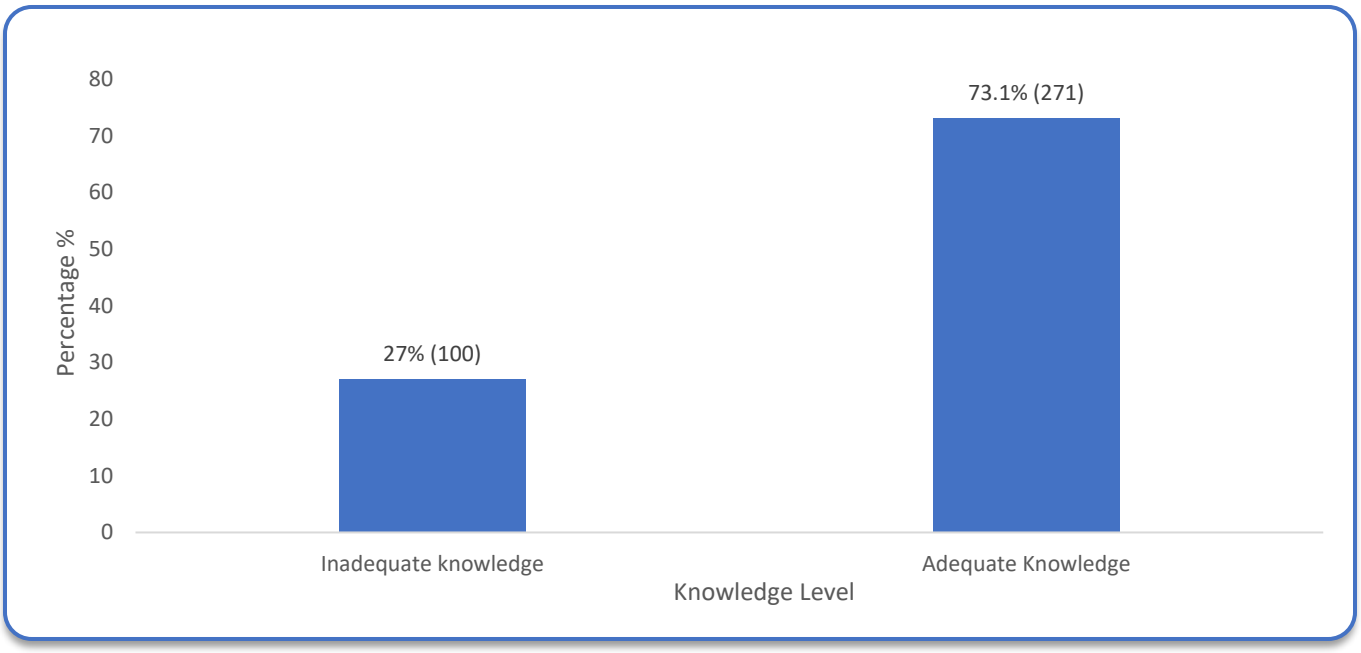


**Figure 4.1: Knowledge about menstruation and menstrual hygiene among adolescent girls**

### 4.3 Respondents' Attitudes towards Menstruation

Table 4.3 summarises the attitudes of adolescent girls in the Krachi East Municipality towards menstruation. A majority (77.9%) agreed or strongly agreed that menstruation is a normal process for women, with 46.4% agreeing and 31.5% strongly agreeing. However, 4.0% disagreed, and 6.2% strongly disagreed; 11.9% remained neutral. Comfort in discussing menstruation with family members was expressed by 61.2% of respondents (44.2% agreed, 17.0% strongly agreed). Conversely, 20.2% disagreed, 9.2% strongly disagreed, and 9.4% remained neutral. A quarter of the respondents (25.6%) agreed that they feel embarrassed about having their period, and 4.5% strongly agreed. However, a substantial proportion (34.0%) disagreed, and 24.0% strongly disagreed. About 11.9% were neutral on this issue. A combined 45.8% agreed (31.5%) and strongly agreed (14.4%) that girls should not participate in sports or physical activities during menstruation. Meanwhile, 45.2% (22.6% disagreed and 22.6% strongly disagreed) rejected it, and 8.9% were neutral. Hygiene was widely recognised as important during menstruation, with 78.1% either agreeing (38.5%) or strongly agreeing (39.6%). However, 7.0% disagreed, 7.9 % strongly disagreed, and 7.0% were neutral. More than half (57.7%) disagreed and strongly disagreed that menstruation signifies a girl's readiness for marriage. Conversely, 21.0% agreed and strongly agreed (13.2%) that menstruation signifies a girl's readiness for marriage, while 8.1% stood neutral. Restrictions on cooking or entering the kitchen during menstruation were also assessed. While 13.8% agreed and 7.6% strongly agreed with this belief, a majority (65.4%) rejected it, with 36.4% disagreeing and 29.0% strongly disagreeing. And 13.2% having a neutral stand. Regarding school attendance, 21.2% felt it was acceptable to miss school due to menstruation (15.4% agreed, 5.8% strongly agreed), whereas a majority (72.6%) disagreed or strongly disagreed, and 6.2% had a Neutral stand. When asked whether boys should be educated about menstruation, responses were

mixed. About 43.2% agreed or strongly agreed, while 46.0% disagreed or strongly disagreed, and 10.8% were Neutral. The majority of respondents (60.9%) agreed and strongly agreed that menstruation should be openly discussed in society. However, 15.6% disagreed, 12.7% strongly disagreed, and 10.8% were neutral.

**Table 4.3: Respondents' Attitudes towards Menstruation**

| Variable | Frequency (n=371) | Percentage (%) |
|---|---|---|
| **Menstruation is a normal process for women.** | | |
| Agree | 172 | 46.4 |
| Disagree | 15 | 4.0 |
| Neutral | 44 | 11.9 |
| Strongly Agree | 117 | 31.5 |
| Strongly Disagree | 23 | 6.2 |
| **I feel comfortable discussing menstruation with my family.** | | |
| Agree | 164 | 44.2 |
| Disagree | 75 | 20.2 |
| Neutral | 35 | 9.4 |
| Strongly Agree | 63 | 17.0 |
| Strongly Disagree | 34 | 9.2 |
| **I feel embarrassed about having my period.** | | |
| Agree | 95 | 25.6 |
| Disagree | 126 | 34.0 |
| Neutral | 44 | 11.9 |
| Strongly Agree | 17 | 4.5 |
| Strongly Disagree | 89 | 24.0 |
| **Girls should not participate in sports or physical activities during menstruation.** | | |
| Agree | 117 | 31.5 |
| Disagree | 84 | 22.6 |
| Neutral | 33 | 8.9 |
| Strongly Agree | 53 | 14.4 |
| Strongly Disagree | 84 | 22.6 |
| **It is important to maintain good hygiene during menstruation.** | | |
| Agree | 143 | 38.5 |
| Disagree | 26 | 7.0 |
| Neutral | 26 | 7.0 |
| Strongly Agree | 147 | 39.6 |

| | | |
|---|---|---|
| Strongly Disagree | 29 | 7.9 |
| **Menstruation is a sign that a girl is ready for marriage.** | | |
| Agree | 78 | 21.0 |
| Disagree | 107 | 28.8 |
| Neutral | 30 | 8.1 |
| Strongly Agree | 49 | 13.2 |
| Strongly Disagree | 107 | 28.9 |
| **Girls should not cook or enter the kitchen during menstruation.** | | |
| Agree | 51 | 13.8 |
| Disagree | 135 | 36.4 |
| Neutral | 49 | 13.2 |
| Strongly Agree | 28 | 7.6 |
| Strongly Disagree | 108 | 29.0 |
| **It is acceptable to miss school because of menstruation.** | | |
| Agree | 57 | 15.4 |
| Disagree | 136 | 36.7 |
| Neutral | 23 | 6.2 |
| Strongly Agree | 22 | 5.8 |
| Strongly Disagree | 133 | 35.9 |
| **Boys should be educated about menstruation.** | | |
| Agree | 109 | 29.4 |
| Disagree | 98 | 26.4 |
| Neutral | 40 | 10.8 |
| Strongly Agree | 51 | 13.8 |
| Strongly Disagree | 73 | 19.6 |
| **Menstruation is a topic that should be openly discussed in society.** | | |
| Agree | 137 | 36.9 |
| Disagree | 58 | 15.6 |
| Neutral | 40 | 10.8 |
| Strongly Agree | 89 | 24.0 |
| Strongly Disagree | 47 | 12.7 |

Overall, 213 (57.4%) of the respondents had good attitudes towards menstruation and menstrual hygiene (Figure 4).

