

**MENSTRUAL HYGIENE MANAGEMENT AND ITS ASSOCIATED FACTORS
AMONG ADOLESCENT GIRLS IN TAPAC SUBCOUNTY, MOROTO DISTRICT
KARAMOJA REGION**

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**UGANDA CHRISTIAN
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DECLARATION

I, **Loma Esther**, declare that this research report titled “**Menstrual Hygiene Management and associated factors among adolescent girls in Tapac Sub county, Moroto District, Karamoja region**” is my own original work and that it has not been presented to UCU or any other university for a similar or any other degree award.

Signature 

Date: 25/06/2025

APPROVAL

This is to certify that this research dissertation entitled “**Menstrual Hygiene Management and associated factors among adolescent girls in Tapac Sub county, Moroto district, Karamoja region**” was written under my supervision and that I am satisfied with the contents therein up to this stage of research report.



Rev. Canon Evatt M. Mugarura

(Supervisor)

Date: 24/06/2025

DEDICATION

I dedicate this work to my late father, Mr. Dowan Samuel Albino, and my beloved mother, Mrs. Alice Otyang, whose guidance, wisdom, and enduring inspiration continue to shape my journey.

To my cherished children, Napala Maria Trini, Naru Antonia, and Sagal Austin, thank you for your love, patience, and constant motivation throughout this process.

I also dedicate this study to all adolescent girls in Tapac Sub-county and the wider Karamoja region, whose lived experiences inspired this research and whose wellbeing remains central to its purpose.

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DEFINITION OF KEY TERMS

Terms	Definitions
Adolescent Girl	A female individual aged 10–19 years, as defined by the World Health Organization, undergoing physical, psychological, and reproductive development, including the onset of menstruation.
Menstruation	A natural biological process involving the periodic shedding of the uterine lining through vaginal bleeding as part of the female reproductive cycle.
Menstrual Hygiene Management (MHM)	The ability of women and adolescent girls to use clean menstrual management materials, maintain personal hygiene, and access adequate water, sanitation, and privacy to manage menstruation safely, comfortably, and with dignity.
Adequate Menstrual Hygiene Management	The consistent practice of recommended menstrual hygiene behaviors, including the use of appropriate absorbent materials, regular changing of materials, proper washing, and safe disposal, supported by access to water, sanitation, and privacy.
Inadequate Menstrual Hygiene Management	The failure to meet recommended standards of menstrual hygiene practices, including the use of unsafe materials, poor hygiene practices, and limited access to sanitation facilities.
Menstrual Hygiene Materials	Products used to absorb or collect menstrual blood, including disposable sanitary pads, reusable pads, cloth, and other locally available materials.
Knowledge of Menstrual Hygiene	The level of understanding and awareness of menstruation, including appropriate hygiene practices, materials, and associated health risks.
Intrapersonal Factors	Individual characteristics such as age, educational status, menstrual cycle characteristics, and knowledge that influence menstrual hygiene practices.
Interpersonal Factors	Social and relational influences, including parental education, family support, and household dynamics, that affect menstrual hygiene management.

Community Factors	Environmental and institutional conditions such as school policies, cultural norms, and availability of sanitation facilities that shape menstrual hygiene practices.
School-going Adolescent	An adolescent girl who is currently enrolled in and attending a formal educational institution.
Out-of-school Adolescent	An adolescent girl who is not enrolled in any formal education institution at the time of the study.
Menstrual Cycle Regularity	The consistency of menstrual cycles occurring at predictable intervals, typically between 21 and 35 days.
Menstrual Duration	The number of days menstrual bleeding lasts during a cycle, typically ranging between 3 and 7 days.
Reproductive Tract Infections (RTIs)	Infections affecting the reproductive organs, often associated with poor hygiene practices, including inadequate menstrual hygiene management.
Human Immunodeficiency Virus (HIV)	A virus that attacks the immune system and reduces the body's ability to fight infections, with vulnerability potentially exacerbated by poor hygiene and health conditions.
Sexually Transmitted Infections (STIs)	Infections transmitted through sexual contact, which may be influenced by poor reproductive health practices.
School Absenteeism	Failure to attend school during menstruation due to challenges related to menstrual hygiene management, discomfort, stigma, or lack of facilities.
School Dropout	Permanent withdrawal from school, which may result from repeated absenteeism and other socio-economic or health-related challenges.
Adolescent Pregnancy	Pregnancy occurring in girls aged 10 – 19 years, often associated with increased health and social risks.
Household Size	The number of individuals living together in a single household, influencing access to resources and support for menstrual hygiene management.
Parental Education	The level of formal education attained by a parent, which may influence knowledge, attitudes, and support related to menstrual hygiene.

Parental Support in MHM	The provision of guidance, education, emotional support, and resources by parents to assist adolescent girls in managing menstruation.
School Policy on Menstrual Hygiene	Institutional guidelines or practices that allow or restrict adolescent girls from managing menstruation during school hours.
Sanitation Facilities	Infrastructure such as toilets, bathrooms, water sources, and waste disposal systems that enable hygienic practices, including menstrual hygiene management.
Village Health Team (VHT)	A community-based health system in Uganda composed of trained volunteers who provide basic health education and services at the household level.
Period Poverty	Lack of access to menstrual hygiene products, sanitation facilities, and adequate information required to manage menstruation effectively
Multidimensional Poverty	A form of poverty that encompasses multiple deprivations, including lack of access to education, health, sanitation, and living standards, influencing menstrual hygiene practices.

ACRONYMS AND ABBREVIATIONS

AOR	Adjusted Odds Ratio
aPR	Adjusted Prevalence Ratio
CI	Confidence Interval
CSO	Civil Society Organization
HIV	Human Immunodeficiency Virus
MHM	Menstrual Hygiene Management
MoES	Ministry of Education and Sports
MPI	Multidimensional Poverty Index
MPQ	Menstrual Period Questionnaire
NGO	Non-Governmental Organization
PMA2020	Performance Monitoring for Action
PMNCH	Partnership for Maternal, Newborn and Child Health
SPSS	Statistical Package for Social Sciences
STIs	Sexually Transmitted Infections
UBOS	Uganda Bureau of Statistics
UCU	Uganda Christian University
UNDP	United Nations Development Programme
UNFPA	United Nations Population Fund
UNICEF	United Nations Children’s Fund
VHT	Village Health Team
WHO	World Health Organization

ABSTRACT

Background: An estimated 1.8 billion women menstruate globally each month, including adolescent girls in and out of school. Despite being a natural biological process, poor menstrual hygiene management (MHM) exposes adolescent girls to adverse health and social outcomes such as urinary tract infections, reproductive tract infections, HIV infection, mental health challenges, school absenteeism and dropout, and increased risk of adolescent pregnancy. These challenges are more pronounced in Uganda, particularly in the Karamoja sub-region, where access to menstrual hygiene information, materials, and supportive environments remains limited. However, there is limited empirical evidence on MHM adequacy and its associated factors in Tapac Sub-county. **Objective:** To assess menstrual hygiene management and its associated factors among adolescent girls in Tapac Sub-county, Moroto District, Karamoja region. **Methods:** An analytical cross-sectional study design was used among adolescent girls aged 13–18 years in Tapac Sub-county. A multistage sampling technique involving stratification of parishes, random selection of villages, and systematic household sampling was employed. Data were collected using a pre-tested structured questionnaire translated into Ngakarimojong. Data were analyzed using SPSS version 26 using descriptive statistics and log-binomial regression to determine factors associated with adequate MHM. **Results:** The proportion of adolescent girls who adequately practiced menstrual hygiene management was 21%. Factors associated with lower MHM adequacy included younger age (13–15 years) (aPR = 0.313; 95% CI: 0.211–0.465; $p < 0.001$) and menstrual duration of fewer than five days (aPR = 0.523; 95% CI: 0.341–0.802; $p = 0.003$). Factors positively associated with adequate MHM included being currently in school (aPR = 2.099; 95% CI: 1.388–3.174; $p < 0.001$), primary education level (aPR = 2.247; 95% CI: 1.207–4.183; $p = 0.011$), knowledge of appropriate menstrual materials (aPR = 3.284; 95% CI: 2.274–4.743; $p < 0.001$), and regular menstrual cycles (aPR = 2.180; 95% CI: 1.141–4.165; $p = 0.018$). Parental factors such as having an educated mother (aOR = 2.424; 95% CI: 1.394–4.214; $p = 0.002$), educated father (aOR = 1.909; 95% CI: 1.105–3.295; $p = 0.020$), and parental education on MHM – especially from fathers (aPR = 4.283; 95% CI: 2.870–6.392; $p < 0.001$) – were significantly associated with improved MHM. Additional factors included smaller household size, presence of other menstruating schoolgirls, and supportive school policies allowing menstrual management during school hours. **Conclusion:** Menstrual hygiene management among adolescent girls in Tapac Sub-county is inadequate, with only 2 in 10 girls practicing adequate MHM. This places the majority at risk of adverse health and social outcomes. There is a need for integrated, multi-level interventions targeting intrapersonal, interpersonal, and community factors to improve menstrual hygiene practices in the region.

CHAPTER ONE: INTRODUCTIONS

1.1 Background

The world currently has an unprecedented population of adolescents, reported to be at 1.8 billion (23% of the world population) (UNICEF, 2023), which has further buttressed earlier suppositions that adolescents aged 10 – 19 years are a key demographic for sustainable development (Partnership on Maternal Neonatal and Child Health [PMNCH], 2022). It is not surprising that since the 1994 International Conference on Population and Development (ICDP), adolescent health promotion has been at the forefront of many global development programs. In fact, in 2015, the United Nations, for the first time, adopted Every Woman, Every Child agenda 2030, in which adolescent health was included into the international development agenda (Patton et al., 2015). However, while adolescents of both sexes are targeted by such programs, female adolescents have stood out as being of main focus, especially in the area of sexual and reproductive health, premised on evidence that they are disproportionately affected.

More than 80% of all new HIV infections happen among female adolescents; they are twice as likely to be infected with Human Immunodeficiency Virus (HIV) (United Nations Children's Fund [UNICEF], 2023b; World Health Organization [WHO], 2023b). It is still adolescent girls who solely bear the brunt of adolescent pregnancies that are a recognized global health burden (WHO, 2022b; UNFPA, 2022; UNFPA, 2023). Adolescent pregnancies have been significantly linked to school dropout (Sobngwi-Tambekou et al., 2022), however, the commonality between all the aforementioned female adolescent challenges is that they can be independently driven by poor Menstrual Hygiene Management (MHM) (World Vision, 2023; Sharma et al., 2022). Such far-reaching negative effects of poor MHM advertently make poor MHM a global health challenge in its own right, and one that should be prevented with efforts similar to those accorded to the prevention of adolescent pregnancies (World Vision, 2023).

Globally, around 800 million women and girls menstruate daily, including those under 19 years of age (Rohatgi & Dash, 2023; WaterAid, 2023; World Bank, 2022b; UNICEF, 2023c). This natural process spans approximately 30 to 40 years of a woman's life (UNFPA, 2023b). For adolescents, however, menstruation often becomes a source of hardship due to period poverty – the inability to

afford or access appropriate menstrual hygiene products (United Nations, 2023; Michel et al., 2022). Over the past decade, global attention has turned toward strengthening Menstrual Hygiene Management (MHM). According to WHO and UNICEF (2012), MHM entails access to clean menstrual materials, private spaces to change them, soap and water for personal hygiene, and facilities for safe disposal. When any of these are lacking, girls experience inadequate MHM, which has significant health and social implications (UNICEF, 2023c; World Bank, 2022a; World Vision, 2023). Among adolescent girls, poor MHM can lead to shame, stigma, and psychological distress, especially when menstrual accidents occur or hygiene is compromised (Olson et al., 2022; King et al., 2020). These experiences are linked to anxiety, depression, and fear of attending school (McCammon et al., 2020; Kocas et al., 2023), and in severe cases, contribute to school dropout (Webb, 2023). Dropping out of school increases girls' vulnerability to early pregnancy and transactional sex – especially among those already affected by poverty (Irwin et al., 2021; Nanyanzi et al., 2022; UNFPA, 2023). In addition to social consequences, poor MHM has been associated with reproductive tract infections such as candidiasis, bacterial vaginosis, and pelvic inflammatory disease (Daher et al., 2022; Hildebrand & Kansagor, 2022). These conditions can worsen if left untreated due to poverty, and increase susceptibility to HIV and other sexually transmitted infections (STIs) (Stanford Health Care, 2023; UNAIDS, 2023). Despite ongoing global and national efforts, access to adequate MHM remains limited. Only 20 –55% of girls in Africa are estimated to practice adequate MHM (Anbesu & Asgedom, 2023; Bulto, 2021), and in Uganda, up to 10% of primary school dropouts are attributed to poor MHM (World Vision Uganda, 2019). In Moroto District, the situation is particularly alarming, with nearly 70% of adolescent girls experiencing period poverty (Welt Hunger Hilfe, 2023), underscoring a critical public health and development challenge.

1.2 Problem Statement

Despite increasing national and global attention to menstrual hygiene management (MHM), period poverty remains a persistent challenge in Uganda, particularly in hard-to-reach regions such as Moroto District. Empirical evidence shows that Karamoja Sub-region experiences severe socio-economic and sanitation deprivations that may exacerbate menstrual hygiene challenges. The Uganda Bureau of Statistics (UBOS) Multidimensional Poverty Index Report indicates that 56.9% of people in Karamoja experience multidimensional poverty, compared to the national average, and

more than 60% of households lack access to improved sanitation facilities, reflecting significant hygiene constraints (UBOS MPI Report, 2024; UBOS Census, 2024).