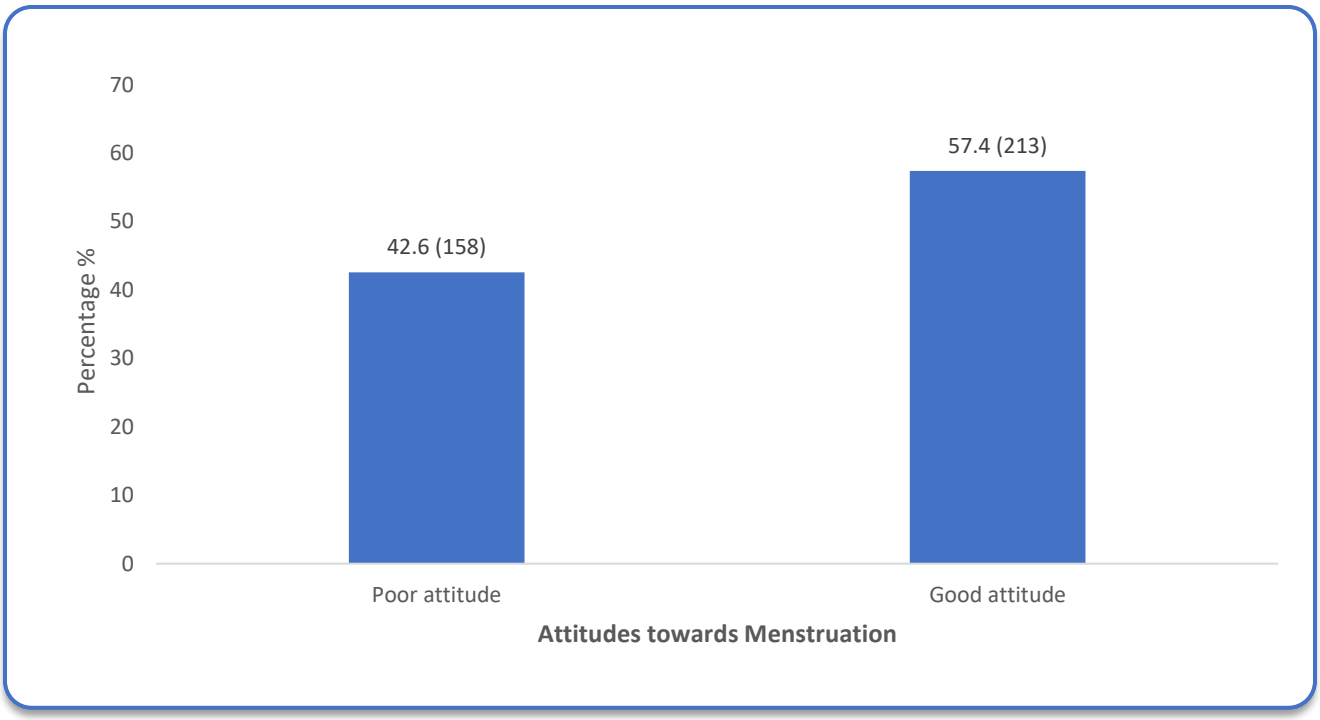


**Figure 4.2: Respondents' Attitudes towards Menstruation**

### 4.4 Respondents' Menstrual Hygiene Practices

Table 4.4 presents data on the menstrual hygiene practices of adolescent girls in the Krachi East Municipality. The majority of respondents (82.2%) reported primarily using disposable sanitary pads, while 10.0% used reusable cloth pads and 7.6% used old cloth or rags. Only one respondent reported using tampons (0.2%). Regarding the frequency of changing menstrual hygiene materials, 62.5% reported doing so every 4–6 hours, which aligns with recommended hygiene practices. However, 23.7% changed materials only when they felt uncomfortable, and 12.9% changed them just once daily. Most respondents (60.4%) changed their materials at home, while others do so at school (14.0%), in public toilets (7.8%), or other locations (17.8%). About 41.5% disposed of used materials by burning, 31.0% wrapped and disposed of them in waste bins, and 21.8% flushed them

down the toilet. A smaller proportion (5.2%) threw them in open areas. For those using reusable materials, 57.1% cleaned them with soap and water, 10.8% used only water, and 5.4% practised boiling, which is considered most hygienic. Most respondents (55.0%) dried reusable materials in direct sunlight, while others dried them indoors (9.4%) or in the shade (6.5%). The majority (74.2%) reported consistent access to clean water, and 60.1% reported access to private toilets or bathrooms for changing. However, 27.5% had inconsistent access to water, and 12.4% lacked regular access to private toilet facilities. Nearly all respondents (83.8%) bathed daily during menstruation. Despite this, 57.4% of the girls reported missing school during menstruation. The main reasons included pain or discomfort (54.9%), lack of menstrual hygiene materials (29.1%), fear of staining clothes (8.9%), and inadequate school toilet facilities (5.2%). Over half (53.6%) experienced abdominal pain during menstruation, while others reported headaches (17.8%), mood changes (14.6%), and fatigue (8.9%). Pain management strategies included taking medication (51.8%), using hot water bottles (20.5%), resting (13.8%), and exercising (5.4%).

**Table 4.4: Respondents' Menstrual Hygiene Practices**

| Variable | Frequency (371) | Percentage (%) |
|---|---|---|
| **What type of menstrual hygiene material do you primarily use?** | | |
| Disposable sanitary pads | 305 | 82.2 |
| Old cloth/rags | 28 | 7.6 |
| Reusable cloth pads | 37 | 10.0 |
| Tampons | 1 | 0.2 |
| **How often do you change your menstrual hygiene material?** | | |
| Every 4-6 hours | 232 | 62.5 |
| Once a day | 48 | 12.9 |
| Only when it feels uncomfortable | 88 | 23.7 |
| Other | 3 | 0.9 |
| **Where do you usually change your menstrual hygiene material?** | | |
| At home | 224 | 60.4 |
| At school | 52 | 14.0 |
| Public toilet | 66 | 7.8 |

| | | |
|---|---|---|
| Other | 29 | 17.8 |
| **How do you dispose of used menstrual hygiene materials?** | | |
| Burn | 154 | 41.5 |
| Flush down the toilet | 81 | 21.8 |
| Throw in open areas | 19 | 5.2 |
| Wrap and dispose of in a waste bin | 115 | 31.0 |
| Other | 2 | 0.5 |
| **How do you clean reusable menstrual hygiene materials?** | | |
| Wash and boil | 20 | 5.4 |
| Wash with water and soap | 212 | 57.1 |
| Wash with water only | 40 | 10.8 |
| Not applicable | 98 | 26.4 |
| Other | 1 | 0.3 |
| **How do you dry reusable menstrual hygiene materials?** | | |
| In direct sunlight | 204 | 55.0 |
| In shade | 24 | 6.5 |
| Inside the house | 35 | 9.4 |
| Not applicable | 108 | 29.1 |
| **Do you have access to clean water for menstrual hygiene?** | | |
| No | 20 | 5.4 |
| Sometimes | 75 | 20.2 |
| Yes, always | 276 | 74.4 |
| **Do you have access to private toilets/ bathrooms for changing menstrual matter?** | | |
| No | 46 | 12.4 |
| Sometimes | 102 | 27.5 |
| Yes, always | 223 | 60.1 |
| **Do you take a bath during menstruation?** | | |
| No | 7 | 1.9 |
| Yes, but not daily | 53 | 14.3 |
| Yes, daily | 311 | 83.8 |
| **Have you ever missed school due to menstruation?** | | |
| No | 158 | 42.6 |
| Yes | 213 | 57.4 |
| **If yes, what was the main reason for missing school?** | | |
| Pain/discomfort | 217 | 54.9 |
| Lack of menstrual hygiene materials | 70 | 29.1 |
| Fear of staining clothes | 19 | 8.9 |
| Lack of proper toilets at school | 20 | 5.2 |
| Not applicable | 45 | 1.9 |

| | | |
|---|---|---|
| **Do you experience any of the following during menstruation** | | |
| Abdominal pain | 199 | 53.6 |
| Fatigue | 33 | 8.9 |
| Headache | 66 | 17.8 |
| Mood changes | 54 | 14.6 |
| None of the above | 19 | 5.1 |
| **How do you manage menstrual pain?** | | |
| Exercise | 20 | 5.4 |
| Take pain medication | 192 | 51.8 |
| Rest | 51 | 13.8 |
| Use a hot water bottle/heat pad | 76 | 20.5 |
| Other (specify) | 9 | 2.4 |
| Not applicable | 23 | 6.1 |
| **Do you face any challenges in obtaining menstrual hygiene materials?** | | |
| No | 95 | 25.6 |
| Yes | 276 | 74.4 |

Overall, 205 (55.3%) of the respondents had adequate menstrual hygiene practices (Figure 5).

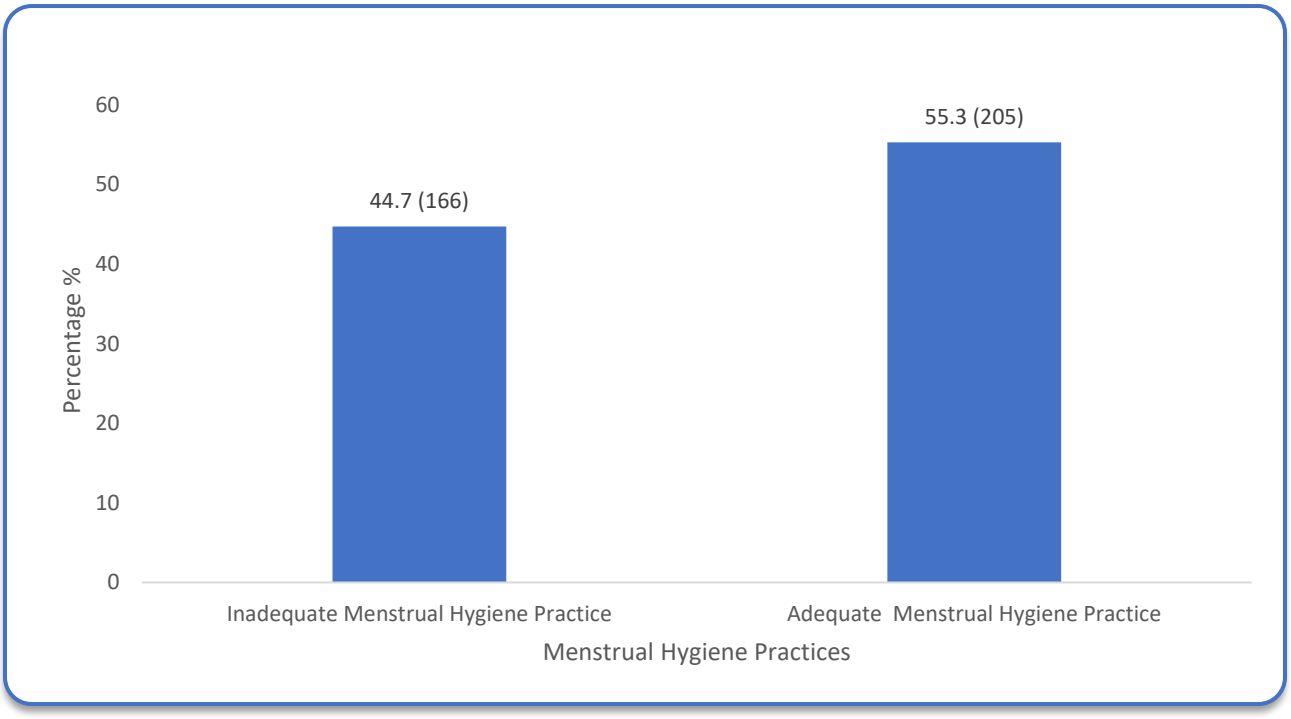


**Figure 4.3: Menstruation hygiene practices among participants**

### 4.5 Factors That Influence the Knowledge, Attitudes, and Practices Regarding Menstrual Hygiene Among Adolescent Girls

Table 4.5 examines the sociodemographic and socioeconomic determinants of menstrual hygiene knowledge among adolescent girls in Krachi East Municipality. Overall, the analysis revealed that the father's educational level and attitude were significantly associated with menstrual hygiene knowledge. Respondents whose fathers had attained primary education were 3.01 times more likely to have adequate knowledge compared to those whose fathers had no formal education [aOR = 3.01; 95% CI: 1.19-7.62; p = 0.020]. Also, respondents whose fathers had junior high school education were 2.84 times more likely to have adequate knowledge compared to those whose fathers had no formal education [aOR = 2.84; 95% CI: 1.38-5.84; p = 0.005]. Those whose fathers attained tertiary education were 6.21 times more likely to have adequate knowledge about menstruation compared to those whose fathers had no formal education [aOR = 6.21; 95% CI: 1.83-21.1; p = 0.003]. Furthermore, girls with a good attitude towards menstrual hygiene were 2.78 times more likely to have adequate knowledge compared to those with poor attitudes [aOR = 2.78, 95% CI: 1.73-4.45; $p$ <0.001].

**Table 4.5: Factors influencing the knowledge regarding menstrual hygiene among adolescent girls.**

| **Variable** | **Knowledge Level** | | **Chi-square (X2) (p-value)** | **cOR (95% CI) (p-value)** | **aOR (95% CI) (p-value)** |
|---|---|---|---|---|---|
| | **Inadequate n(%)** | **Adequate n(%)** | | | |
| **Age** | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| < 15 years | 7(25.9) | 20(74.1) | | Ref | Ref |
| 15-20 years | 92(27.5) | 242(72.5) | | 0.77(0.27, 2.16) (0.619) | 0.92(0.38, 2.25) (0.856) |
| > 15 years | 1(10.0) | 9(90.0) | 1.53(0.464) | 2.89(0.26, 32.47) (0.389) | 3.15(0.34, 29.53) (0.315) |
| **Educational Level** | | | | | |
| Senior High School | 98(27.0) | 265(73.0) | | Ref | Ref |
| Junior High School | 0(0.0) | 4(100.0) | | 0.58(0.17, 2.83) (0.146) | 0.22(0.06, 1.31) (0.165) |
| No formal education/Other | 2(50.0) | 2(50.0) | 2.56(0.279) | 0.19(0.02, 2.30) (0.191) | 0.37(0.05, 2.66) (0.323) |
| **Religion** | | | | | |
| Christianity | 82(26.5) | 228(73.6) | | Ref | Ref |
| Islam | 10(24.4) | 31(75.6) | | 0.74(0.31, 1.78) (0.503) | 1.11(0.52, 2.37) (0.778) |
| Traditional | 7(36.8) | 12(63.2) | | 0.69(0.24, 1.99) (0.491) | 0.62(0.23, 1.62) (0.326) |
| Other | 1(100.0) | 0(0.0) | 3.83(0.280) | 1.89(0.33, 2.89) (0.092) | 1.45(0.25, 2.26) (0.074) |
| **Ethnic Group** | | | | | |
| Ewe | 36(26.9) | 98(73.1) | | Ref | Ref |
| Krachi/Nawuri/Nchumburu | 57(31.3) | 125(68.7) | | 0.93(0.53, 1.63) (0.800) | 0.81(0.49, 1.32) (0.391) |
| Busanga/Nuhanu | 5(20.0) | 20(80.0) | | 1.80(0.56, 5.78) (0.326) | 1.47(0.51, 4.21) (0.473) |

| | | | | | |
|---|---|---|---|---|---|
| Ashante | 1(9.1) | 10(90.9) | | 4.11(0.47, 36.16) (0.202) | 3.67(0.45, 29.72) (0.223) |
| Ga/Ada/Ningo | 1(9.1) | 10(90.9) | | 4.75(0.54, 41.77) (0.160) | 3.67(0.45, 29.72) (0.422) |
| Other | 0(0.0) | 8(100.0) | 8.89(0.113) | 1.11(0.67, 26.26) (0.302) | 1.74(0.77, 3.97) (0.185) |
| **Family Structure** | | | | | |
| Living with both parents | 62(27.4) | 164(72.6) | | Ref | Ref |
| Living with father only | 6(27.3) | 16(72.7) | | 0.86(0.28, 2.67) (0.796) | 1.01(0.38, 2.69) (0.987) |
| Living with guardians | 13(32.5) | 27(67.5) | | 0.96(0.43, 2.08) (0.908) | 0.79(0.38, 1.62) (0.512) |
| Living with mother only | 18(24.3) | 56(75.7) | | 1.25(0.65, 2.41) (0.349) | 1.18(0.64, 2. 16) (0.600) |
| Other | 1(11.1) | 8(88.9) | 2.06(0.725) | 2.78(0.33, 23.60) (0.349) | 3.02(0.37, 24.68) (0.301) |
| **Mother's Educational Level** | | | | | |
| No formal education | 53(27.0) | 143(73.0) | | Ref | Ref |
| Primary school | 13(28.9) | 50(71.1) | | 0.44(0.18, 1.08) (0.072) | 0.91(0.45, 1.87) (0.802) |
| Junior high school | 13(28.9) | 32(71.1) | | 0.47(0.21, 1.02) (0.057) | 0.93(0.51, 1.70) (0.805) |
| Senior high school | 14(32.6) | 29(67.4) | | 0.52(0.21, 1.31) (0.165) | 0.77(0.38, 1.56) (0.467) |
| Tertiary | 0(0.0) | 17(100.0) | 7.14(0.129) | 0.64(0.18, 1.42) (0.191) | 0.84(0.52, 1.74) (0.775) |
| **Father's Educational Level** | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| No formal education | 57(35.4) | 104(64.6) | | Ref | Ref |
| Primary school | 6(15.4) | 33(84.6) | | **4.30(1.49, 12.38) (0.007)*** | **3.01(1.19, 7.62) (0.020)*** |
| Junior high school | 11(16.2) | 57(83.8) | | **4.02(1.69, 9.61) (0.002)*** | **2.84(1.38, 5.84) (0.005)*** |
| Senior high school | 23(34.9) | 43(65.2) | | 1.69(0.77, 3.71) (0.193) | 1.02(1. 56, 1.87) (0.937) |
| Tertiary | 3(8.1) | 34(91.9) | **21.26(0.000)** | **6.19(1.56, 24.61) (0.010)*** | **6.21(1.83, 21.1) (0.003)*** |
| **Family's Estimated Monthly Income (GHS)** | | | | | |
| 1001-2000 | 3(23.1) | 10(76.9) | | Ref | Ref |
| Less than 500 | 19(35.2) | 35(64.8) | | 0.58(0.17, 2.83) (0.496) | 0.55(0.134, 2.25) (0.408) |
| 500-1000 | 11(22.0) | 39(78.0) | | 1.31(0.25, 6.76) (.745) | 1.06(0.25, 4.55) (0.934) |
| More than 2000 | 4(19.1) | 17(81.0) | | 1.22(0.18, 8.36) (0.843) | 1.28(0.24, 6.90) (0.778) |
| Don't know | 63(27.0) | 170(73.0) | 3.25(0.517) | 1.07(0.24, 4.80) (0.929) | 0.81(0.22, 3.04) (0.408) |
| **Attitude towards menstrual hygiene** | | | | | |
| Poor attitude | 61(38.6) | 97(61.4) | | Ref | Ref |
| Good attitude | 39(18.3) | 174(81.7) | 18.98(0.000) | **2.51(1.48, 4.24) (0.001)** | **2.78(1.73, 4.45) (<0.001)** |
| **Practice of menstrual hygiene** | | | | | |
| Poor practice | 52(31.3) | 114(68.7) | | Ref | Ref |

| | | | | | |
|---|---|---|---|---|---|
| Adequate practice | 48(23.4) | 157(76.6) | 2.92(0.088) | 1.42(0.84, 2.42) (0.190) | 1.49(0.94, 2.36) (0.089) |