National survey data further show that over 65% of women and girls in Uganda have unmet menstrual hygiene management needs, particularly in relation to access to sanitary materials, safe water, and private sanitation facilities (PMA2020/Uganda). In Moroto District, reports indicate that over 60% of women and girls are unable to afford menstrual hygiene products, resulting in reliance on unhygienic materials, irregular changing of absorbents, and limited privacy during menstruation (Welt Hunger Hilfe, 2023). These practices have been associated with adverse outcomes such as reproductive tract infections, school absenteeism, and disruption of education among adolescent girls.

Although various interventions have been implemented to improve menstrual health, there is limited empirical evidence on the prevalence of adequate MHM and its associated factors among adolescent girls in Tapac Sub-county. This lack of localized data limits evidence-based planning and context-specific intervention design. Therefore, it is necessary to assess the prevalence of adequate menstrual hygiene management and the associated factors among adolescent girls in Tapac Sub-county, Moroto District.

1.3 Objectives of the study

1.3.1 General objective

To assess menstrual hygiene management and its associated factors among adolescent girls in Tapac sub county, Moroto district- Karamoja region

1.3.2 Specific objectives

1. To determine the proportion of adolescent girls in Tapac sub county, Moroto district- Karamoja region, who adequately manage their menstrual hygiene
2. To determine the intrapersonal factors associated with menstrual hygiene management among adolescent girls in Tapac sub county, Moroto district- Karamoja region
3. To establish the interpersonal factors associated with menstrual hygiene management among in-school adolescent girls in Tapac sub county, Moroto district- Karamoja region
4. To assess the community factors associated with menstrual hygiene management among adolescent girls in Tapac sub county, Moroto district- Karamoja region

1.4 Research questions

1. What is the proportion of adolescent girls in Tapac Sub County, Moroto district- Karamoja region, who adequately manage their menstrual hygiene?
2. What are the intrapersonal factors associated with menstrual hygiene management among adolescent girls in Tapac sub county, Moroto district- Karamoja region?
3. What are the interpersonal factors associated with menstrual hygiene management among adolescent girls in Tapac sub county, Moroto district- Karamoja region?
4. What are the community factors associated with menstrual hygiene management among adolescent girls in Tapac sub county, Moroto district- Karamoja region?

1.5 Justification of the study

Uganda is in the process of developing a national menstrual hygiene policy (Nanyanzi et al., 2022). While this policy promises to standardize and strengthen MHM interventions, its effectiveness will depend on locally grounded evidence – both of existing MHM gaps and the factors driving them. Although several Ugandan studies have examined aspects of MHM (e.g., Crofts & Fisher, 2012; Hennegan et al., 2016; World Vision Uganda, 2019; Ivanova et al., 2019; IRC International Water and Sanitation Centre, 2021; Bagenda et al., 2023; Yang & Chen, 2023), few have simultaneously assessed both MHM practices and their determinants. As a result, interventions – particularly in regions like Karamoja, where poor MHM among adolescent girls is pervasive (Hekel et al., 2017) – lack a robust evidence base. In Karamoja, anecdotal reports highlight extremely low MHM standards and severe consequences, but no comprehensive studies have documented the prevalence of adequate MHM or analyzed its individual, interpersonal, and contextual antecedents among girls in and out of school. Without this critical data, policy and program design will remain generic, leaving hundreds of thousands of Karamoja adolescent girls vulnerable to continued health risks, school dropout, and social stigma.

1.6 Significance of the study

Over the past two decades, there have been growing global calls to end period poverty and bridge the gender gap in education by improving Menstrual Hygiene Management (MHM). Uganda responded to these calls by integrating MHM into national discourse, particularly through the Ministry of Education and Sports (MoES), which has been leading efforts including the

implementation of a five-year National Strategic Plan for Menstrual Health and Hygiene since 2014 (IRC International Water and Sanitation Centre, 2021; Nyanzi et al., 2022). This study holds strategic, programmatic, and policy significance, especially for the MoES and the Ministry of Health. It offers timely and evidence-based insights into MHM practices and their antecedents among adolescent girls in Karamoja – a region often underserved in MHM-related research. The findings may inform the design and resource allocation of targeted interventions in line with national priorities. Beyond institutional value, the study will directly benefit adolescent girls and their guardians by raising awareness about existing MHM gaps and individual factors affecting practice. This knowledge empowerment may encourage proactive behavior change even in the absence of immediate external support. At the community level, the identification of local facilitators and barriers to MHM will equip sub-county and parish leaders in Tapac with data to strengthen positive community traits and advocate for resources to address identified challenges. Given the scarcity of MHM-focused research in Karamoja, this study also contributes valuable contextual literature and underscores the need for further research across the region to comprehensively inform future interventions.

1.7 Scope of the study

1.7.1 Geographical scope

This study was conducted in Tapac Sub County, located in Moroto district, Karamoja sub region, in Northern Uganda. While Moroto district is comprised of six other sub counties, Tapac sub county was purposively chosen to be the study area premised on the fact that adolescent girls therein have been reported to exhibit perhaps the worst menstrual hygiene management practices, and their consequences as well, denoted by high period poverty-related school drop outs, and urinary tract infections. The fact that such evidence was reported, but not quantified, made Tapac Sub County have a research and knowledge gap regarding what the menstrual hygiene management and its associated factors were among adolescents' girls in the sub county.

1.7.2 Content scope

This study was delimited to assessing menstrual hygiene management practices, which was the outcome variable of this study. Menstrual hygiene management was assessed using a set of 10 items that was adopted from the Menstrual Period Questionnaire (MPQ) developed by Hennegan et al. (2020). The MPQ is globally accepted as a tool that can provide a comprehensive set of indicators

of menstrual hygiene management practices, covering personal hygiene during menstruation, absorbent materials used and waste management. Therefore, MHM was compositely assessed in this study, and it was quantified into a binary variable, with the two outcomes being “adequate” and “inadequate MHM”, the former of which was for adolescents who had scored 80% or more from the MPQ assessment. The independent variables that the study hadwere informed by the socio-ecological theory (Bronfrenbrener, 1988) and suggestions from findings obtained in previous studies like Habtegiorgis et al. (2021), Upashe et al. (2015), Degefu et al. (2019), Shallo et al. (2020), Mohammed and Larsen-Reindorf (2020), Kemigisha et al., 2020), Loughnan et al. (2016), and Hennegan et al. (2019). The socio-ecological theory suggests five levels of influence on behavior such as MHM, including individual, interpersonal, community, organization and policy levels. Of the five, three were adapted and they included intrapersonal factors, interpersonal factors and community factors.

1.7.3 Time scope

The assessment of menstrual hygiene practices was done with reference to a retrospective period spanning the previous three months. This implied that the MHM practices asked were those that had been implemented/practiced by a given adolescent girl over the previous three months, given the need to study current MHM practice. The three months’ period also allowed for the assessment of consistency in MHM practice, since MHM practice adequacy is not a result of one-off, but frequent practice, in each menstrual period.

1.8 Conceptual framework

The conceptual framework presented in Figure 1 was developed based on the socio-ecological theory, which emphasizes that health behaviors are influenced by multiple levels of factors. In this study, menstrual hygiene management (MHM) was conceptualized as the dependent variable, influenced by three categories of independent variables: intrapersonal, interpersonal, and community-level characteristics.

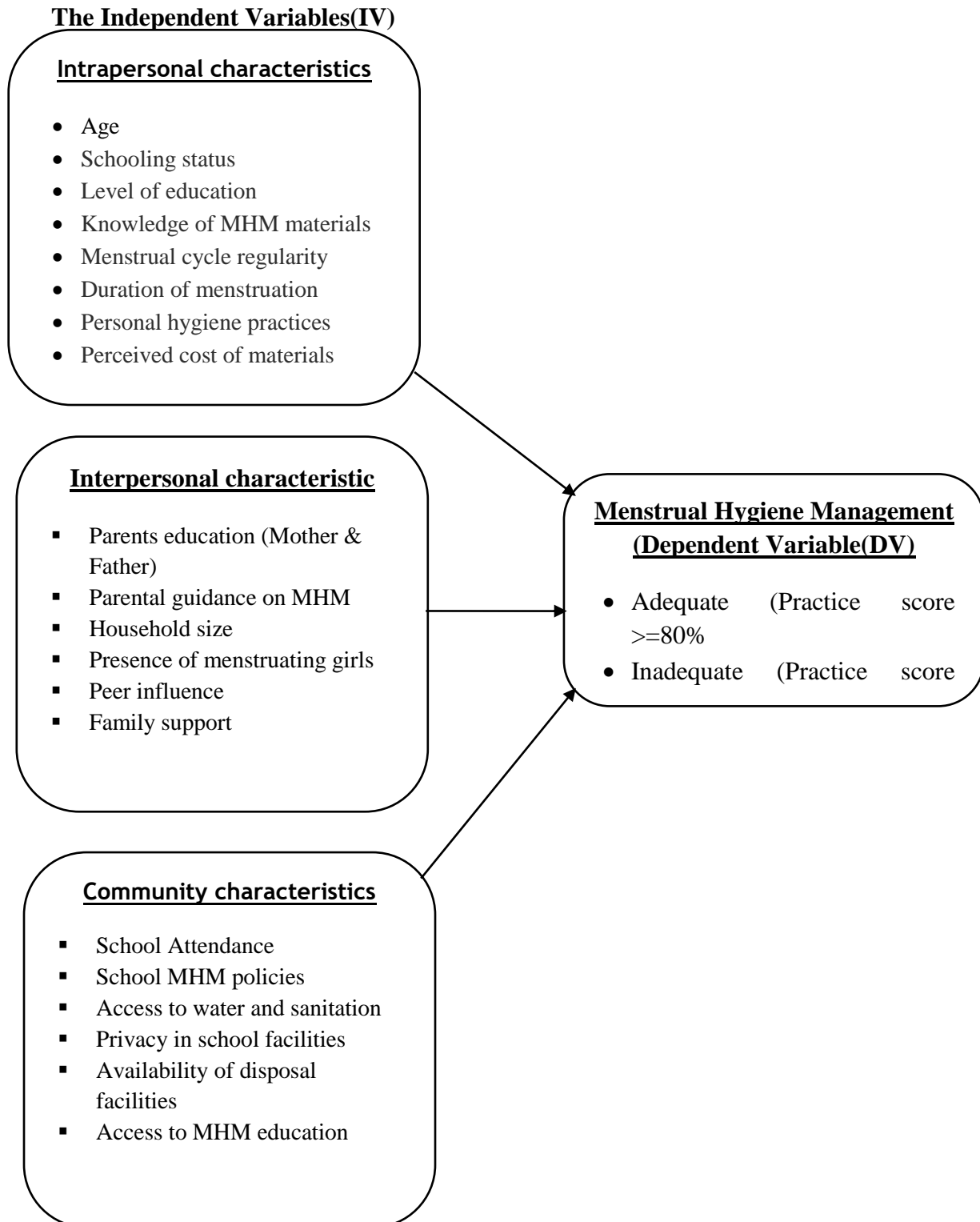
At the intrapersonal level, individual characteristics of the adolescent girls were considered. These included age, level of education, school level, knowledge about menstrual hygiene, possession of pocket money, affordability of sanitary products, cost of sanitary pads, frequency of discussing menstruation, communication about menstrual hygiene with peers, religious limitations, regularity

of menses, and presence of menstrual complications. These factors were assumed to influence personal capacity and behavior related to menstrual hygiene management. At the interpersonal level, the study examined factors related to family and social relationships. These included family support, maternal and paternal education levels, family socio-economic status, household size, parental education on menstrual hygiene, parental sensitization, social support systems, access to absorbent materials within the household, and the number of menstruating girls in the household. These variables were conceptualized as influencing MHM through social support, guidance, and resource availability. At the community level, environmental and institutional factors were considered. These included community restrictions on washing or bathing during menstruation, availability of menstrual hygiene infrastructure, access to water supply, presence of pad disposal facilities, availability of functional school toilets, presence of female-only washrooms, school policies supporting menstrual hygiene management, and levels of privacy in communal sanitation facilities. These factors were assumed to influence MHM by shaping the enabling environment in which adolescent girls manage menstruation.

The dependent variable, menstrual hygiene management, was measured as a binary outcome, categorized as: Adequate MHM ($\geq 80\%$), and Inadequate MHM ($< 80\%$), based on a composite index of menstrual hygiene practices.

Overall, the framework illustrates that menstrual hygiene management is influenced by interacting factors at multiple ecological levels, and improvement in MHM requires interventions that address individual, social, and environmental determinants simultaneously.

Figure 1: Conceptual framework showing factors Influencing Menstrual Hygiene Management among Adolescent Girls in Tapac Sub-county



CHAPTER TWO: LITERATURE REVIEW

2.1 The proportion of adolescent girls who adequately manage their menstrual hygiene

Over the past decade, there has been increasing global attention to menstrual hygiene management (MHM) among adolescent girls, particularly in developing countries. Despite this, evidence indicates that a substantial proportion of girls continue to practice inadequate MHM. Studies across Sub-Saharan Africa and Asia show that between 12.3% and 75% of adolescent girls use inappropriate menstrual materials, such as old cloths and toilet paper, reflecting poor hygiene practices (Enzler, 2019; Fisseha et al., 2017; Tamiru et al., 2015).