Table 4.6 presents the bivariate and multivariate analyses of factors associated with attitudes toward menstrual hygiene among adolescent girls in the Krachi East Municipality. Logistic regression analysis revealed that age of participants, religion, mother's educational status and fathers's educational status, knowledge and practice were statistically significant to attitude. Compared to girls aged ≤15 years, those aged >20 years were significantly 13.09 times more likely to have a favourable attitude towards menstrual hygiene [AOR = 3.09; 95% CI: 1.44-118.62; *p* = 0.022]. Girls from the traditional religious homes were 67% less likely to have a favourable attitude towards menstrual hygiene compared to those from Christian homes [aOR=0.33(CI: 0.12-0.90); p=0.030]. Respondents whose mothers had attained junior high school education were 2.29 times more likely to have a favourable attitude towards menstrual hygiene compared to those whose mothers had no formal education [aOR = 2.29; 95% CI: 1.08-4.85; p = 0.031]. Also, respondents whose mothers had a senior high school education were 2.74 times more likely to have a favourable attitude towards menstrual hygiene compared to those whose mothers had no formal education [aOR = 2.74; 95% CI: 1.40-5.34; p = 0.003]. Those whose mothers attained tertiary education were 4.96 times more likely to have a favourable attitude towards menstrual hygiene compared to those whose mothers had no formal education [aOR = 4.96; 95% CI: 1.41, 17.51; p = 0.003]. Respondents whose fathers had attained primary education were 3.91 times more likely to have a favourable attitude towards menstrual hygiene compared to those whose fathers had no formal education

[aOR = 3.91; 95% CI: 1.59-9.60; p = 0.003]. Also, respondents whose fathers had a junior high school education were 2.05 times more likely to have a favourable attitude towards menstrual hygiene compared to those whose fathers had no formal education [aOR = 2.05; 95% CI: 1.06-3.99; p = 0.034]. Those whose fathers attained tertiary education were 2.81 times more likely to have a favourable attitude towards menstrual hygiene compared to those whose fathers had no formal education [aOR = 2.81; 95% CI: 1.17-6.73; p = 0.021]. Respondents with adequate knowledge were 2.78 times more likely to have favourable attitudes compared to those with poor knowledge [aOR = 2.78, 95% CI: 1.73-4.45, *p* <0.001]. Also, participants with adequate practices were 1.63 times more likely to have favourable attitudes compared to those with poor practice [aOR = 1.63, 95% CI: 1.07-2.48, *p* = 0.022].

**Table 4.6: Factors influencing the attitudes towards menstrual hygiene among adolescent girls in Krachi East Municipality.**

| **Variable** | **Attitude** | | **Chi-square (X2) (p-value)** | **cOR (95% CI) (p-value)** | **aOR (95% CI) (p-value)** |
|---|---|---|---|---|---|
| | **Unfavorable attitude n(%)** | **Favorable attitude n(%)** | | | |
| **Age** | | | | | |
| ≤ 15 years | 16(59.3) | 11(40.7) | | Ref | Ref |
| 15-20 years | 141(42.2) | 193(57.8) | | **2.65(1.05, 6.68) (0.039)*** | 1.99(0.90, 4.42) (0.091) |

| | | | | | |
|---|---|---|---|---|---|
| >20 years | 1(10.0) | 9(90.0) | **7.43(0.024)*** | **15.28(1.51, 154.84) (0.021)*** | **13.09(1.44, 118.62) (0.022)*** |
| **Educational Level** | | | | | |
| Junior High School | 3(75.0) | 1(20.0) | | Ref | Ref |
| No formal education/Other | 2(50.0) | 2(50.0) | | 1.58(0.05, 48.59) (0.794) | 3.0(0.15, 59.89) (0.472) |
| Senior High School | 153(42.2) | 210(57.9) | 1.84(0.399) | 2.13(0.19, 23.90) (0.540) | 4.12(0.42, 39.97) (0.222) |
| **Religion** | | | | | |
| Christianity | 130(41.9) | 180(58.1) | | Ref | Ref |
| Islam | 14(34.2) | 27(65.9) | | 1.27(0.59, 2.72) (0.546) | 1.39(0.70, 2.76) (0.342) |
| Traditional | 13(68.4) | 6(31.6) | | 0.38(0.13, 1.07) (0.068) | **0.33(0.12, 0.90) (0.030)*** |
| Other | 1(100.0) | 0(0.0) | 7.78(0.051) | 1.80(0.22, 6.50) (0.315) | 1.04(0.23, 4.67) (0.298) |
| **Ethnic Group** | | | | | |
| Other | 3(37.5) | 5(62.5) | | Ref | Ref |
| Krachi/Nawuri/Nchumburu | 81(44.5) | 101(55.5) | | 1.05(0.23, 4.86) (0.954) | 0.75(0.17, 3.22) (0.697) |
| Ewe | 59(44.0) | 75(60.0) | | 0.99(0.21, 4.66) (0.994) | 0.76(0.18, 3.32) (0.718) |
| Busanga/Nuhanu | 9(36.0) | 16(64.0) | | 1.04(0.23, 4.86) (0.954) | 1.07(0.21, 5.54) (0.939) |
| Ashante | 3(27.3) | 8(72.7) | | 1.80(0.23, 14.25) (0.576) | 1.6(0.23, 11.27) (0.637) |

| | | | | | |
|---|---|---|---|---|---|
| Ga/Ada/Ningo | 3(27.3) | 8(72.7) | 3.03(0.696) | 1.64(0.22, 12.44) (0.630) | 1.6(0.23, 11.27) (0.637) |
| **Family Structure** | | | | | |
| Living with both parents | 96(42.5) | 130(57.5) | | Ref | Ref |
| Living with father only | 11(50.0) | 11(50.0) | | 0.87(0.33, 2.29) (0.774) | 0.74(0.31, 1.77) (0.498) |
| Living with guardians | 21(52.5) | 19(47.5) | | 0.84(0.41, 1.76) (0.650) | 0.67(0.34, 1.31) (0.241) |
| Living with mother only | 26(35.1) | 48(64.9) | | 1.40(0.78, 2.53) (0.264) | 1.36(0.79, 2.35) (0.265) |
| Other | 4(44.4) | 5(55.6) | 3.80(0.434) | 1.44(0.47, 4.42) (0.518) | 0.92(0.24, 3.52) (0.907) |
| **Mother's Educational Level** | | | | | |
| No formal education/Don't know) | 82(41.8) | 114(58.2) | | Ref | Ref |
| Primary school | 21(46.7) | 24(53.3) | | 1.16(0.41, 3.30) (0.776) | 1.74(0.77, 3.97) (0.185) |
| Junior high school | 28(40.0) | 42(60.0) | | 2.53(0.99, 6.50) (0.053) | **2.29(1.08, 4.85) (0.031)*** |
| Senior high school | 23(46.5) | 20(46.5) | | **2.76(1.08, 7.03) (0.034)*** | **2.74(1.40, 5.34) (0.003)*** |
| Tertiary | 4(23.5) | 13(76.5) | **14.13(0.015)*** | 3.72(0.82, 16.82) (0.057) | **4.96(1.41, 17.51) (0.013)*** |
| **Father's Educational Level** | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| No formal education/Don't know | 82(45.3) | 88(54.7) | | Ref | Ref |
| Primary school | 10(25.6) | 29(74.4) | | **3.10(1.06, 9.00) (0.038)*** | **3.91(1.59, 9.60) (0.003)*** |
| Junior high school | 31(45.6) | 37(54.4) | | 1.19(0.49, 2.91) (0.700) | **2.05(1.06, 3.99) (0.034)*** |
| Senior high school | 32(48.5) | 34(51.5) | | 1.04(0.40, 2.66) (0.518) | 1.43(0.69, 2.95) (0.331) |
| Tertiary | 12(32.4) | 25(67.6) | **12.55(0.028)*** | 1.44(0.47, 4.42) (0.518) | **2.81(1.17, 6.73) (0.021)*** |
| **Family's Estimated Monthly Income (GHS)** | | | | | |
| 1001-2000 | 4(30.8) | 9(69.2) | | Ref | Ref |
| Less than 500 | 29(53.7) | 25(46.3) | | 0.37(0.90, 1.53) (0.170) | 0.38(0.11, 1.40) (0.146) |
| 500-1000 | 20(40.0) | 30(60.0) | | 0.68(0.16, 2.79) (0.590) | 0.67(0.18, 2.46) (0.543) |
| More than 2000 | 6(28.6) | 15(71.4) | | 1.44(0.28, 7.49) (0.667) | 1.11(0.25, 5.03) (0.891) |
| Don't know | 99(42.5) | 134(57.5) | 5.30(0.258) | 0.59(0.16, 2.22) (0.439) | 0.60(0.18, 2.01) (0.409) |
| **Menstruation and Menstrual hygiene Knowledge** | | | | | |
| Poor knowledge | 61(61.0) | 39(39.0) | | Ref | Ref |
| Adequate knowledge | 97(35.8) | 174(64.2) | **18.98(0.000)*** | **2.48(1.47, 4.16) (0.001)** | **2.78(1.73, 4.45) (0.000)*** |
| **Practice of menstrual hygiene** | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| Poor practice | 88(53.0) | 78(47.0) | | Ref | Ref |
| Adequate practice | 70(34.2) | 135(65.9) | **13.35(0.000)*** | 1.46(0.92, 2.35) (0.109) | **1.63(1.07, 2.48) (0.022)*** |

Table 4.7 presents the results of bivariate and multivariate analyses assessing the association between various socio-demographic variables and menstrual hygiene practices among adolescent girls. Overall, ethnicity, family structure, income, and attitude showed statistically significant associations with menstrual hygiene practices. Participants who identified as ewe were 10.70 times more likely to practice menstrual hygiene than others [aOR = 10.70, 95% CI: 1.28-89.46; $p = 0.029$]. Participants who identified as Busanga/Nuhanu were 10.5 times more likely to practice menstrual hygiene than others [aOR = 10.5, 95% CI: 1.11-98.9; $p = 0.040$]**.** Girls living with their fathers only were significantly 2.90 times more likely to practice good menstrual hygiene compared to those living with both parents [aOR = 2.90, 95% CI: 1.03-8.13; $p = 0.043$]. Participants with a monthly family income of more than GHS 2000 were 83% less likely to practice good menstrual hygiene compared to those with a monthly family income between 1000-2000 [aOR = 0.17, 95% CI: 0.03-0.94; $p = 0.042$]. Participants with a good attitude towards menstrual hygiene were 1.63 times more likely to practice good menstrual hygiene compared to those with a poor attitude [aOR = 1.63, 95% CI: 1.07, 2.48; $p = 0.022$].

**Table 4.7: Factors influencing the practices regarding menstrual hygiene among adolescent girls in Krachi East Municipality.**

| Variable | Menstrual hygiene practice | | Chi-square (X2) (p-value) | cOR (95% CI) (p-value) | aOR (95% CI) (p-value) |
|---|---|---|---|---|---|
| | Poor practice n(%) | Good practice n(%) | | | |
| **Age** | | | | | |
| ≤ 15 years | 14(51.9) | 13(48.2) | | Ref | Ref |
| 15-20 years | 148(44.3) | 186(55.7) | | 1.19(0.49, 2.90) (0.701) | 1.35(0.62, 2.97) (0.450) |
| > 20years | 4(40.0) | 6(60.0) | 0.67(0.716) | 1.07(0.22, 5.28) (0.935) | 1.62(0.37, 7.05) (0.523) |
| **Educational Level** | | | | | |
| Junior High School | 3(75.0) | 1(25.0) | | Ref | Ref |
| No formal education/Other | 2(50.0) | 2(50.0) | | 4.84(0.17, 13.7) (0.356) | 6.0(0.22, 162.53) (0.287) |
| Senior High School | 161(44.4) | 202(55.7) | 1.55(0.461) | 8.26(0.62, 10.9) (0.109) | 3.76(0.39, 36.53) (0.253) |
| **Religion** | | | | | |
| Christianity | 139(44.8) | 171(55.2) | | Ref | Ref |

| | | | | | |
|---|---|---|---|---|---|
| Islam | 15(36.6) | 26(63.4) | | 3.63(0.14, 94.67) (0.439) | 3.0(0.15, 59.89) (0.472) |
| Traditional | 11(57.9) | 8(42.1) | 3.67(0.300) | 7.40(0.59, 93.52) (0.122) | 3.76(0.39, 36.53) (0.253) |
| **Ethnic Group** | | | | | |
| Other | 7(87.5) | 1(12.5) | | Ref | Ref |
| Krachi/Nawuri/Nchumburu | 86(47.3) | 96(52.8) | | **10.27(1.16, 90.70) (0.036)*** | 7.81(0.94, 64.80) (0.057) |
| Ewe | 53(39.6) | 81(60.5) | | 14.48(1.62, 129.29) (0.017) | **10.70(1.28, 89.46) (0.029)*** |
| Busanga/Nuhanu | 10(40.0) | 15(60.0) | | **13.78(1.35, 140.82) (0.027)*** | **10.5(1.11, 98.9) (0.040)*** |
| Ashante | 5(45.5) | 6(54.6) | | 15.50(1.19, 202.41) (0.037) | 8.4(0.76, 93.3) (0.083) |
| Ga/Ada/Ningo | 5(45.5) | 6(54.6) | 8.0715(0.152) | 7.89(0.67, 93.37) (0.101) | 8.4(0.76, 93.3) (0.083) |
| **Family Structure** | | | | | |
| Living with both parents | 104(46.0) | 122(54.0) | | Ref | Ref |
| Living with father only | 5(22.7) | 17(77.3) | | **3.97(1.19, 13.21) (0.025)*** | **2.90(1.03, 8.13) (0.043)*** |
| Living with guardians | 20(50.0) | 20(50.0) | | 0.84(0.41, 1.72) (0.627) | 0.85(0.44, 1.67) (0.642) |
| Living with mother only | 31(41.9) | 43(58.1) | | 1.04(0.59, 1.83) (0.896) | 1.18(0.70, 2.01) (0.536) |
| Other | 6(66.7) | 3(33.3) | 6.90(0.141) | 0.28(0.06, 1.32) (0.106) | 0.43(0.10, 1.75) (0.236) |
| **Mother's Educational Level** | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| No formal education/Don't know | 84(42.9) | 112(54.1) | | Ref | Ref |
| Primary school | 21(46.7) | 24(53.3) | | 1.86(0.67, 5.21) (0.236) | 1.24(0.55, 2.81) (0.602) |
| Junior high school | 28(40.0) | 42(60.0) | | 1.31(0.55, 3.10) (0.539) | 1.63(0.78, 3.42) (0.196) |
| Senior high school | 26(60.5) | 17(39.5) | | 1.22(0.49, 3.08) (0.670) | 0.71(0.31, 1.64) (0.422) |
| Tertiary | 7(41.2) | 10(58.8) | 7.56(0.182) | 1.39(0.47, 4.09) (0.555) | 1.55(0.51, 4.76) (0.441) |
| **Father's Educational Level** | | | | | |
| No formal education/Don't know | 76(47.2) | 85(52.8) | | Ref | Ref |
| Primary school | 13(33.3) | 26(66.7) | | 2.52(0.96, 6.60) (0.059) | 2.15(0.92, 5.06) (0.078) |
| Junior high school | 31(45.6) | 37(54.4) | | 1.75(0.79, 3.87) (0.79) | 1.29(0.63, 2.63) (0.492) |
| Senior high school | 31(47.0) | 35(53.0) | | 1.61(0.70, 3.71) (0.262) | 1.22(0.59, 2.49) (0.595) |
| Tertiary | 15(40.5) | 22(59.5) | 2.86(0.581) | 2.00(0.72, 5.59) (0.184) | 1.58(0.68, 3.68) (0.290) |
| **Family's Estimated Monthly Income (GHS)** | | | | | |
| 1001-2000 | 2(15.4) | 11(84.6) | | Ref | Ref |
| Less than 500 | 25(46.3) | 29(53.7) | | 0.22(0.04, 1.17) (0.076) | 0.21(0.04, 1.04) (0.056) |

| | | | | | |
|---|---|---|---|---|---|
| 500-1000 | 23(46.0) | 27(54.0) | | 0.21(0.04, 1.08) (0.062) | 0.21(0.04, 1.06) (0.059) |
| More than 2000 | 11(52.4) | 10(47.6) | | 0.22(0.04, 1.37) (0.106) | **0.17(0.03, 0.94) (0.042)*** |
| Don't know | 105(45.1) | 128(54.9) | 5.12(0.275) | 0.21(0.04, 1.04) (0.057) | 0.22(0.05, 1.02) (0.053) |
| **Menstruation and Menstrual hygiene Knowledge** | | | | | |
| Poor knowledge | 52(52.0) | 48(48.0) | | Ref | Ref |
| Adequate knowledge | 114(42.1) | 157(57.9) | 2.92(0.088) | 1.45(0.86, 2.45) (0.167) | 1.49(0.94, 2.36) (0.089) |
| **Attitude towards menstrual hygiene** | | | | | |
| Poor attitude | 77(52.0) | 71(48.0) | | Ref | Ref |
| Good attitude | 89(39.9) | 134(60.1) | **5.28(0.022)** | 1.47(0.92, 2.35) (0.105) | **1.63(1.07, 2.48) (0.022)** |

# CHAPTER FIVE

# 5.0 DISCUSSION

## 5.1 Knowledge About Menstruation and Menstrual Hygiene Among Adolescent Girls

The present study found that a majority (73.1%) of adolescent girls in the Krachi East Municipality had adequate knowledge of menstruation and menstrual hygiene. Most participants (86.8%) first learned about menstruation between the ages of 10 and 15 years, with mothers being their main source of information (59.8%). A large proportion (84.1%) correctly identified menstruation as a normal physiological process, and 88.4% knew that the vagina is the source of menstrual blood. However, a considerable number (37.0%) believed menstruation to be a curse from God, while others associated it with certain foods or expressed uncertainty about its cause. These findings reflect both encouraging levels of awareness and lingering misconceptions about menstruation.

Globally, studies indicate that many adolescent girls still lack accurate knowledge about menstruation, despite its universality. The World Health Organization (WHO, 2021) reported that 1.8 billion girls menstruate each month, yet many lack the basic knowledge and facilities to manage it safely. Similarly, UNICEF (2019) highlighted that numerous girls do not fully understand menstruation as a natural biological process and often experience fear or confusion at menarche due to delayed or absent education on reproductive health. The findings of this current study, in which 73.1% demonstrated adequate knowledge, are therefore relatively encouraging when compared to global trends, particularly in low- and middle-income countries where misinformation and taboos remain pervasive.

The relatively high knowledge level found among respondents in Krachi East differs from studies conducted in other developing contexts. For example, Belayneh and Mekuriaw (2019) in Ethiopia

found that 68.3% of adolescent girls had poor knowledge of menstruation, which was significantly associated with poor menstrual hygiene practices. Similarly, a Ghanaian study by Mohammed and Larsen-Reindorf (2020) reported that 53.6% of girls had poor knowledge, indicating that awareness levels vary across settings. The higher level of knowledge in the current study could be attributed to increased educational outreach, better access to information through schools and media, and possibly the influence of health education campaigns within the municipality. It also suggests gradual progress in menstrual health education in Ghana over the past decade.