In Asia, suboptimal MHM remains widespread. For example, studies report that between 40% and 67% of girls in countries such as India, Nepal, and Lao PDR practice inadequate MHM (Yadav et al., 2017; Bhusal, 2020; Sychareun et al., 2020). Some findings further indicate extremely low levels of hygienic practices, including limited use of sanitary pads and inadequate genital hygiene (Anand et al., 2015; Majeed et al., 2022). These findings suggest that poor menstrual hygiene remains a persistent challenge across low- and middle-income countries.

In Sub-Saharan Africa, a systematic review by Anbesu and Asgedom (2023) estimated that only 45% of adolescent girls practice optimal MHM, highlighting a significant public health concern. Country-specific studies, particularly from Ethiopia, indicate that adequate MHM practices generally range between 34% and 60%, despite relatively high levels of knowledge (Bulto, 2021; Gebre et al., 2023). This suggests a gap between knowledge and practice.

However, variations exist across contexts. Higher prevalence rates have been reported in Ghana (up to 84.9%) and Kenya (71%), while significantly lower levels have been observed in Uganda (9.5%) (Kpodo et al., 2022; Korir et al., 2018; Hennegan et al., 2016). These disparities may be attributed to differences in socio-economic status, access to sanitary products, cultural norms, and availability of water, sanitation, and hygiene (WASH) facilities.

2.2 The intrapersonal factors associated with menstrual hygiene management among in-school adolescent girls

Intrapersonal factors refer to individual characteristics that influence menstrual hygiene practices among adolescent girls. These include residence, age, education level, knowledge about menstruation, access to financial resources, and personal experiences.

Residence has consistently been associated with MHM practices, with studies showing that urban girls are more likely to practice good MHM compared to rural girls, largely due to better access to sanitary products and information (Gebre et al., 2023; Choudhary & Gupta, 2019). Similarly, age plays an important role, as older adolescents tend to demonstrate better hygiene practices, possibly due to increased experience and exposure to information (Degefu et al., 2019; Ahmed et al., 2020).

Education level is another key determinant, with higher grade levels associated with improved MHM practices (Hussein et al., 2022). This may be linked to increased exposure to school-based health education. Closely related to education is knowledge about menstruation, which has been widely reported as a strong predictor of good MHM. Several studies show that girls with adequate knowledge are more likely to practice proper hygiene (Biruk et al., 2018; Kpodo et al., 2022). However, some studies report no significant association, suggesting that knowledge alone may not translate into practice due to structural barriers such as poverty and lack of facilities (Gupta et al., 2018).

Economic factors also play a crucial role. Access to pocket money and affordability of sanitary products significantly influence MHM practices. Girls with financial resources are more likely to afford sanitary pads and maintain proper hygiene (Gebre et al., 2023; Hussein et al., 2022). Conversely, high costs often force girls to rely on reusable materials, which may compromise hygiene (Kaur et al., 2018).

Social interactions at the individual level further influence MHM. Open discussions with peers have been associated with improved practices, as they promote information sharing and reduce stigma (Habtegiorgis et al., 2021). However, conflicting findings exist regarding parental communication, with some studies suggesting that it may not always improve MHM due to misinformation or cultural beliefs (Ahmed et al., 2020).

Cultural and religious restrictions also shape menstrual practices by limiting behaviours such as bathing or participation in social activities, thereby reinforcing stigma (Kumari, 2018; Yaliwal et al., 2020). Additionally, biological factors such as menstrual regularity and complications may influence hygiene practices, although evidence in this area remains limited.

Overall, intrapersonal factors play a significant role in shaping MHM practices, although their influence is often moderated by broader social and environmental conditions.

2.3 The interpersonal factors associated with menstrual hygiene management among in-school adolescent girls

Interpersonal factors refer to the influence of family, peers, and social relationships on menstrual hygiene practices. Key determinants include parental education, family socio-economic status, parental sensitization, and access to social support.

Maternal education has consistently been associated with improved MHM practices. Girls with educated mothers are more likely to receive accurate information and guidance on menstrual hygiene (Biruk et al., 2018; Mohammed et al., 2020). Similarly, overall parental education has been shown to positively influence MHM, as educated parents are better positioned to support their daughters (Sarkar et al., 2017; Fehintola et al., 2017). However, some studies report no significant association, suggesting that the influence of parental education may vary across contexts (Kokiwar et al., 2018).

Family socio-economic status is another important determinant. Adolescents from wealthier households are more likely to afford sanitary products and access relevant information, leading to better hygiene practices (Hussein et al., 2022). In contrast, girls from low-income households often face challenges in accessing menstrual materials, which negatively affects their MHM.

Parental sensitization and communication also play a key role. Studies indicate that girls who receive menstrual education from their parents, particularly mothers, are more likely to practice good hygiene (Bulto, 2021). However, the effectiveness of this communication depends on the accuracy and cultural appropriateness of the information provided.

Social support gaps, including stigma and limited communication, further hinder effective MHM. Many girls face social restrictions during menstruation, which limits their ability to manage hygiene effectively (Sommer et al., 2015; Chandra-Mouli et al., 2017).

Access to absorbent materials remains a critical challenge at the household level. Limited access to sanitary products often forces girls to use improvised materials, which are less effective and less hygienic (Chinyama et al., 2019; Kemigisha et al., 2020).

Overall, interpersonal factors highlight the importance of family support, communication, and socio-economic conditions in influencing menstrual hygiene practices.

2.4 The community factors associated with menstrual hygiene management among in-school adolescent girls

Community factors, particularly school environments, play a critical role in shaping menstrual hygiene management among adolescent girls. Access to adequate water, sanitation, and hygiene (WASH) facilities is consistently identified as a key determinant.

Studies show that inadequate sanitation infrastructure, including lack of clean toilets, water supply, and disposal facilities, significantly hinders proper menstrual hygiene practices (Sommer et al., 2015; Hennegan et al., 2019). In many schools, girls are unable to change or dispose of menstrual materials safely due to the absence of appropriate facilities.

Privacy is another critical factor influencing MHM. Evidence indicates that lack of privacy in school toilets discourages girls from changing menstrual materials, leading to prolonged use or absenteeism (Chinyama et al., 2019; Yeasmin et al., 2017). Facilities with secure locks and gender-sensitive designs have been shown to improve MHM practices (Bulto, 2021).

Water availability is equally important, as it enables proper washing and personal hygiene. Inadequate water supply has been identified as a major barrier to effective MHM (Kitesa, 2016; Jahan et al., 2020).

School-based education and teacher support also influence menstrual hygiene practices. Girls who receive MHM information from teachers are more likely to practice proper hygiene (Bulto, 2021).

However, limited research exists on other school-level interventions, such as provision of menstrual materials and flexible school arrangements, indicating a gap in the literature.

Overall, community factors emphasize the need for improved school infrastructure, supportive policies, and reduced stigma to enhance menstrual hygiene management among adolescent girls.

CHAPTER THREE: METHODOLOGY

3.1 Study design

This study used an analytical cross – sectional design, collecting data from each respondent at a single point in time. This design was suitable for assessing menstrual hygiene management (MHM) practices with the Menstrual Practices Questionnaire (MPQ), without the need for follow up, and for analyzing the relationships between various variables and Menstrual Hygiene Management (MHM) outcomes.

3.2 Study area

The research was conducted in Tapac sub – county, one of the nine sub – counties in Moroto District, Karamoja region, Northern Uganda. Tapac sub - county is predominantly unique with the socio – cultural norms, limited infrastructure and pastoralist lifestyle, which influences menstrual hygiene management practices. This was a community – based study to ensure that both in – school and out of school adolescent girls were included, enhancing the representativeness of the data. Tapac Sub county comprises of six parishes where three of them were sampled, each containing multiple villages, as shown in Table 1. These villages formed the final sampling frame, with households within these villages serving as primary sampling units.

Table 1: Tapac sub county composition

Parish	Villages in parish
Loyaraboth	Alamai, Lokiles, Narachuch
Natumukale	Lomelan, Lutha, Lotorongor, Murukeris
Tapac	Tapac, Napek – Akimol, Akariwon, Lonyilik, Lomudita, Seget and Timingorok

3.3 Study population

This study targeted female adolescents in Tapac Sub-county, Moroto District. The specific study population comprised adolescent girls aged 13–18 years within the sub-county. This age range was selected based on evidence that the onset of menstruation among female adolescents can occur as early as 12 years of age (Marques et al., 2022), thereby ensuring inclusion of the youngest

menstruating adolescents who are often most vulnerable to poor menstrual hygiene management (MHM). The lower age limit (13 years) was therefore considered appropriate to capture early adolescents who had likely begun menstruating. The upper age limit (18 years) was included to capture older adolescents who may still be in primary school or transitioning into secondary school. This is important because adolescent girls in primary school age groups are disproportionately affected by inadequate MHM due to limited access to menstrual hygiene resources, inadequate information, and school-related constraints. Including adolescents up to 18 years also allowed for the inclusion of those who may have experienced prolonged exposure to MHM-related challenges within both primary and early secondary school settings.

3.4 Eligibility criteria

3.4.1 Inclusion

The study included adolescent girls aged 13–18 years who had experienced at least three menstrual cycles prior to participation. This criterion was adopted to ensure that respondents had sufficient experience with menstruation to provide reliable and consistent information on menstrual hygiene management practices. Emphasis was placed on consistency of practice, which is better assessed among individuals who have had repeated menstrual experiences rather than those who are newly menstruating.

3.4.2 Exclusion

Adolescent girls who had not experienced at least three menstrual cycles were excluded from the study. This exclusion criterion was applied to ensure that the findings on menstrual hygiene management (MHM) practices reflected consistent and experience-based practices within Tapac Sub-county. By focusing on respondents with sufficient menstrual experience, the study aimed to obtain more reliable and valid data on MHM practices among adolescent girls in the area.

3.4 Sample size determination

The sample size was determined using Yamane's (1977) formula: $n = \frac{(Z)^2 (\pi)(1-\pi) (N)}{(Z)^2(\pi)(1-\pi) + (N)(e)^2}$

Where;

π = population variance from Dichotomous Variable equal to 0.50

z = z score at significance level α (where $z = 2$ at $\alpha = 0.05$ and $z = 3$ at $\alpha = 0.01$)

N = Number of adolescent girls of primary school going age in Tapac sub county = 1775 (Moroto district Local government, 2023).

e = Margin of error = 0.05

Therefore;

$$n = \frac{(2)^2(0.5)(1-0.5)(1775)}{(2)^2(0.5)(1-0.5) + (1775)(0.05)^2}$$

$$n = 1775 / 1 + 4.4375$$

$$n = 1775 / 5.4375$$

$$n = 326.$$

Thus, the required sample size was 326 adolescent girls.

3.5 Sampling procedures

Since this study was targeting a sub county, with other lower administrative sub divisions, it took a multi-stage sampling technique, with a focus on having all geographic divisions within Tapac Sub County, ably represented. The sampling process commenced with the stratification of the sub county, by parish, leading to three strata, including Layaraboth, Natumukale and Tapac. Since each of those parishes still had sub-divisions in them, they were also stratified in order to allow for the sampling of a cross section of villages in each. Thus, three parish strata were developed, and in each, simple random sampling was used to sample two villages in each, premised on the fact that half of the villages in the smallest parish (Layaraboth) are two, and for purposes of fair distribution, the same number of villages was sampled from the other two parishes. The simple random sampling was done using a lottery approach, in which the names of each village per parish were noted on pieces of paper that were folded and ruffled, picking one piece (a village) per ruffle, without

replacement. The two villages identified per parish, in the process, were named and in each, systematic random sampling was used to sample households in each of them. The systematic random sampling was done in conjunction with village health teams, who were recruited because of the comparatively more familiarity with both the geography of Tapac and its inhabitants as well. In each village, an assistant moved along with a VHT, to identify households with eligible households, which were then given an identification number, and put on a list. These lists were generated per village, since a specific sampling interval had to be calculated for each, given the differences in population sizes per village. The lists generated were the sampling frames for each village, and during sampling the interval used was calculated using the formula; $K = N/n$, where K is the sampling interval, N is the population size in each village and n is the sample size.

At each household sampled, only one adolescent girl was required, and if two are found to eligible in a given household; then simple random sampling was used to sample one of them. The number of households that was required from each of the parishes was determined by proportionating the sample size, according to the population size of each parish. The formula that was used was; $N_1 = N_2/N_3 \times n$, where; N_1 = Number of adolescents required from a given parish, N_2 = Number of adolescent girls available in each parish, N_3 = total number of adolescent girls in all the three parishes, and n = sample size.

Table 2: Number of adolescents required in each parish sampled

Parish	Villages in parish	Villages sampled	N	N_T	n	Number of adolescent girls required
Loyaraboth	Alamai, Lokiles, Narachuch	Narachuch and Lokiles	450	2412	326	61
Natumukale	Lomelan, Lutha, Lotorongor, Murukeris	Lotorongor and Murukeris	532	2412	326	72

Tapac	Tapac, Napek – Akimol, Akariwon, Lonyilik, Lomudita, Seget and Timingorok	Napek – Akimol and Lomudita	1430	2412	326	193
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3.6 Data collection method

With the need to collect data that included the quantitative assessment of menstrual hygiene management practices and its drivers, the study used structured interviews as the data collection method. Structured interviews are by design, close ended in nature in that they involve asking a respondent a question that is followed up by a set of multiple choice options from which they ought to choose what applies to them (McFarland, 2004; Campion, 1997). It is such responses that can then be easily measured and quantified, as was required in this study. That is in addition to the fact that the respondents being school girls as young as 14 years, it was prudent not to make them fatigued during interview, which structured interviews protect against. By being close ended, structured interviews were conducted relatively faster, and were less taxing on the respondents (who were adolescents), hence ensuring that valid responses are obtained throughout the interview.

3.6.1 Data collection tool

Given that data were collected through structured interviews and primarily comprised closed-ended responses, a structured questionnaire was considered the most appropriate data collection tool for this study. The questionnaire consisted of closed-ended questions presented in a multiple-choice format, enabling the collection of standardized data suitable for both descriptive and inferential statistical analysis. To enhance the validity and accuracy of responses, the questionnaire was interviewer-administered, ensuring that participants clearly understood each question and that responses were recorded appropriately. The questionnaire was organized into five sections (A–E), covering socio-demographic characteristics, menstrual hygiene management (MHM) practices, and intrapersonal, interpersonal, and community-level factors. Items across all sections were adapted from relevant literature. Specifically, Section B was adapted from the Menstrual Practice

Questionnaire (MPQ) developed by Hennegan et al. (2020), a validated tool designed to assess menstrual practices. The MPQ allows flexibility in selecting contextually relevant items; therefore, ten items were adapted for this study. These items assessed key aspects such as absorbent materials used, frequency of changing materials, washing practices, use of soap and water, drying of reusable materials in sunlight, frequency of genital hygiene, disposal methods for used materials, and bathing practices during menstruation. The questionnaire was translated into the Ngakarimojong language to ensure comprehension among participants.

3.6.2 Quality control

3.6.3 Validity testing

Validity refers to the extent to which a research instrument adequately measures the construct it is intended to measure in its entirety (Anastasi & Urbina, 1997). Among the various forms of validity, content validity was assessed in this study, as it determines whether the items in an instrument are relevant and representative of the construct being measured (Whiston, 2012; Bollen, 1989; Rubio et al., 2003). In this study, content validity was used to establish whether the questionnaire items (Appendix B) were appropriate for assessing menstrual hygiene management and its associated factors among adolescent girls in Tapac Sub-county. Content validity was established through expert judgment (Yeşilyurt & Çapraz, 2018). The experts included technical staff from the Moroto District Health Office and representatives from non-governmental organizations implementing menstrual hygiene management programs in the Karamoja region. They were requested to rate each questionnaire item based on relevance using a four-point scale: 4 = very relevant, 3 = relevant, 2 = somewhat relevant, and 1 = not relevant. Out of the total items, 52 were rated as either relevant or very relevant. The Content Validity Index (CVI) was computed using the formula: $CVI = \text{Number of items rated 3 or 4} \div \text{Total number of items}$. Thus, $CVI = 52/56 = 0.929$. This indicates a high level of content validity, suggesting that the instrument was adequate for capturing data necessary to achieve the study objectives.

3.6.3 Assistant training

Given the geographical scope of the study, which covered an entire sub-county, it was necessary to recruit data collection assistants to support the principal investigator in reaching all selected villages

and engaging adolescent school girls concurrently. The assistants were university graduates with prior experience in survey data collection. A total of four research assistants (three females and one male) were recruited. The research assistants underwent a two-day intensive training conducted by the principal investigator. The training focused on orienting them to the study objectives, target population, sampling procedures at the village level, and data collection methods. Emphasis was placed on ensuring a clear understanding of the study purpose, ethical considerations, and accurate administration of the structured questionnaire. To enhance practical preparedness, the training also included role-play sessions in which the research assistants simulated interview scenarios. This exercise was used to improve consistency in questioning, build confidence, and ensure standardization in data collection procedures across all assistants.

3.6.4 Pretest

A pretest of the research instrument was conducted among 10 adolescent girls in Rupa Sub-county, Moroto District. Rupa Sub-county was selected due to its similarities with Tapac Sub-county in terms of cultural practices, geographical characteristics, and challenges related to menstrual hygiene management among adolescent girls. The pretest was conducted to assess the readiness of the questionnaire for the main data collection exercise. Specifically, it helped to identify any ambiguities or errors in the wording of questions, assess the appropriateness of translating the tool into the local language, and evaluate the feasibility of the sampling procedures and field administration strategies. In addition, the pretest provided an opportunity to refine the approach used to engage respondents in the field and to further strengthen the capacity of the research assistants prior to the main study. Findings from the pretest informed minor revisions to the questionnaire to enhance clarity, cultural appropriateness, and overall suitability for data collection.

3.6.5 Measurement of variables

Menstrual hygiene management was assessed using a set of 10 items, the majority (8 items) of which measured the frequency of specific MHM practices. These items had response options of “Always,” “Sometimes,” and “Never,” with “Always” considered the most desirable response, as it reflects consistent practice of appropriate menstrual hygiene behaviours that are protective against adverse health outcomes. A scoring system was applied as follows: a response of “Always” was

assigned a score of 2, “Sometimes” a score of 1, and “Never” a score of 0. For the two remaining items that did not assess frequency, a score of 2 was awarded for an appropriate response. The total possible score ranged from 0 to 20. Adolescent girls who scored 16 or above ($\geq 80\%$) were classified as having adequate menstrual hygiene management, while those scoring below 16 were considered to have inadequate MHM. This implies that a respondent needed to demonstrate consistently appropriate responses across at least eight items to be categorized as practicing adequate menstrual hygiene.

3.7 Data analysis

The data analysis process began with data management. All completed questionnaires were collected and manually reviewed by the principal investigator to check for completeness, consistency, and accuracy. Particular attention was paid to identifying anomalies in responses, inconsistencies in skip patterns, and cases of item non-response. After cleaning, the questionnaire items were coded and entered into the Statistical Package for Social Sciences (SPSS) version 25. Variables were first defined in the variable view, and corresponding codes for each response were assigned prior to data entry. Data entry was then conducted based on the coded responses for each questionnaire, corresponding to the full sample size. Following data entry, further data cleaning was undertaken, including manual verification of each variable column to identify and correct any coding or entry errors. To ensure accuracy and completeness of the dataset, frequency distributions were generated and reviewed to confirm that all variables were correctly captured and that totals corresponded with the study sample size.

Data analysis was conducted at three levels: univariate, bivariate, and multivariate. Univariate analysis involved the use of descriptive statistics, including frequencies and percentages, to summarize the proportion of adolescent girls with adequate menstrual hygiene management. For the second, third, and fourth objectives, descriptive analysis was also performed before examining associations between independent variables and the outcome variable.

Bivariate analysis involved cross-tabulations and the estimation of crude prevalence ratios (cPR) to examine the relationship between independent variables and menstrual hygiene management. Inferential analysis was conducted using a log-binomial regression model due to its appropriateness

for binary outcomes with relatively common prevalence, its ability to handle categorical data, and ease of interpretation (Vadapalli, 2020). The level of statistical significance was set at 5% ($p < 0.05$). For multivariable analysis, variables with a p-value of ≤ 0.20 at bivariate level were considered for inclusion in the model. This approach was used to avoid excluding potentially important confounders. In the final model, variables with p-values less than 0.05 were considered statistically significant predictors of menstrual hygiene management among adolescent girls in Tapac Sub-county.

3.8 Ethical considerations

Approval to conduct this study was obtained from the Institutional Review Board of Uganda Christian University, under reference number UCUREC-2023-702. Permission to conduct the study in Tapac Sub-county was further sought from the Sub-County Chief, using the approved ethical clearance documentation (Appendix D). Given that the study participants were adolescents below 18 years of age but above 8 years, both informed consent and assent procedures were applied. Written informed consent was first obtained from parents or caretakers of the eligible adolescents. Thereafter, adolescents whose parents or guardians had provided consent were individually requested to provide assent prior to participation. All interviews were conducted in private settings, with only the respondent and the interviewer present, to ensure confidentiality and reduce response bias. Data collected were handled with strict confidentiality and securely stored. Completed questionnaires were kept in a locked cabinet accessible only to the principal investigator. Additionally, electronic data entry was conducted using a password-protected personal computer belonging to the principal investigator. To further uphold ethical standards, no personal identifiers such as names were recorded on the questionnaires or consent/assent forms. Participation in the study was entirely voluntary, and respondents were informed of their right to withdraw at any point without any consequences, regardless of prior parental or guardian consent.

CHAPTER FOUR: STUDY RESULTS

4.1 Sociodemographic characteristics

Table 3: Sociodemographic characteristics of the adolescents sampled

Variable	n(%)
Age	
13 - 15 years	202 (62.0)
16 - 18 years	124 (38.0)
Currently in school	
Yes	94 (28.8)
No	232 (71.2)
Current school level	
Primary	46 (48.9)
Secondary	48 (51.1)
Primary school class in currently	
Primary five	24 (53.3)
Primary six	21 (46.7)
Stay with parents	
Yes	258 (79.1)
No	68 (20.9)
Birth order	
One	40(12.3)
Two	92(28.2)
Three	80 (24.5)
Three and above	114 (35.0)

During the assessment, most respondents 202(62.0%) who were sampled were aged between 13 and 15 years. A significant proportion of 232 (71.2%) of respondents were out of school. However, for

those who were currently in school, half of them 48(51.1%) were in secondary school. Among primary school students, more than half 24 (53.3%) were in Primary Five. Most of the adolescents 258(79.1%) were staying with both parents, while 114 (35.0%) of adolescents were of a birth order exceeding three.

4.2 Menstrual Hygiene management practices

Table 4: Menstrual Hygiene management practices among the adolescent girls

Variable	Category	n	%
Use absorbent materials during menstrual flow	Yes	303	92.9
	No	23	7.1
Frequency of using absorbent materials	Always	139*	45.9
	Sometimes	164	54.1
Use commercially made sanitary pad during menstruation period	Yes	253	77.6
	No	73	22.4
Frequency of using them	Always	89*	35.2
	Sometimes	140	55.3
	Rarely	24	9.5
Change pads or cloths more than three times a day during menstruation	Yes	284	87.1
	No	42	12.9
Frequency of changing pads, at least more than thrice			

	Always	171*	60.2
	Sometimes	113	39.8
<hr/>			
Use clean clothes and wash with soap and water during your menstrual bleeding			
	Yes	323	99.1
	No	3	.9
<hr/>			
If yes how often do you do so			
	Always	294*	91.0
	Sometimes	29	9.0
<hr/>			
Commonly dry sanitary clothes with sunlight			
	Yes	318	97.5
	No	8	2.5
<hr/>			
Frequency of doing so			
	Always	267*	84.0
	Sometimes	51	16.0
<hr/>			
Frequency of cleaning external genitalia during menstruation, using soap and water			
	Once	18	5.5
	Twice	183	56.1
	Thrice	125*	38.3
<hr/>			
Dispose the used pads by wrapping with paper			
	Yes	150	46.0
	No	176	54.0
<hr/>			
Frequency of doing so			
	Always	67*	45.0
	Sometimes	78	52.3
	Rarely	4	2.7
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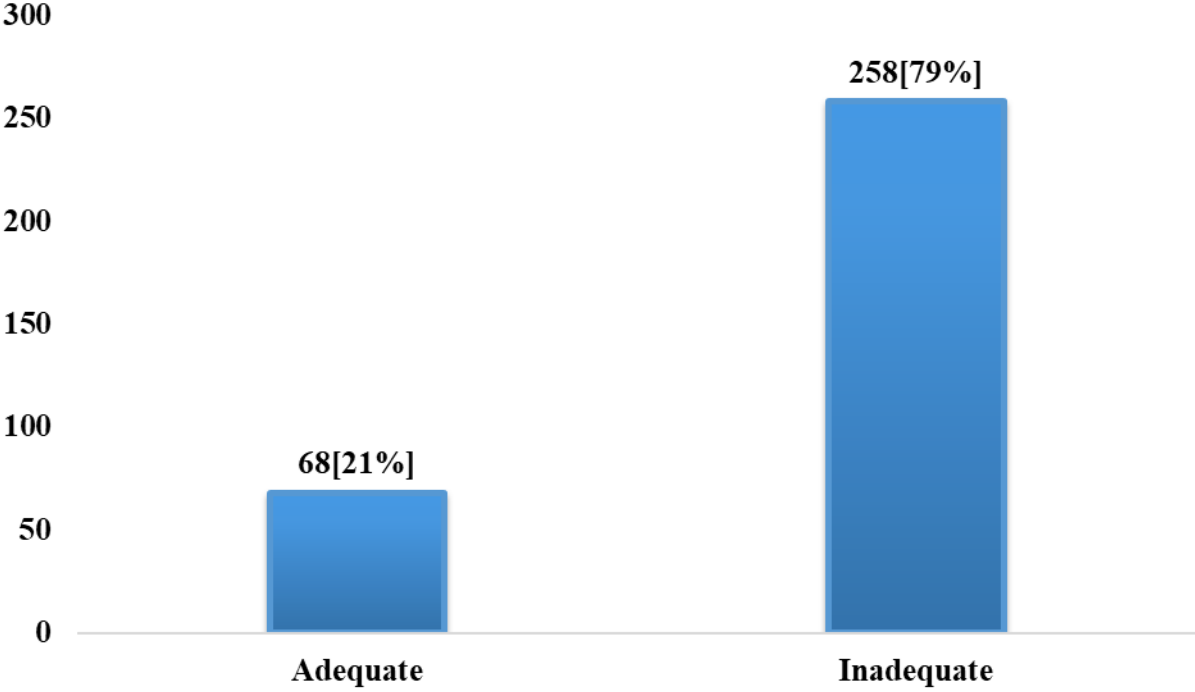
Bathe daily during menstruation			
	Yes	320	98.2
	No	6	1.8
Frequency of doing so			
	Always	298*	93.1
	Sometimes	22	6.9
Frequently of cleaning genital organ during menstruation			
	Once	13	4.0
	Twice	187	57.4
	Thrice	126*	38.7
Pad disposal place			
	Dustbin	76	23.3
	Latrine	161*	49.4
	In the open	89	27.3