The current study also found that 40.0% of respondents correctly attributed menstruation to hormonal changes, while 47.4% identified a 28-day menstrual cycle as normal. These findings are consistent with Nsemo et al. (2020) and Ameade and Garti (2016), who observed that Ghanaian adolescent girls generally demonstrated awareness of the menstrual cycle's duration but lacked precise knowledge of the biological cause. However, misconceptions persisted in both studies, with many participants unable to accurately describe the origin of menstrual blood or the physiological process involved. This aligns with Boakye-Yiadom et al. (2018), who reported that many Ghanaian adolescents were unaware of the true cause of menstrual flow. Likewise, the present study's finding that 37% viewed menstruation as a curse underscores how cultural and religious beliefs continue to influence menstrual understanding, as similarly highlighted by UNICEF (2019).

Despite overall adequate knowledge, the fact that 33.7% of participants believed pregnancy cannot occur during menstruation reflects gaps in reproductive literacy. This misconception could have implications for sexual health education, as it may contribute to unprotected sexual activity and unintended pregnancies. These findings correspond with the observation by UNICEF (2019) that menstrual education is often incomplete and rarely linked with broader reproductive health

awareness. Moreover, the current study's evidence that most girls relied on mothers (59.8%) for information echoes the findings of Mohammed and Larsen-Reindorf (2020) and Boakye-Yiadom et al. (2018), who found that adolescent girls primarily depend on family members rather than teachers or health professionals for information. While this highlights the importance of parental involvement, it also suggests that misinformation may persist when parents themselves lack an accurate understanding.

Interestingly, a similar study among senior high school girls in the Volta Region reported that 74.7% knew menstruation occurs monthly and 52.8% accurately identified the average duration (Nsemo et al., 2020). These figures closely mirror those from the present study, suggesting a comparable regional trend. However, the persistence of misconceptions such as the belief that menstrual blood is unclean, as noted by Nsemo et al. (2020), points to deeply rooted cultural taboos that formal education alone has yet to fully dispel.

The disparities between this study and others could be due to variations in educational exposure, socioeconomic status, and cultural openness regarding reproductive health. Unlike the Bangladeshi context, where only 6% of schools taught health and hygiene (World Bank Group, 2023), Ghana's growing emphasis on adolescent health education might explain the higher knowledge levels in Krachi East. Additionally, exposure to digital and community-based health campaigns could have contributed to improved awareness among adolescents in this area. Nevertheless, the persistence of misconceptions, such as viewing menstruation as a curse or disease, supports the claim by UNICEF (2019) and Mohammed and Larsen-Reindorf (2020) that cultural taboos continue to limit accurate knowledge transmission.

The findings underscore the importance of strengthening comprehensive menstrual health education at both community and school levels. Programmes should not only target girls but also

engage parents, teachers, and health workers to ensure that accurate biological and hygienic information is consistently conveyed. Empowering mothers with correct knowledge could help correct misinformation that is culturally transmitted. Overall, this study contributes to the growing body of evidence that improving menstrual literacy is fundamental to achieving broader public health and development objectives, particularly SDG 3 (Good Health and Well-being), SDG 4 (Quality Education), SDG 5 (Gender Equality), and SDG 6 (Clean Water and Sanitation).

## 5.2 Attitudes of Adolescent Girls Towards Menstruation and Menstrual Hygiene Management

The present study revealed that more than half (57.4%) of the adolescent girls in Krachi East Municipality demonstrated good attitudes towards menstruation and menstrual hygiene. Most respondents viewed menstruation as a normal biological process, were comfortable discussing it with family members, and recognised the importance of hygiene during menstruation. However, misconceptions persisted among a section of participants, including beliefs that girls should avoid sports or that menstruation signifies readiness for marriage.

These findings suggest a progressive shift toward positive attitudes, contrasting earlier studies that reported widespread misconceptions and stigma. For instance, Boakye-Yiadom et al. (2018) found that only 13.6% of adolescent girls in the Yendi Municipality had positive attitudes toward menstrual hygiene, while the majority (86.4%) held negative views. Similarly, Uzoechi et al. (2023) in Nigeria reported that 70.3% of adolescent girls exhibited negative attitudes, often driven by fear, shame, and the influence of male family members who perceived menstruation as unclean. In comparison, the current study indicates a substantial improvement in menstrual attitude among Ghanaian adolescents, which could reflect growing awareness through school-based health education, media advocacy, and community interventions in recent years.

Despite this improvement, the persistence of some restrictive beliefs in the present study, such as avoiding sports or perceiving menstruation as linked to marriage readiness, aligns with earlier observations by Mohammad et al. (2018) in Papua New Guinea, Solomon Islands, and Fiji, where menstruation was viewed as polluting and spiritually dangerous. These beliefs, though less dominant in Krachi East, illustrate the lingering cultural and religious taboos that continue to shape menstrual attitudes in many low- and middle-income contexts. The association between parental education (particularly father's educational level) and participants' attitudes further underscores the role of family influence and intergenerational transmission of beliefs, as noted by Johnston-Robledo and Chrisler (2020), who argued that women's psychological and cultural experiences shape their menstrual perceptions and behaviours.

The disparities between the current findings and previous studies could be attributed to several factors. First, increasing national and regional campaigns on adolescent reproductive health, including school health programmes and NGO-led menstrual hygiene education, may have improved awareness and reduced stigma in Ghana's Volta Region. Second, urbanisation and access to digital information may have enhanced adolescent girls' understanding of menstruation, replacing traditional taboos with scientific knowledge. Third, methodological differences such as sample size, population age, and data collection period may also account for variations in attitude levels across studies.

From a public health perspective, these findings have meaningful implications. A positive attitude toward menstruation promotes open communication, timely health-seeking behaviour, and consistent hygienic practices, which together reduce the risk of reproductive tract infections and school absenteeism. Strengthening parental involvement, particularly among fathers, could further normalise menstruation conversations and dismantle socio-cultural stigma. Moreover,

incorporating culturally sensitive menstrual education into school curricula can sustain the progress achieved and address remaining misconceptions.

### 5.3 Menstrual Hygiene Practices of Adolescent Girls

The present study found that slightly more than half (55.3%) of adolescent girls in the Krachi East Municipality demonstrated adequate menstrual hygiene practices. Most participants reported using disposable sanitary pads (82.2%) and changing them every 4–6 hours, which aligns with global recommendations for hygienic management. Furthermore, a majority bathed daily and disposed of used materials safely, mainly by burning or wrapping and discarding them in bins. However, a considerable proportion still exhibited suboptimal practices, such as using old rags (7.6%), infrequent pad changing, and unsafe disposal methods. Notably, 57.4% of participants reported missing school during menstruation due to pain, lack of sanitary materials, fear of staining, or inadequate toilet facilities.

Globally, poor menstrual hygiene practices remain a pressing concern. The World Bank Group (2023) estimates that nearly 500 million females lack access to adequate menstrual products and safe facilities. According to the WHO/UNICEF Joint Monitoring Programme, effective menstrual hygiene management (MHM) requires clean absorbents, privacy, soap, water, and safe disposal options (Sommer & Sahin, 2013). The findings from the current study, showing that most girls used disposable pads and had access to water and private toilets, indicate better MHM compared to many low-resource settings. However, the persistence of unsafe disposal practices and absenteeism signals that infrastructural and educational gaps remain.

Studies across sub-Saharan Africa highlight similar challenges. Tamiru et al. (2015) and Mason et al. (2018) reported that many adolescent girls lacked access to clean and private toilets, soap, or

disposal facilities, leading to poor menstrual hygiene. Likewise, Sommer et al. (2016) observed that limited access to absorbents, sanitation, and privacy often forces girls to adopt unhygienic practices, heightening their risk of infection and social stigma. Although Krachi East participants appear to fare better than those in many rural African settings, the persistence of unsafe disposal and limited menstrual-friendly school facilities suggests systemic barriers consistent with these reports.

In Ghana, the current study's findings both align with and differ from previous evidence. For example, Abor (2022) found that although most Ghanaian schoolgirls used sanitary pads, less than half were able to change them twice daily, and many cleaned their genital areas only during bathing. Similarly, Kumbeni et al. (2020) reported that while pad use was relatively high in northern Ghana, schools lacked essential amenities such as water, soap, and privacy, and disposal methods were unsatisfactory. The higher level of proper pad use and frequency of change reported in the current study may reflect improvements in health education, availability of affordable sanitary products, or urban exposure in the Krachi East Municipality compared to the northern regions.

Nevertheless, the high rate of school absenteeism during menstruation (57.4%) found in this study mirrors concerns raised by Hennegan et al. (2016), who noted that discomfort, shame, and poor sanitation in schools limit girls' classroom participation and concentration. These findings suggest that while individual hygiene practices are improving, environmental and institutional barriers, particularly inadequate school WASH facilities and menstrual stigma, continue to undermine menstrual health management. Disparities between the current study and previous ones may stem from contextual and socioeconomic differences. Krachi East is an expanding municipality with improving infrastructure and likely greater access to menstrual health education through school

health programmes and non-governmental initiatives. In contrast, studies reporting poorer outcomes were often conducted in more rural or underdeveloped areas, where taboos, poverty, and lack of health education prevail. Moreover, social attitudes toward menstruation, often influenced by cultural and religious beliefs, may discourage open discussion and limit knowledge sharing about safe menstrual practices.