****Frequencies indicating adequate MHM***

The assessment revealed that the majority of respondents 303 (92.9%) used absorbent materials during menstrual flow, half 164(54.1%) of them used those absorbent materials sometimes, less than half 139 (45.9%) of the respondents reported always using absorbent materials. A large proportion 164 (54.1%) sometimes used absorbent material. A large proportion of the respondents 253 (77.6%) used commercially made sanitary pads while 73 (22.4%) respondents did not use commercially made sanitary pads. Most respondents 140 (55.3% used commercial pads sometimes, while a smaller proportion 89 (35.2%) always used them. Most respondents 284(87.1%) of adolescents changed their pads or cloths more than three times a day while 42(12.9%) did not. Whereas 171 (60.2%) always changed their pads more than three times a day, a smaller proportion of 113 (39.8%) sometimes did it. Majority of the respondents of 323 (91.1%) of adolescents always cleaned their menstrual clothes with soap and water. The vast majority 294 (91.0%) of the adolescents always cleaned their menstrual clothes with soap and water, while 29 (9.0%) sometimes cleaned their menstrual clothes. Majority 318 (97.5%) of respondents dried their sanitary clothes in

sunlight. Of these 267 (84.0%) respondents always dried their clothes in sunlight. Only 125 (38.3 %) of the respondents cleaned their external genitalia thrice a day during menstruation, majority of them 183 (56.1%) did it twice. Slightly more than Half of the respondents 176 (54.0%) did not wrap their used pads in paper while a proportion of 67 (45.0%) respondents always wrapped pads with paper. The majority 320 (98.2%) of the respondents bathed daily during menstruation. Of these,298 (93.1%) adolescents always bathed daily during menstruation. More than half 187 (57.4%) of respondents cleaned their genital organs twice a day. Almost half 161 (49.4%) of the respondents disposed used pads in the latrine, while 89 (27.3%) disposed them in the open.

Figure 2: The proportion of adolescent girls in Tapac sub county, Moroto district- Karamoja region, who adequately managed their menstrual hygiene



Based on the findings presented in Table 4, an assessment was conducted to determine the proportion of adolescent girls in Tapac sub county, Moroto District (Karamoja region) who adequately managed their menstrual hygiene. Using the threshold of 80% as the benchmark for adequacy, the analysis revealed that only 68 (21%) of the girls met the criteria for adequate menstrual hygiene management.

4.3 Intrapersonal factors

Table 5: The intrapersonal factors associated with menstrual hygiene management among adolescent girls in Tapac sub county, Moroto district- Karamoja region

Variable	n	%	Menstrual hygiene management		Crude estimates		Adjusted estimates	
			Adequate [n = 68]	Inadequate [n = 258]	cPR(95% CI)	P value	aPR(95% CI)	P value
Age								
13 - 15 years	202	62.0	32 (15.8%)	170 (84.2%)	0.460 (0.268 - 0.791)	0.005*	0.618 (0.417 - 0.916)	0.017*
16 - 18 years	124	38.0	36(29.0%)	88(71.0%)	1.000		1.000	
Currently in school								
Yes	94	28.8	32(15.8%)	170(84.2%)	2.593 (1.488 - 4.519)	0.001*	2.099 (1.388 - 3.174)	<0.001*
No	232	71.2	36(29.0%)	88(71.0%)	1.000		1.000	
School level if in school								
Primary	46	48.9	20(43.5%)	26(56.5%)	2.587 (1.062 - 6.303)	0.036*	2.247 (1.207 - 4.183)	0.011*
Secondary	48	51.1	11(22.9%)	37(77.1%)	1.000		1.000	
Primary school class in currently								
Primary five	24	53.3	11(45.8%)	13(54.2%)	1.069 (0.554 - 2.065)	0.842		
Primary six	21	46.7	9(42.9%)	12(57.1%)	1.000			

Birth order						
One	40	12.	11(27.5%)	29(72.5%)	1.425 (0.761 - 2.670)	0.269
Two	92	28.	15(16.3%)	77(83.7%)	0.845 (0.466 - 1.533)	0.579
Three	80	24.	20(25.0%)	60(75.0%)	1.295 (0.760 - 2.209)	0.342
More than three	114	35.	22(19.3%)	92(80.7%)	1.000	
		0				

Material most important when it comes to menstrual hygiene						
Basin, soap and water	26	8.0	15(57.7%)	11(42.3%)	3.266 (2.167 - 4.920)	<0.001* 3.284 (2.274 - 4.743) <0.001*
Soap and water	300	92.	53(17.7%)	247(82.3%)	1.000	1.000
		0				

Discuss menstrual hygiene with any friends						
Yes	309	94.	66(21.4%)	243(78.6%)	1.816 (0.485 - 6.792)	0.376
No	17	5.2	2(11.8%)	15(88.2%)	1.000	

Discuss menstrual hygiene with any family members, including parents						
Yes	292	89.	64(21.9%)	228(78.1%)	1.863 (0.724 - 4.796)	0.197 1.822 (0.487 - 6.812) 0.372
No	34	10.	4(11.8%)	30(88.2%)	1.000	1.000
		4				

Religion allows use of menstrual hygiene materials and frequent genitalia cleaning with soap and water

Yes	312	95.7	64(20.5%)	248(79.5%)	0.718 (0.305 - 1.691)	0.448
No	14	4.3	4(28.6%)	10(71.4%)	1.000	

Perceived cost of commercially available sanitary pads

They are very expensive	43	13.2	7(16.3%)	36(83.7%)	0.705 (0.332 - 1.500)	0.365
They are expensive	166	50.9	34(20.5%)	132(79.5%)	0.888 (0.568 - 1.387)	0.600
They are cheap and affordable	117	35.9	27(23.1%)	90(76.9%)	1.000	

Always have regular menses

Yes	249	76.4	59(23.7%)	190(76.3%)	2.027 (1.055 - 3.896)	0.034*	2.180 (1.141 - 4.165)	0.018*
No	77	23.6	9(11.7%)	68(88.3%)	1.000		1.000	

Duration of menses, usually

Less than five days	242	74.2	43(17.8%)	199(82.2%)	0.597 (0.390 - 0.914)	0.018*	0.523 (0.341 - 0.802)	0.003*
More than five days	84	25.8	25(29.8%)	59(70.2%)	1.000		1.000	

Usually experience complications during menstruation

Yes	210	64.4	39(18.6%)	171(81.4%)	0.743 (0.486 - 1.135)	0.169	0.691 (0.465 - 1.025)	0.066
No	116	35.6	29(25.0%)	87(75.0%)	1.000		1.000	

More than three quarters of the adolescent girls studied had had their first menses start at ≤ 12 years 255(78.2%), the majority of them were mentioned that the material most important when it comes to menstrual hygiene was soap and water 300(92.0%). Most of the adolescents discussed menstrual hygiene with some of their friends 309(94.8%) and family members, including parents 292(89.6%). Almost all the adolescents 312 (95.7%) perceived that their religion allowed use of menstrual hygiene materials and frequent genitalia cleaning with soap and water. Half of the 166 (50.9%) adolescents perceived that the commercially available sanitary pads in their community were expensive. More than three quarters 249(76.4%) of the adolescents always had regular menses, that usually lasted less than five days 242(74.2%). Nearly two thirds of the adolescents usually experienced complications during menstruation 210(64.4%).

Many of the intrapersonal characteristics of the adolescents turned out to be significantly related to MHM. The prevalence of adequate MHM was less by 38% among adolescents who were aged between 13 and 15 years (aPR = 0.618 [95% CI = 0.417 - 0.916], $p = 0.017$) compared to those who were aged above 15 years. Adolescents who were currently in school showed twice the prevalence of MHM (aPR = 2.099 [95% CI = 1.388 - 3.174], $p = <0.001$) compared to those who were not. Adolescents who were primary school also had twice the prevalence of having adequate MHM (aPR = 2.247 [95% CI = 1.207 - 4.183], $p = 0.011$) compared to those who were not in school. Adolescents who had their menses start at 12 years or less had a lower prevalence of adequate MHM (aPR = 0.313 [95% CI = 0.211 - 0.465], $p = <0.001$) compared to those whose menses started later.

Adolescents who thought that the material most important when it comes to menstrual hygiene was a basin, soap and water (aPR = 3.284 [95% CI = 2.274 - 4.743], p = <0.001) and those who always had regular menses (aPR = 2.180 [95% CI = 1.141 - 4.165], p = 0.018) showed higher adequacy of MHM. However, adolescents whose duration of menses was usually less than five days exhibited 48% less prevalence of adequate MHM (aPR = 0.523 [95% CI = 0.341 - 0.802], p = 0.003) compared to those whose menses lasted more than five days.

4.4. Interpersonal factors

Table 6: The interpersonal factors associated with menstrual hygiene management among in-school adolescent girls in Tapac sub county, Moroto district- Karamoja region

Variable	Menstrual hygiene management				Crude estimates		Adjusted estimates	
	n	%	Adequate [n = 68]	Inadequate [n = 258]	cOR(95% CI)	P value	aOR(95% CI)	P value
Mother educated								
Yes	17	5.2	8(47.1%)	9(52.9%)	2.424 (1.394 - 4.213)	0.002*	2.424 (1.394 - 4.214)	0.002
No	309	94.8	60(19.4%)	249(80.6%)	1.000		1.00	
Father educated								
Yes	27	8.3	10(37.0%)	17(63.0%)	1.909 (1.109 - 3.287)	0.020*	1.909 (1.105 - 3.295)	0.020
No	299	91.7	58(19.4%)	241(80.6%)	1.000		1.000	
Stay with both parents								
Yes	258	79.1	54(20.9%)	204(79.1%)	1.017 (0.602 - 1.716)	0.951		
No	68	20.9	14(20.6%)	54(79.4%)	1.000			
Mother ever educated girl about								

menstruation							
Yes	205	62.9	44(21.5%)	161(78.5%)	1.082 (0.694 - 0.727		
					1.686)		
No	121	37.1	24(19.8%)	97(80.2%)	1.000		
Mother ever educated girl about how to practice menstrual hygiene properly							
Yes	71	21.8	23(32.4%)	48(67.6%)	1.836 (1.196 - 0.005	1.669 (1.073 - 0.023	
					2.816)	2.596)	
No	255	78.2	45(17.6%)	210(82.4%)	1.000	1.000	
Father ever educated girl on menstruation							
Yes	288	88.3	62(21.5%)	226(78.5%)	1.363 (0.633 - 0.428		
					2.935)		
No	38	11.7	6(15.8%)	32(84.2%)	1.000		
Father ever educated girl about how to practice menstrual hygiene properly							
Yes	13	4.0	10(76.9%)	3(23.1%)	4.151 (2.846 - <0.001	4.283 (2.870 - <0.001	
					6.056)	6.392)	
No	313	96.0	58(18.5%)	255(81.5%)	1.000	1.000	
Have friends who menstruate							
Yes	309	94.8	65(21.0%)	244(79.0%)	1.192 (0.417 - 0.743		
					3.404)		
No	17	5.2	3(17.6%)	14(82.4%)	1.000		
Friends practice proper menstrual							

hygiene management							
Yes	295	95.5	65(22.0%)	230(78.0%)			
No	14	4.5	0(0.0%)	14(100.0%)			
Household size							
Less than 5	125	38.3	35(28.0%)	90(72.0%)	1.705 (1.121 - 0.013	1.762 (1.148 - 0.010	
					2.595)	2.706)	
More than 5	201	61.7	33(16.4%)	168(83.6%)	1.000	1.000	
Any other school girls in the house that menstruate							
Yes	66	20.2	19(28.8%)	47(71.2%)	1.528 (0.969 - 0.068	1.610 (1.029 - 0.037	
					2.409)	2.519)	
No	260	79.8	49(18.8%)	211(81.2%)	1.000	1.000	

Almost all the adolescents who were sampled in this study did not have educated mothers 309(94.8%), and neither did they have educated fathers 299(91.7%). More than three quarters 258(79.1%) of the adolescent girls sampled were currently staying with both their parents. The majority of the adolescents had ever been educated about menstruation by their mothers 205(62.9%), but not how to practice menstrual hygiene properly 255(78.2%). Similarly, more than three quarters of the adolescents had ever been educated about menstruation 288(88.3%), but for almost all of them, education about how to practice menstrual hygiene properly had not been done by their fathers 313(96.0%). Almost all the adolescents had friends who menstruated 309(94.8%), that practiced proper menstrual hygiene management 295(95.5%). The majority 201(61.7%) of the respondents were from households that had more than 5 members, but had no others school girls within, that menstruated, besides them 260(79.8%).

A total of six interpersonal characteristics happened to show statistically significant associations with MHM among the adolescents sampled. Four of those were parental characteristics, and two were intra-household in nature. Adolescents whose mothers (aOR = 2.424 [95% CI = 1.394 - 4.214], p = 0.002) and fathers were reportedly educated (aOR = 1.909 [95% CI = 1.105 - 3.295], p

= 0.020) had twice and nearly twice the prevalence of adequate MHM, respectively, compared to those whose parents were not educated.

Adolescent girls who had been educated about how to practice menstrual hygiene properly showed 67% higher prevalence of adequate MHM (aPR = 1.669 [95% CI = 1.073 - 2.596], p = 0.023) compared to those who had not been educated about the same by their mothers. Adolescents who had been educated about how to practice menstrual hygiene properly, by their fathers showed four times the prevalence of adequate MHM (aPR = 4.283 [95% CI = 2.870 - 6.392], p = <0.001) compared to those who were not. Adolescent girls in households having less than five people showed 76% higher prevalence of adequate MHM (aPR = 1.762 [95% CI = 1.148 - 2.706], p = 0.010) compared to those who were in households comprised of more than five people. Adolescent girls who were in household where there were other school girls who menstruated showed 61% higher prevalence of adequate MHM (aPR = 1.610 [95% CI = 1.029 - 2.519], p = 0.037) compared to those who had no such other girls in their households.

4.5 Community factors

Table 7: The community factors associated with menstrual hygiene management among adolescent girls in Tapac sub county, Moroto district- Karamoja region

Variable	n	%	Menstrual hygiene management		Crude estimates		Adjusted estimates	
			Adequate [n = 68]	Inadequate [n = 258]	cOR(95% CI)	P value	aOR(95% CI)	P value
Members in this community who have ever educated girl about menstrual hygiene management								
Yes	305	93.6	31(33.7)	61(66.3)	1.492 (0.512 -	0.46		

			%)	%)	4.347)	4
No	21	6.4	0(0.0%)	2(100.0	1.000	
			%)	%)		

Ease of getting access to absorbent materials in community

Very easy	304	93.3	66(21.7	238(78.	2.388 (0.626 -	0.20
			%)	3)	9.107)	2
Easy	22	6.7	2(9.1%)	20(90.9	1.000	
			%)	%)		

School gone to has reliable water system; water available

Yes	92	97.9	31(33.7	61(66.3		
			%)	%)		
No	2	2.1	0(0.0%)	2(100.0		
			%)	%)		

School has a female bathroom

Yes	90	95.7	31(34.4	59(65.6		
			%)	%)		
No	4	4.3	0(0.0%)	4(100.0		
			%)	%)		

Female bathroom and toilets at school have an inside lock

Yes	91	96.8	31(34.1	60(65.9		
			%)	%)		
No	3	3.2	0(0.0%)	3(100.0		
			%)	%)		

When at school, allowed

**to move out of class and
go bathe during
menstruation**

Yes	74	78.7	29(39.2 %)	45(60.8 %)	3.919 (1.021 - 15.043)	0.04 7*	5.108 (1.346 - 19.382)	0.017
No	20	21.3	2(10.0%)	18(90.0 %)	1.000		1.000	

**Privacy in the toilets and
bathrooms at school**

High	20	21.3	11(55.0 %)	9(45.0%)	1.100 (0.260 - 4.650)	0.89 7
Moderate	72	76.6	19(26.4 %)	53(73.6 %)	0.528 (0.125 - 2.224)	0.38 4
Low	2	2.1	1(50.0%)	1(50.0%)	1.000	

**Ever been educated
about MHM by teachers
at school**

Yes	91	96.8	31(34.1 %)	60(65.9 %)
No	3	3.2	0(0.0%)	3(100.0 %)

**School has a disposal site
designated for menstrual
waste**

Yes	79	84.0	24(30.4 %)	55(69.6 %)	0.651 (0.345 - 1.229)	0.18 6	0.564 (0.308 - 1.032)	0.063
No	15	16.0	7(46.7%)	8(53.3%)	1.000		1.000	

**Ever been bullied by
male counterparts, due**

to menstruation

Yes	47	49.5	13(27.7 %)	34(72.3 %)	0.738(0.409 - 1.330)	0.31 1
No	48	50.5	18(37.5 %)	30(62.5 %)	1.000	

At community level, it was descriptively found that most of the girls sampled had ever been educated girl about menstrual hygiene management by people in the community in which they leaved 305 (93.6%), and rated access to absorbent materials in community as very easy 304 (93.3%). Almost all the girls 92(97.9%) who were currently in school mentioned that their schools had a reliable water system, with water available, and that their school had a female bathroom 90 (95.7%), with that bathroom and toilets having an inside lock 91(96.8%). More than three quarters of the adolescents sampled reported that when at school, they were allowed to move out of class and go bathe during menstruation 74(78.7%). However, more than three quarters of the adolescent girls rated the privacy in the toilets and bathrooms at school as being moderate 72 (76.6%). Almost all the adolescent girls 91(96.8%) mentioned that they had ever been educated about MHM by teachers at school, and more than three quarters of them 79(84.0%) mentioned that their schools had a disposal site designated for menstrual waste. Half of the respondents 48 (50.5%) mentioned that they had never been bullied by male counterparts, due to menstruation. However, only one community-related characteristic happened to show statistical significance in their association with menstrual hygiene management, and that was the possibility of moving out of class to go bathe during menstruation. It was found that adolescents who were still in school, and those schools had a policy that allowed them to move out of class and go bathe during menstruation were five times as likely to practice MHM adequately (aOR = 5.108 [95% CI = 1.346 - 19.382], P = 0.017) compared to those who were at schools where they were not allowed to move out and do so.

CHAPTER FIVE: DISCUSSION OF RESULTS

5.1 The proportion of adolescent girls in Tapac sub county, Moroto district- Karamoja region, who adequately manage their menstrual hygiene

Globally, an estimated 1.8 billion people menstruate each month, of whom approximately 250 million are adolescent girls (UNICEF, 2023). Despite increased global and national attention to menstrual hygiene management (MHM), many adolescent girls continue to face significant challenges in adequately managing menstruation (UNICEF, 2025; Shumie & Mengie, 2022; Method et al., 2024; WHO, 2024). This study confirmed that inadequate MHM remains a major public health concern in Tapac Sub-county, Karamoja region.

Findings revealed that only 21% of adolescent girls adequately managed their menstrual hygiene. This implies that only about 2 in every 10 girls meet the minimum acceptable standards of menstrual hygiene practices. This proportion is alarmingly low compared to findings from most previous studies conducted in other settings. For instance, higher proportions have been reported in West Bengal (47.5%) by Sarkar et al. (2017), Nepal (57.0%) by Bhusal (2020), India (40%) by Yadav et al. (2017), Lao PDR (44%) by Sychareun et al. (2020), and Ethiopia (34.7%–68%) by several authors (Azage et al., 2018; Belayneh & Mekuriaw, 2019; Hussein et al., 2022).

Similarly, studies in Ghana (82%–84.9%) and Kenya (71%) also reported substantially higher levels of adequate MHM (Kpodo et al., 2022; Asumah et al., 2022; Korir et al., 2018). The consistently higher estimates in these studies may be attributed to differences in socioeconomic status, study settings, and study populations. Many of the cited studies were conducted among only school-going adolescents, whereas the present study was community-based and included both in-school and out-of-school girls, thereby capturing a more disadvantaged population.

Additionally, variations in measurement approaches may explain these differences. Some studies used fewer indicators to assess MHM, while the present study applied a more comprehensive composite index with over 10 indicators, making classification more stringent.

The extremely low level of adequate MHM in Tapac is concerning because it exposes adolescent girls to multiple adverse outcomes, including reproductive tract infections, poor mental health,

school absenteeism, and school dropout (Daher et al., 2022; World Bank, 2022; Nabwera et al., 2021). In severe cases, girls are also at risk of sexually transmitted infections such as HIV, HPV, and gonorrhea (Stanford Health Care, 2023; Nava-Memije et al., 2021; Hayes, 2020).

In the context of Karamoja – characterized by high multidimensional poverty (UNDP, 2023; UBOS, 2022) and weak health systems (UNFPA, 2018) – these consequences may be more severe. Poor menstrual hygiene, if unaddressed, may therefore undermine not only individual wellbeing but also broader regional development, given the critical role of women and girls in socio-economic transformation (UN Women, 2023; UNFPA, 2018).

5.2 The intrapersonal factors associated with menstrual hygiene management among adolescent girls in Tapac sub county, Moroto district- Karamoja region

The socio-ecological model suggests that health behaviors are influenced at multiple levels, including the intrapersonal level. This study found that several individual characteristics significantly influenced MHM practices.

Age was significantly associated with MHM, with adolescents aged 13–15 years being 38% less likely to practice adequate MHM compared to those aged 16–18 years (aPR = 0.618, $p = 0.017$). This finding is consistent with previous studies (Degefu et al., 2019; Ahmed et al., 2020; Belayneh & Mekuriaw, 2019). Older adolescents are likely to have greater experience with menstruation, improved knowledge, and better financial autonomy, including access to pocket money that enables the purchase of sanitary materials.

School attendance was also a strong predictor of adequate MHM. Adolescents currently in school had more than twice the likelihood of adequate MHM compared to those out of school. This may be explained by access to school-based health education, peer support, and sanitation facilities, as well as structured guidance from teachers (Hussein et al., 2022; Habtegiorgis et al., 2021).

Similarly, attending primary school was associated with higher MHM adequacy compared to being out of school. This may reflect the presence of targeted school-based interventions such as “senior women” teachers who provide menstrual health education and support.

Knowledge-related factors also played a significant role. Adolescents who correctly identified appropriate MHM materials (e.g., soap, water, and basin) were more likely to practice adequate MHM, confirming the importance of knowledge in shaping behaviour (Shibeshi et al., 2021; Mohammed et al., 2020).

Menstrual characteristics such as regular cycles and longer duration of menstruation were also associated with better MHM practices. These findings suggest that repeated exposure and predictability of menstruation improve experience and routine practice, thereby enhancing MHM outcomes.

5.3 The interpersonal factors associated with menstrual hygiene management among in-school adolescent girls in Tapac sub county, Moroto district- Karamoja region

Interpersonal relationships, particularly within families, played a significant role in influencing menstrual hygiene practices. Parental education emerged as an important determinant of MHM. Adolescents whose mothers and fathers were educated were more likely to practice adequate MHM compared to those with uneducated parents. This finding aligns with previous studies (Sarkar et al., 2017; Bhusal, 2020; Kumbeni et al., 2020).

Educated parents are more likely to provide both material and informational support, including purchasing sanitary products and educating their daughters on menstrual hygiene. They are also more likely to ensure school attendance, which further enhances access to MHM-related resources.

Direct parental communication about menstrual hygiene was also strongly associated with better MHM. Adolescents educated by their mothers or fathers demonstrated significantly higher MHM adequacy. Notably, paternal education on menstrual hygiene showed a particularly strong association, suggesting that supportive father-daughter communication may play a critical role in normalizing menstruation and improving practices.

Household structure also influenced MHM outcomes. Adolescents from smaller households (less than five members) had better MHM outcomes, possibly due to reduced resource competition and improved access to household sanitation resources. Similarly, the presence of other menstruating

school girls within the household was associated with improved MHM, likely due to shared knowledge and peer learning.

5.4 The community factors associated with menstrual hygiene management among adolescent girls in Tapac sub county, Moroto district- Karamoja region

At the community level, only school-related policy factors showed a significant association with MHM. Specifically, adolescents attending schools that allowed girls to leave class for bathing during menstruation were five times more likely to practice adequate MHM compared to those in restrictive schools.

This finding highlights the importance of supportive school environments in promoting menstrual hygiene. Adequate MHM requires regular hygiene practices, including changing absorbents and cleaning, which may necessitate leaving class. Schools that accommodate these needs demonstrate greater responsiveness to adolescent health rights.

Supportive school environments, combined with adequate sanitation facilities, enable girls to manage menstruation effectively without fear of stigma or punishment. Conversely, restrictive policies may discourage proper hygiene practices, leading to poor MHM outcomes

CHAPTER SIX: SUMMARY, CONCLUSION AND RECOMMENDATIONS

6.1 Summary of findings

The findings revealed that only 21% of adolescent girls adequately practiced menstrual hygiene management, indicating that approximately 2 in every 10 girls meet the minimum acceptable standards of MHM. This reflects a critical public health and education challenge in the study area.

At the intrapersonal level, MHM adequacy was influenced by age, schooling status, school level, knowledge of menstrual hygiene materials, and menstrual regularity, all of which were positively associated with adequate MHM. Short menstrual duration (less than five days) was associated with reduced likelihood of adequate MHM.

At the interpersonal level, all significant factors were protective. These included parental education, parental provision of menstrual hygiene education, smaller household size, and presence of other menstruating school-going girls within the household. These findings highlight the strong influence of family structure, parental involvement, and peer exposure on menstrual hygiene practices.

At the community level, school policy allowing girls to leave class to bathe and manage menstruation was the only significant factor associated with MHM adequacy, demonstrating the importance of enabling school environments in supporting menstrual health.