From a public health perspective, these findings reinforce the need for comprehensive menstrual health interventions that go beyond personal hygiene education. Schools should be equipped with private, gender-sensitive facilities that provide clean water, soap, and disposal bins. Community-based education and parental involvement are equally crucial to dismantle taboos and support girls in managing menstruation with dignity. Access to affordable sanitary products must be prioritised, as cost remains a major determinant of hygiene behaviour. Furthermore, policies that address menstrual health as part of broader sexual and reproductive health education could significantly reduce absenteeism and promote gender equity in education.

### 5.4 Factors That Influence the Knowledge, Attitudes, and Practices Regarding Menstrual Hygiene Among Adolescent Girls

The present study revealed that fathers' educational level and participants' attitudes were significantly associated with menstrual hygiene knowledge. Furthermore, participants' age, religion, mothers' and fathers' educational levels, knowledge, and practices were significant predictors of attitude, while ethnicity, family structure, income, and attitude showed significant associations with menstrual hygiene practices. These findings highlight the complex interplay of sociodemographic and behavioural factors that influence menstrual hygiene management among adolescent girls.

The association between parental education, particularly fathers' education and menstrual hygiene knowledge aligns with findings from China, where maternal education, family income, and family type were found to influence menstrual knowledge, attitudes, and practices (Borjigen et al., 2019). Educated parents are more likely to provide accurate information, access sanitary materials, and foster open communication about menstruation. However, unlike Borjigen et al.'s study, where maternal education was the stronger predictor, the current study found the father's educational level more influential. This disparity may be explained by differing gender roles and decision-making power across cultural settings. In some Ghanaian households, fathers' educational attainment directly affects household socioeconomic status and access to information, indirectly shaping girls' awareness.

Consistent with Shah et al. (2019) and Sommer and Sahin (2013b), the present study reinforces that socio-cultural norms and taboos still hinder open discussions about menstruation. Adults' reluctance to discuss menstrual issues often leaves girls uninformed or misinformed, which can explain why attitude was significantly influenced by both knowledge and parental education. Similarly, WaterAid (n.d.) and Abor (2022) reported that mothers often emphasise rituals and restrictions rather than health education, perpetuating misinformation and negative perceptions about menstruation. This cultural transmission of taboos could explain why religion and family structure in the present study significantly influenced attitudes and practices.

The significant link between income and menstrual hygiene practices corroborates findings from Bangladesh, where higher socioeconomic status was associated with better knowledge and hygienic behaviours (Shah et al., 2019). Economic constraints may limit girls' ability to access sanitary pads and private facilities for changing, as observed by Montgomery et al. (2012) in Ghana. The latter study also linked poor school attendance during menstruation to poverty and

inadequate water and sanitation infrastructure. These conditions mirror the broader environmental and structural challenges identified by House and Cavill (2013), which threaten the achievement of Sustainable Development Goals (SDGs) 4, 5, and 6 relating to education, gender equality, and sanitation.

However, unlike Dorgbetor's (2015) study, which found that active classroom discussions improved confidence and hygiene practices, the present findings suggest that attitude and knowledge were primarily shaped by family-related and socioeconomic factors rather than school-based engagement. This may be due to limited teacher involvement or the absence of structured menstrual hygiene education in the study area, reinforcing earlier observations that menstruation is often neglected in school health programmes.

The findings underscore the need for comprehensive menstrual hygiene education that engages both parents and schools. Interventions should not only target mothers but also fathers, recognising their influential role in determining household priorities and health information flow. Strengthening school-based education, improving water and sanitation facilities, and addressing cultural taboos through community outreach can enhance girls' knowledge, attitudes, and practices. From a public health perspective, these measures would contribute to improving adolescent reproductive health, promoting school attendance, and supporting progress toward gender equality and environmental sustainability.

# CHAPTER SIX

# 6.0 CONCLUSION AND RECOMMENDATION

## 6.1 Conclusion

This study on menstrual hygiene knowledge, attitudes, and practices among adolescent girls in Krachi East Municipality revealed important insights into their menstrual health behaviours and challenges. Most respondents (73.1%) demonstrated adequate knowledge of menstruation as a normal biological process, though a few still perceived it as a curse or disease. Mothers were identified as the primary source of information, yet knowledge gaps remained regarding reproductive anatomy and menstrual health. Attitudes toward menstruation were generally positive, with 57.4% of participants expressing favourable views. Nonetheless, cultural stigmas and restrictions such as avoiding sports or kitchen activities during menstruation persisted.

Menstrual hygiene practices were adequate among 55.3% of participants, with disposable sanitary pads being the most commonly used product. However, inadequate disposal methods, inconsistent access to clean water and private toilets, and school absenteeism due to menstrual discomfort underscored persistent structural and systemic barriers. Statistical analysis showed significant associations between sociodemographic factors and menstrual hygiene outcomes. Fathers' educational level and participants' attitudes were significantly associated with menstrual hygiene knowledge. Age, religion, and parental educational status were associated with attitudes toward menstruation, while ethnicity, family structure, income, and attitudes were significantly related to menstrual hygiene practices.

This study contributes to existing knowledge by providing one of the few empirical assessments of menstrual hygiene knowledge, attitudes, and practices among adolescent girls in Krachi East

Municipality a rural context that has received limited scholarly attention. It enriches the evidence base on how socio-demographic and cultural factors intersect to shape menstrual health outcomes in resource-constrained settings. Methodologically, the study applied a descriptive cross-sectional design supported by statistical analysis to identify associations between key variables, offering a replicable framework for similar studies in other rural Ghanaian districts. The integration of both quantitative findings and contextual insights also enhances understanding of how cultural norms and infrastructure deficits jointly influence menstrual hygiene behaviour.

### 6.2 Recommendation

Based on findings of the study;

- The government should subsidise or distribute low-cost sanitary products in schools and communities, prioritising reusable options like cloth pads to ensure sustainability.
- The government must develop policies that mandate menstrual health education and free sanitary products in schools, aligning with Ghana's SDG commitments to health and gender equality and also implement systems to track the impact of interventions and adjust strategies based on feedback from girls and communities.
- Urgent steps must be taken to improve water, sanitation and hygiene in schools and the community at large, to improve menstrual hygiene among adolescent girls.
- Schools and other institutions must collaborate with community leaders and religious institutions to challenge stigmatising norms and promote gender-inclusive conversations about menstruation.
- Schools must also establish peer-led initiatives where trained adolescent girls share accurate information and support their peers, fostering open discussions.

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## APPENDICES

### Appendix I (Informed Consent)

INFORMED CONSENT

Participant ID……

Date …….

**TITLE OF STUDY:** KNOWLEDGE, ATTITUDE, AND PRACTICES REGARDING MENSTRUAL HYGIENE AMONG ADOLESCENT GIRLS AT KRACHI EAST MUNICIPALITY.

**General Information about Research**

This study seeks to investigate the knowledge, attitudes, and practices (KAP) regarding menstrual hygiene among adolescent girls in Krachi East Municipality, Ghana. The research aims to provide evidence-based insights that can inform public health policy formulation, adequate healthcare provision, effective menstrual health education, and community awareness-building efforts in the Krachi East Municipality area and similar regions in Ghana.

Participation in this study will take approximately 15 minutes. You will be asked to answer a series of questions about your understanding of menstruation, your attitudes towards menstrual hygiene, and your current menstrual hygiene practices. Your role is to provide accurate answers based on your knowledge and experiences. There were right or wrong answers, so please feel free to respond honestly and ask for clarification if needed.

**Risks/Benefits of the study**

There were foreseeable direct risks associated with participation in this study, except for your time (15 mins) to be spent answering the questions.

There were direct benefits to you but the findings will inform healthy public policy formulation, adequate healthcare provision, and effective menstrual health education, and awareness-building in your community and Ghana as a whole.

No data you provided was disclosed to anybody except my supervisor. The data will not associate any individual with specific responses. Thus, by signing this written consent form, you or your representative is authorizing such access. You have the right to access information about you collected as part of the study.

**Compensation**

There were compensation packages except verbal appreciation. However, a pen each was given to each participant at the end of the study.

**Withdrawal from Study**

Your participation in this study is voluntary and you may withdraw at any time without penalty. You will not be adversely affected if you decline to participate or later stop participating. You or your legal representative was informed in a timely manner if information becomes

available that may be relevant to your willingness to continue participation or withdraw.

Name of Participant Date

……. ……

Signature or mark of participant

……

I certify that the nature and purpose, the potential benefits, and possible risks associated with participating in this research have been fully explained to me.

**Contact for Additional Information**

Please contact me in case of any issues related to the study:

Principal Researcher: Kyei Emmanuel Baffour

Ensign Global College

Kpong

**kyei.baffour@st.ensign.edu.gh**

0241894094

## Appendix II (Child Assent Form)

CHILD ASSENT FORM

**TITLE OF STUDY: KNOWLEDGE, ATTITUDE, AND PRACTICES REGARDING MENSTRUAL HYGIENE AMONG ADOLESCENT GIRLS AT KRACHI EAST MUNICIPALITY.**

### Introduction

My name is Kyei Baffour Emmanuel, a student of Ensign Global College in Kpong. I am conducting a research project on the topic, "Knowledge, Attitude, And Practices Regarding Menstrual Hygiene Among Adolescent Girls in Krachi East Municipality". I am hereby asking you to participate in this study since it will help me to know how knowledgeable adolescents are when it comes to menstrual hygiene. If you agree to be in this study, you will be asked to answer some questions.

### Possible Benefits

Your participation in this study will help know the extent of damage on education in your district. A pen or pencil was given you after participation.

### Possible Risks and Discomforts

There are no associated risks for you or your parents.

### Voluntary Participation and Right to Leave the Research

You can stop participating at any time if you feel uncomfortable. No one was angry with you if you do not want to participate.