6.2 Conclusion

This study found that menstrual hygiene management (MHM) among adolescent girls in Tapac Sub-county is low, with only 21% of girls meeting the criteria for adequate practice. This indicates that the majority are at risk of adverse health, social, and educational outcomes, including infections, school absenteeism, and poor psychosocial well-being, which collectively undermine their development. The study further established that MHM is shaped by multi-level ecological factors. At the intrapersonal level, being older, in school, knowledgeable about menstrual hygiene materials, and having regular menstrual cycles increased the likelihood of adequate MHM, while shorter menstrual duration reduced it. At the interpersonal level, all significant factors were protective, particularly parental education, parental guidance on menstrual hygiene, smaller household size, and the presence of other menstruating girls in the household, highlighting the

critical role of family support systems. At the community level, supportive school environments – specifically policies allowing girls to leave class to manage menstruation – significantly improved MHM practices. Overall, the findings demonstrate that MHM is not merely an individual behavior but a product of interacting personal, social, and community influences. Therefore, improving MHM in Tapac Sub-county requires integrated interventions across all ecological levels to ensure that adolescent girls can manage menstruation safely, with dignity, and without disruption to their health and education.

6.3 Recommendations to Menstrual Hygiene Management (MHM) among adolescent girls in Tapac Subcounty, Moroto District.

Based on the findings, the following are recommendations to enhance MHM adequacy and promote adolescent health and education.

6.3.1 Intrapersonal Level Recommendations

In line with the finding that older age, schooling status, school level, knowledge of menstrual hygiene materials, and menstrual regularity improve MHM, while short menstrual duration reduces it, the following are recommended:

- Strengthen age – appropriate menstrual health education, targeting younger adolescents (13–15 years) to build early knowledge and preparedness for menstruation.
- Intensify school retention programs for girls, ensuring continuous attendance so that adolescents remain exposed to MHM education and support systems.
- Integrate comprehensive menstrual hygiene education into school curricula, focusing on correct use of menstrual hygiene materials such as pads, soap, water, and safe disposal methods.
- Provide targeted support and counseling for girls with short menstrual durations or irregular experiences, to ensure they still maintain adequate hygiene practices despite fewer menstrual days.

6.3.2 Interpersonal Level recommendations

In line with the finding that parental education, parental guidance, smaller household size, and presence of other menstruating girls are protective, the following are recommended:

- Implement parent-focused MHM education programs, especially targeting parents with low or no formal education, through Village Health Teams (VHTs), schools, and community outreach programs.
- Encourage active parental involvement (both mothers and fathers) in educating adolescent girls on menstrual hygiene practices, with emphasis on practical guidance and emotional support.
- Promote household-level hygiene awareness campaigns, focusing on families with larger household sizes to reduce resource strain and improve access to sanitary materials.
- Strengthen peer learning and sisterhood approaches within households and communities where menstruating girls can share experiences and support each other in safe practices.

6.3.3 Community level recommendations

In line with the finding that school policies allowing girls to leave class to manage menstruation significantly improve MHM, the following are recommended:

- Advocate for school – friendly menstrual hygiene policies that allow girls to leave class when necessary to bathe, change sanitary materials, and maintain personal hygiene without stigma or punishment.
- Strengthen WASH facilities in schools, including private latrines, water availability, disposal systems, and bathing spaces to support safe menstrual management.
- Train teachers, especially senior women teachers, to actively support and monitor MHM practices among learners.
- Promote community-school partnerships to ensure schools remain accountable for providing enabling environments for adolescent girls' menstrual health needs.

DISSEMINATION OF FINDINGS

The findings of this study on menstrual hygiene management (MHM) among adolescent girls in Tapac Sub-county, Moroto District, will be disseminated to key stakeholders at sub-county, district, and academic levels. The purpose of dissemination is to ensure that the results are translated into practice, inform policy formulation, and contribute to improved menstrual health programming in the Karamoja region and Uganda at large.

At the academic level, the findings will be disseminated through submission of the final dissertation to Uganda Christian University in partial fulfillment of the requirements for the award of the degree. The study findings will also be presented during the oral defense and further shared through bound copies of the dissertation submitted to the university library. This will facilitate access to the research and contribute to scholarly discourse on menstrual hygiene management.

At the district level, dissemination will involve organizing a stakeholder meeting with officials from the Moroto District Health Office and the District Education Office. During this engagement, the key findings, conclusions, and recommendations of the study will be presented to inform district-level planning, policy formulation, and program implementation. A policy brief summarizing the major findings and recommendations will be shared with relevant district authorities to facilitate decision-making.

At the sub-county level, findings will be shared with Tapac Sub-county leadership, including the Sub-County Chief, Community Development Officers, and Village Health Teams (VHTs), through whatapp platform. This will provide a platform for discussing the study findings and exploring practical strategies for improving menstrual hygiene management within the community. Simplified summary reports and presentations will be used to ensure that the information is accessible and easily understood by all stakeholders.

All dissemination activities will be conducted within one to three months following the completion and approval of the study. Ethical considerations will be strictly adhered to during dissemination, including maintaining the confidentiality and anonymity of study participants. No personal identifiers will be disclosed, and all findings will be presented in aggregate form to ensure compliance with ethical standards.

Table 8: Dissemination of Findings Plan

Level	Target Audience	Dissemination Activity	Tools /Materials	Responsible person	Timeline
Academic level	Uganda Christian University (Faculty of Public Health, Nursing & Midwifery), Supervisor	Submission and defense of dissertation	PowerPoint presentation, Bound dissertation copies	Researcher	23 March 2026
District Level	Moroto District Health Office, Education Office	Stakeholder dissemination meeting or Council session	PowerPoint presentation	Researcher and District officials	Within 1-2 months
Sub-county Level	Tapac Sub-county leadership (Chief, CDOs, VHTs)	Community dissemination meeting	PowerPoint presentation, Summary report,	Researcher and Sub-county officials	Within 1-2 months

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**APPENDIX A: CONSENT FORM
(SCHOOL GIRLS ABOVE 18 YEARS)**

Title of the study: menstrual hygiene management and its associated factors among adolescent girls in Tapac sub county, Moroto district- Karamoja region

Principal investigator: Loma Esther

Introduction: About 1.8 billion women menstruate every year, implying that 800 women menstruate on a daily basis, and yet some of them, especially in the developing world face period poverty and are at risk for poor menstrual hygiene management. Poor menstrual hygiene is currently considered as a global health and development issue, it being associated with reproductive health consequences, and socio-economic ones as well. It is reported that girls in Tapac Sub County experience those consequences on a large scale, although their menstrual hygiene management practices have never been studied.

Purpose of the study: The purpose of this study will be assess menstrual hygiene management and its associated factors among adolescent girls in Tapac sub county, Moroto district- Karamoja region

Why you have been sampled: You have been sampled as a potential respondent because you happen to be one of the adolescent girls in Tapac Sub County, who has gone through at least three menstrual cycles. We believe that you are one of the girls that can validly tell us about how you manage menstrual hygiene, and what determines your management of menstrual hygiene.

Risks and benefits: Your daughter will not be exposed to any invasive procedures; all she will have to be involved in is an interview, a structured one particularly. We do not therefore expect any maleficence to your daughter due to her participation in the study. There are a number of benefits that will accrue from her participation nonetheless; this study may be of significance to the policy makers and programs officers in the aforementioned three organizations, especially those mandated to oversee MHM interventions in Moroto district. The findings of this study may be of strategic, programmatic and policy importance to especially the ministry of education, and in addition, the ministry of health in Uganda, as it will, perhaps for the first time, document the MHM practices among adolescent girls in Karamoja and what their antecedents are. With those findings, there could be more demand creation triggered in the context of MHM that may lead to the two ministries and

partner non-governmental organizations to consider allocation of more evidenced-based MHM interventions in Karamoja, in line with the strategic plan.

Besides institutional significance, this study will also benefit adolescent girls and their parents/guardians as well in Karamoja, through making them aware about their current MHM gaps, and also empowering them to know which of their own characteristics are antagonistic to MHM practice adequacy. With such empowerment, it is likely that the girls and their caretakers will be in position to take personal initiatives and improve the MHM practice, even before government intervention.

The study will also have findings related to community antecedents of MHM practice, which will be of significance to local government leaders in Tapac sub county, given that they will be made aware of which characteristics of their communities are protagonists or antagonists of adequate MHM practice, so that they can uphold the former and lobby for resources to improve the latter.

Confidentiality, privacy and anonymity: We will not be sharing information about you, outside of the research team. The information that we collect from this research project will be kept confidential. Information about your child that will be collected from the research will be put away and no-one but the researchers will be able to see it. Any information about you will have a number on it instead of his/her name. Only the researchers will know what your number is and we will lock that information up with a lock and key.

Voluntary participation: We know that the decision can be difficult when it involves sensitive topics like menstrual hygiene. You can ask as many questions as you like and we take the time to answer them. You don't have to decide today. You can think about it and tell me what you decide later. You may choose not to have your child participate in this study and your child does not have to take part in this research if she/he does not wish to do so. Choosing to participate or not will not affect either your school attendance, your future treatment at any of the health facilities in this area or access to menstrual hygiene management support services provided to other school girls in this area in any way. You may stop participating in the discussion/interview at any time that you or wish without either of you losing any of your rights here

Reimbursements

Given that participation is on only voluntary basis, and the fact that you are not going to incur any costs in order to participate in this study, there will be no incentives for your participation.

Contact: In cases of any inquiries, please feel free to contact the principal investigator on Tel: 0775.....

PART II: Certificate of Consent (Parent)

I have been asked to give consent to participate in this research study which will involve me completing one interview and one questionnaire I have read the foregoing information, or it has been read to me. I have had the opportunity to ask questions about it and any questions that I have asked have been answered to my satisfaction. I consent voluntarily to participate as a participant in this study.

Print Name of Parent or Guardian _____

Signature of Parent of Guardian _____

Date _____

Day/month/year

If illiterate

I have witnessed the accurate reading of the consent form to the parent of the potential participant, and the individual has had the opportunity to ask questions. I confirm that the individual has given consent freely.

Print name of witness _____

AND

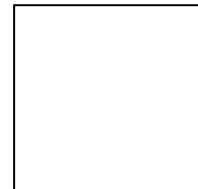
Thumb print of participant

Signature of witness _____

Date _____

Day/month/year

Day/month/year



**AKARATAS NGINA KA ACAMAKINET
(NGIKAURUUNAK ANGAPESUR ANGUNA ANGIKARU ANGITOMON
ANGIKANIKAUNEI KIDIAMA).**

Ngakiro nguna Etapit akisyom na: Etapit akisyom na ngakiro nguna ka akimukekin athegith alolap ka nguna ayaunak alotooma ngakadwarunak alo sabukaunti a tapac alo district angolo a moroto akwap ngina akarimojong.

Akeripiripan: Loma Esther.

Ageunet: Ngaberu nguna edoli ngabungei 1.8 angolo karu emineneete lo lap, inges atemar ngaberu nguna edoli 800 emineneete lo lap angina kolongit, torukaunito bon abo akulyako ngina ka ayakau lo lap ka epanikini nabo ayakaunor atyonis ana tingit ngakiro ka ayakau lo lap. Ngakiro nguna atyonis ana tingit ngakiro nguna ka ayakau lo lap inges tokona ingolekinitoe erai ngican ngulu apolok ana kwap, erucokinitoe ka ngakiro nguna elomunete ana kiro ka angaleu ke ekuwane a itunganan, ka ngican ngulu itorunito na mamukau ngisilinga dang. Elimunitoe abali ngidwe ngulu pesur alo Tapac erukaunito ngican lu nooi, tar emam pa esyomitai epite ngolo etingitotor ikec ngakiro nguna ka ayakau lo lap.

Ngakiro nguna ebunitor akisyom na: Ebunitor akisyom na erai aripikin ngakiro nguna ka ayakau lo lap angapesur alotooma Tapac, Moroto-Karimojong.

Ngakiro nguna ikiseunitere iyong: Ikiseunitai iyong ayakau na kisyom na ani erai irai iyong apese ngina ereunon alo tooma Tapac ngina ilomarito lo lap ngarwa ngauni. Ikinupit abali elosi iyong alimokin isua epite ngolo tingitor iyong ngakiro nguna ka asegis ngarwa nguna iyakar iyong lo lap ka inyoni ikisingaranakini iyong atubun nguna ebeit iyong kitiya ngarwa nguna iyakar iyong lo lap.

Nguna epedorete atakanun ka ajokis: Emam nguna alalak elosyo akitiya ka na koku kon nait eya nguna elosyo akingit inges. Emam ibore ngini aronon elosi atakanikin na koku anguna ka ayakau na kisyom na. Nait ikoni neni dang eya ngakiro nguna ajuwak epote anguna ka ayakau na kisyom na; epedori akisyom arakau ngina ajokan neni angikatubok ngikisila ka ngikapolokinitok ngaprogramia aneni ata lojokotau ngulu uni ngulu erai ikec alosete akimaniman ngakiro nguna ka ayakau ngapesur lo lap alo Moroto. Ngakiro nguna eripunio ana kisyom ana ikec elosete akisingarakin erwonget ngolo ke eministri ka akisyom, ka eministri ngolo ka angaleu alo Uganda,

ani ikote neni, ka ace pak anageunet, ka akigir ngakiro nguna etapit ngapesur ayakau lo lap alo Karimojong ka nguna itiyaeneete ikec kolong. Ka nguna aripun, ka epedorete ngakiro ngace ikiitana etapit ngakiro nguna ka ayakau ngapesur lo lap nguna epedorete arikokin ngirwongeta ngulu yarei ka ata lojokotau kiwarut ngirotin ngulu epedoryata akiting ngakiro nguna etapit ngakiro nguna ka ayakau ngapesur lo lap alo Karimojong, itiriyantai nguna sek eyaunitai.