**Confidentiality**

Your information was kept confidential. No one was able to know how you responded to the questions, and your information was anonymous.

**Contacts for Additional Information**

You may ask me any questions about this study. You can call me at any time [0241894094] or talk to me the next time you see me. Kindly discuss this study with your parents before deciding whether to participate. I will also seek permission from your parents before you are enrolled on the study. Even if your parents say "yes", you can still decide not to participate.

**Your rights as a Participant**

This research has been reviewed and approved by Institutional Review Board of Ensign Global College, Kpong. If you have any questions about your rights as a research participant, you can contact the IRB Office of the school between the hours of 8:00 am-5:00pm through the office mobile phone: 0245762229 or through the school's email address: registrar@ensign.edu.gh

**Child's Name: ……** **Researcher's Name…….**

**Child's Mark/Thumbprint……** **Researcher's Signature……**

**Date:** …….. **Date:** ……..

## Appendix III (Survey Questionnaire)

Survey Questionnaire: Menstrual Hygiene Knowledge, Attitudes, and Practices

**Section A: Demographic Information**

1. Age: _____ years
2. Educational level:

   [ ] No formal education

   [ ] Primary school

   [ ] Junior high school

   [ ] Senior high school

   [ ] Other (specify): _____
3. Religion:

   [ ] Christianity

   [ ] Islam

   [ ] Traditional

   [ ] Other (specify): _____
4. Ethnicity: _____
5. Family structure:

   [ ] Living with both parents

   [ ] Living with mother only

   [ ] Living with father only

   [ ] Living with guardians

   [ ] Other (specify): _____

6. Mother's educational level:

   [ ] No formal education

   [ ] Primary school

   [ ] Junior high school

   [ ] Senior high school

   [ ] Tertiary

   [ ] Don't know

7. Father's educational level:

   [ ] No formal education

   [ ] Primary school

   [ ] Junior high school

   [ ] Senior high school

   [ ] Tertiary

   [ ] Don't know

8. Family's monthly income (estimate):

   [ ] Less than 500 GHS

   [ ] 500 - 1000 GHS

   [ ] 1001 - 2000 GHS

   [ ] More than 2000 GHS

   [ ] Don't know

**Section B: Knowledge about Menstruation and Menstrual Hygiene**

9. At what age did you first hear about menstruation? _____ years

10. What was your main source of information about menstruation? (Choose one)

    [ ] Mother

    [ ] Sister

    [ ] Friends

    [ ] Teacher

    [ ] Health worker

    [ ] Media (TV, radio, internet)

    [ ] Other (specify): _____

11. What is menstruation? (Choose one)

    [ ] A disease

    [ ] A normal physiological process

    [ ] A curse

    [ ] Don't know

12. What causes menstruation? (Choose one)

    [ ] Hormones

    [ ] Curse from God

    [ ] Eating certain foods

    [ ] Don't know

13. From which part of the body does menstrual blood come? (Choose one)

    [ ] Vagina

[ ] Uterus

[ ] Bladder

[ ] Don't know

14. What is the average length of the menstrual cycle?

[ ] 14 days

[ ] 28 days

[ ] 45 days

[ ] Don't know

15. How long does menstruation typically last?

[ ] 1-2 days

[ ] 3-7 days

[ ] 10-14 days

[ ] Don't know

16. Can a girl become pregnant during her menstrual period?

[ ] Yes

[ ] No

[ ] Don't know

17. Which of the following are signs of menstruation? (Select all that apply)

[ ] Abdominal pain

[ ] Breast tenderness

[ ] Mood changes

[ ] Fatigue

[ ] Headache

[ ] Don't know

18. What materials can be used for menstrual hygiene management? (Select all that apply)

[ ] Disposable sanitary pads

[ ] Reusable cloth pads

[ ] Tampons

[ ] Menstrual cups

[ ] Toilet paper

[ ] Old cloth/rags

[ ] Don't know

19. How often should menstrual hygiene materials be changed?

[ ] Once a day

[ ] Every 4-6 hours

[ ] Only when it feels uncomfortable

[ ] Don't know

20. What is the proper way to dispose of used menstrual hygiene materials?

[ ] Throw in open areas

[ ] Flush down the toilet

[ ] Wrap and dispose in a waste bin

[ ] Burn

[ ] Don't know

**Section C: Attitudes towards Menstruation**

For the following statements, please indicate your level of agreement: (1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree)

21. Menstruation is a normal process for women.

    1 [ ] 2 [ ] 3 [ ] 4 [ ] 5 [ ]

22. I feel comfortable discussing menstruation with my family.

    1 [ ] 2 [ ] 3 [ ] 4 [ ] 5 [ ]

23. I feel embarrassed about having my period.

    1 [ ] 2 [ ] 3 [ ] 4 [ ] 5 [ ]

24. Girls should not participate in sports or physical activities during menstruation.

    1 [ ] 2 [ ] 3 [ ] 4 [ ] 5 [ ]

25. It is important to maintain good hygiene during menstruation.

    1 [ ] 2 [ ] 3 [ ] 4 [ ] 5 [ ]

26. Menstruation is a sign that a girl is ready for marriage.

    1 [ ] 2 [ ] 3 [ ] 4 [ ] 5 [ ]

27. Girls should not cook or enter the kitchen during menstruation.

    1 [ ] 2 [ ] 3 [ ] 4 [ ] 5 [ ]

28. It is acceptable to miss school because of menstruation.

    1 [ ] 2 [ ] 3 [ ] 4 [ ] 5 [ ]

29. Boys should be educated about menstruation.

    1 [ ] 2 [ ] 3 [ ] 4 [ ] 5 [ ]

30. Menstruation is a topic that should be openly discussed in society.

    1 [ ] 2 [ ] 3 [ ] 4 [ ] 5 [ ]

**Section D: Menstrual Hygiene Practices**

31. What type of menstrual hygiene material do you primarily use? (Choose one)

    [ ] Disposable sanitary pads

    [ ] Reusable cloth pads

    [ ] Tampons

    [ ] Menstrual cups

    [ ] Old cloth/rags

    [ ] Other (specify): _____

32. How often do you change your menstrual hygiene material?

    [ ] Once a day

    [ ] Every 4-6 hours

    [ ] Only when it feels uncomfortable

    [ ] Other (specify): _____

33. Where do you usually change your menstrual hygiene material?

    [ ] At home

    [ ] At school

    [ ] Public toilets

    [ ] Other (specify): _____

34. How do you dispose of used menstrual hygiene materials?

    [ ] Throw in open areas

[ ] Flush down the toilet

[ ] Wrap and dispose in a waste bin

[ ] Burn

[ ] Other (specify): _____

35. How do you clean reusable menstrual hygiene materials? (If applicable)

[ ] Wash with water only

[ ] Wash with water and soap

[ ] Wash and boil

[ ] Other (specify): _____

[ ] Not applicable

36. How do you dry reusable menstrual hygiene materials? (If applicable)

[ ] In direct sunlight

[ ] In shade

[ ] Inside the house

[ ] Other (specify): _____

[ ] Not applicable

37. Do you have access to clean water for menstrual hygiene?

[ ] Yes, always

[ ] Sometimes

[ ] No

38. Do you have access to private toilets/bathrooms for changing menstrual materials?

[ ] Yes, always

[ ] Sometimes

[ ] No

39. Do you take a bath during menstruation?

[ ] Yes, daily

[ ] Yes, but not daily

[ ] No

40. Have you ever missed school due to menstruation?

[ ] Yes

[ ] No

41. If yes, what was the main reason for missing school? (Choose one)

[ ] Pain/discomfort

[ ] Lack of menstrual hygiene materials

[ ] Fear of staining clothes

[ ] Lack of proper toilets at school

[ ] Other (specify): _____

[ ] Not applicable

42. Do you experience any of the following during menstruation? (Select all that apply)

[ ] Abdominal pain

[ ] Headache

[ ] Fatigue

[ ] Mood changes

[ ] None of the above

43. How do you manage menstrual pain? (Select all that apply)

[ ] Take pain medication

[ ] Use hot water bottle/heat pad

[ ] Rest

[ ] Exercise

[ ] Other (specify): _____

[ ] Not applicable

44. Do you face any challenges in obtaining menstrual hygiene materials?

[ ] Yes

[ ] No

45. If yes, what are the main challenges? (Select all that apply)

[ ] Cost

[ ] Availability

[ ] Embarrassment in purchasing

[ ] Lack of knowledge about options

[ ] Other (specify): _____

[ ] Not applicable

## Appendix IV: Ethical Clearanc

ENSIGN GLOBAL
COLLEGE

OUR REF: ENSIGN/IRB/EL/SN-282/01
YOUR REF:

January 8, 2025

**INSTITUTIONAL REVIEW BOARD SECRETARIAT**

Emmanuel Baffour Kyei
Ensign Global College
Kpong.

Dear Emmanuel,

**ETHICAL CLEARANCE TO UNDERTAKE POSTGRADUATE RESEARCH**

At the General Research Proposals Review Meeting of the *INSTITUTIONAL REVIEW BOARD (IRB)* of Ensign Global College held on Wednesday, January 8, 2025, your research proposal entitled **"Knowledge, Attitude, and Practices Regarding Menstrual Hygiene among Adolescent Senior High School Girls in the Krachi-East Municipality of Ghana"** was considered.

You have been granted Ethical Clearance to collect data for the said research under academic supervision within the IRB's frameworks and guidelines.

We wish you all the best.

Sincerely,

Dr. (Mrs.) Rebecca Acquaah-Arhin
**IRB Chairperson**

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