Emam nyera i ajokis n angina elosi lorwongeta make, ingarakini akisyom na dang ngidwe ngulu pesur ngulu ereunok ka ngikeuryarak alo Karimojong, alotooma akitaanyikin ikec ngangecelei nguna eya tooma na kiro nguna ka ayakau ngapesur lo lap, ka akitoos ikec aanyun ngakiro nguna nyejuwak aneni kec alo pite ngolo sek etingitotor ikec ngakiro nguna ka ayakau lo lap. Angun, epedorete ngapesur ka ngikeuryarak kec asubakin epite ngolo etingitotor ikec ngakiro nguna ayakau lo lap, tar eringa apukan nyitiya ngadi kiro.

Elosi akisyom na dang ayakaunor ngakiro nguna ngorok nguna etapit epite ngolo sek etingitotor ngitunga ngakiro nguna ka ayakau lo lap, nguna ejokyata lo karikok ka apukan alo Tapac, ikote neni itaanyunio ikec epite ngolo eyakatar ngakiro nguna ka ayakau ngapesur lo lap, kotere epedorete akitogogong nguna ajuwak ka kiwarut ngisilinga ngulu subakinet nguna subakina.

Akimunono, akiwuit ka nyikilimor: Emam nyitomoryo isua idyo tunganan ngakiro nguna ikitapito iyong, kinga lo tunga ngulu ka akisyom ana. Ngakiro nguna iraraunio isua ana kisyom ana erai nguna ingadaiyaryo. Ngakiro nguna etapit ikon koku nguna elomunete ana kisyom ana ingadaiyaryo ka itunganan itaanyikinio. Ngakiro kon daadang emam nyiwuakinio ekiro kon nait enamba. Ngulu asyomak bon eanyunete ekon namba ka ingadakinio isua ngakiro neni eyai engaet.

Ayakau na kisyom ka akon camit: Ikiyeni isua abali etyoner atubun ayakau na kisyom ani erai etyoko kire ngakiro nguna elosyo akimor ka emam nyera i ngakiro nguna epatana akiyan nguna ikote ngakiro nguna ka ayakau ngapesur lo lap. Ipedori iyong akingit ngakingiseta nguna icamit iyong daadang ka akiyai isua apaki abongokin ikec. Nyiitana iyong atubunn nakuwar na. Itamakini iyong mono tosodi nait ikilimok ayong nguna iseu iyong akau. Ipedori iyong atubun abali nyeyakaun ikoku kon na kisyom na ka epedori ikon koku akinger ayakaun na kisyom na erai ketubu alope/ilope nguna. Atubun ayakaun na kisyom kori mam emam nyemunauni ayakaun a ikoku kon lo sukul, aryemunet amukyan alo dakitar ke edyo alo kitela alo kori akingarakinet adyo ngina ebuni kotere ngakiro nguna ka ayakaun ngapesur lo lap ngina einakinio ngidwe ngulu pesur ngulu ce alo

kitela alo. Ipedori iyong akinger ayakaun na kisyom na edyo saa daadang kori emam adyo pedor alosit aneni kon anege.

Akinyakakinio eropit.

Ayakaun na kisyom na erai acamunet ke etau kon, ka emam ngislinga ngidi elosete aneni kon anguna ka ayakaun na kisyom na, emam tar edyo siling ikiinio iyong anguna ka ayakaun na kisyom na.

Enamba: Keya nguna icamit iyong aanyun, toramak itunganan ngini epol ana kisyom ana Enamba: 0773 281652.

PART II: Akaratas ngina ka acamakinet(Ekauruunan)

Ekengitakinitai ayong ayakaun tooma na kisyom na ngina iitani ayong akirikakin akingito apei ka apei karatas ngina angakingiseta osyomite ngakiro, kori adaun asyomakin ayong. Abu ayong oyakaunor apaki ngina kingiset ngakingiseta nguna etapit akisyom na ka ngakiseta daadang nguna abu ayong engit aponi okobongokin ejok. Acamu ayong ayakaun na kisyom na.

Kigiraki Ekiro a Ikauruunan/Ikeuryaran _____

Eseej a Ikauruunan/Ikeuryaran_____

Ngirwa ke elap _____

Ngirwa/elap/ekaru

Ani pa kesyomit

Aanyuwa ayong kire esyomakinio akaratas ngina ka acamkinet neni a ikauruunan a ikoku angina elosi ayakaun na kisyom na, ka abu itunganan toyakaunor apaki ngina kingiset ngakingiseta. Acamunit ayong abali acamu ayakaun na kisyom.

Kigirak ekiro a esuuda_____ KA Ekimoin angini elosyo akingitingit

Eseej a esuuda _____

Ngirwa ke elap _____

Ngirwa/elap/ekaru

Ngirwa/elap/ekaru



APPENDIX B: CONSENT FORM
(PARENTS OF SCHOOL GIRLS BELOW 18 YEARS)

Title of the study: menstrual hygiene management and its associated factors among adolescent girls in Tapac sub county, Moroto district- Karamoja region

Principal investigator: Loma Esther

Introduction: About 1.8 billion women menstruate every year, implying that 800 women menstruate on a daily basis, and yet some of them, especially in the developing world face period poverty and are at risk for poor menstrual hygiene management. Poor menstrual hygiene is currently considered as a global health and development issue, it being associated with reproductive health consequences, and socio-economic ones as well. It is reported that girls in Tapac Sub County experience those consequences on a large scale, although menstrual hygiene management practices have never been studied.

Why your daughter has been sampled: Your daughter has been sampled as a potential respondent because she happens to be one of the primary school going girls in Kalamba Sub County, who has gone through at least three menstrual cycles. We believe that she is one of the girls that can validly tell us about how she manages menstrual hygiene, what she knows about menstrual hygiene management and the challenges she faces when managing her menstrual hygiene.

Risks and benefits: Your daughter will not be exposed to any invasive procedures; all she will have to be involved in is an interview, a structured one particularly. We do not therefore expect any maleficence to your daughter due to her participation in the study. There are a number of benefits that will accrue from her participation nonetheless; this study may be of significance to the policy makers and programs officers in the aforementioned three organizations, especially those mandated to oversee MHM interventions in Moroto district. That is because the study will firstly highlight the current MHM practices of school girls in Moroto district, which will indicate current practice gaps that the interveners will have to address in future and also establish what determines that practice. Those findings will certainly serve to show interveners in the three organizations the negative determinants of MHM, and enable the know how to intervene at each level of influence identified with the development of evidence based interventions.

The district health office and local government of Moroto will, as the authorities meant to oversee the districts' health system and status of persons benefit from the study as well. In the districts efforts to break the apparent menstrual taboos in Moroto, the district authorities have also adopted multilevel, multispectral interventions. Since this study will inferentially test the influence of three independent variables on MHM, the findings may be of important to the developers of the multilevel interventions to ensure sound MHM among school girls in the district.

Parents and their school girl daughters alike may also find the study to be of significance to them since most of the potential independent variables that will be tested are intrapersonal meaning the girls will be able to modify any of them identified as being negative determinants of MHM practice, and interpersonal implying that the parents will also be in position to modify those identified as being negative determinants. School administrators in Moroto may also use the findings to make their school environment more menstrual hygiene supportive.

Confidentiality, privacy and anonymity: We will not be sharing information about you, or your daughter outside of the research team. The information that we collect from this research project will be kept confidential. Information about your child that will be collected from the research will be put away and no-one but the researchers will be able to see it. Any information about your child will have a number on it instead of his/her name. Only the researchers will know what his/her number is and we will lock that information up with a lock and key.

Voluntary participation: We know that the decision can be difficult when it involves your children. And it can be especially hard when the research includes sensitive topics like menstrual hygiene. You can ask as many questions as you like and we take the time to answer them. You don't have to decide today. You can think about it and tell me what you decide later. You may choose not to have your child participate in this study and your child does not have to take part in this research if she/he does not wish to do so. Choosing to participate or not will not affect either your own or your daughter's school attendance or her future treatment at any of the health facilities in this area in any way. You and your daughter will still have all the benefits that would otherwise be available to other school girls in this sub county. You may stop participating in the discussion/interview at any time that you or wish without either of you losing any of your rights here

Reimbursements

Given that participation is on only voluntary basis, and the fact that you are not going to incur any costs in order to participate in this study, there will be no incentives for your participation.

Contact: In cases of any inquiries, please feel free to contact the principal investigator on Tel: 0775.....

PART II: Certificate of Consent (Parent)

I have been asked to give consent for my daughter/son to participate in this research study which will involve her completing one interview and one questionnaire I have read the foregoing information, or it has been read to me. I have had the opportunity to ask questions about it and any questions that I have asked have been answered to my satisfaction. I consent voluntarily for my child to participate as a participant in this study.

Print Name of Parent or Guardian _____

Signature of Parent of Guardian _____

Date _____

Day/month/year

If illiterate

I have witnessed the accurate reading of the consent form to the parent of the potential participant, and the individual has had the opportunity to ask questions. I confirm that the individual has given consent freely.

Print name of witness _____

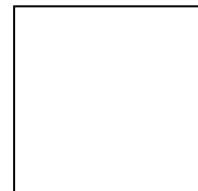
AND

Thumb print of participant

Signature of witness _____

Date _____

Day/month/year



PART II: Certificate of Consent (Child)

My parent has consented on my behalf, for me to be a participant in this study; I also voluntarily assent to participate

Signature of child _____

Date _____

Day/month/year

Print name of witness _____

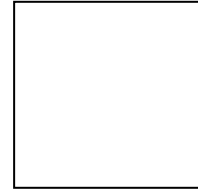
AND

Thumb print of participant

Signature of witness _____

Date _____

Day/month/year



Statement by the researcher/person taking consent

I have accurately read out the information sheet to the parent of the potential participant, and to the best of my ability made sure that the person understands that the following will be done:

- 1.
- 2.
- 3.

I confirm that the parent was given an opportunity to ask questions about the study, and all the questions asked by him/her have been answered correctly and to the best of my ability. I confirm that the individual has not been coerced into giving consent, and the consent has been given freely and voluntarily.

A copy of this Informed Consent Form has been provided to the parent or guardian of the participant _____

Print Name of Researcher/person taking the consent _____

An Informed Assent Form will _____ OR will not _____ be completed.

AKARATAS NGINA KA ACAMAKINET
(NGIKAURUUNAK ANGAPESUR ANGUNA ANGIKARU ANGITOMON
ANGIKANIKAUNEI KWAP)

Ngakiro nguna Etapit akisyom na: Etapit akisyom na ngakiro nguna ka akimukekin athegis alolap ka nguna ayaunak alotooma ngakadwarunak alo sabukaunti a tapac alo district angolo a moroto akwap ngina akarimojong.

Akeripiripan: Loma Esther.

Ageunet: Ngaberu nguna edoli ngabungei 1.8 angolo karu emineneete lo lap, inges atemar ngaberu nguna edoli 800 emineneete lo lap angina kolongit, torukaunito bon abo akulyako ngina ka ayakau lo lap ka epatanikini nabo ayakaunor atyonis ana tingit ngakiro ka ayakau lo lap. Ngakiro nguna atyonis ana tingit ngakiro nguna ka ayakau lo lap inges tokona ingolekinitoe erai ngican ngulu apolok ana kwap, erucokinitoe ka ngakiro nguna elomunete ana kiro ka angaleu ke ekuwane a itunganan, ka ngican ngulu itorunito na mamukau ngisilinga dang. Elimunitoe abali ngidwe ngulu pesur alo Tapac erukaunito ngican lu nooi, tar emam pa esyomitai epite ngolo etingitotor ikec ngakiro nguna ka ayakau lo lap.

Ngakiro nguna eseunitere na koku kon ayakaun na kisyom na: Eseunitai iyong ayakau na kisyom na ani erai irai iyong apese ngina ereunon alo tooma Tapac ngina ilomarito lo lap ngarwa ngauni. Ikinupit abali elosi inges alimokin isua epite ngolo etingitor inges ngakiro nguna ka asegis ngarwa nguna eyakar inges lo lap ka inyoni isingaranakini inges atubun nguna ebeit inges kitiya ngarwa nguna eyakar inges lo lap.

Nguna epedorete atakanun ka ajokis: Emam nguna alalak elosyo akitiya ka na koku kon nait eya nguna elosyo akingit inges. Emam ibore ngini aronon elosi atakanikin na koku anguna ka ayakau na kisyom na. Nait ikoni neni dang eya ngakiro nguna ajuwak epote anguna ka ayakau na kisyom na; epedori akisyom arakau ngina ajokan neni angikatubok ngikisila ka ngikapolokinitok ngaprogramia aneni ata lojokotau ngulu uni ngulu erai ikec alosete akimaniman ngakiro nguna ka ayakau ngapesur lo lap alo Moroto. Ani erai elosi akisyom na akisileereun epite vngolo eyakatar ngakiro nguna ka ayakaunun ngapesur lo lap alo Moroto, nguna elimori ngangecelei nguna eya na kiro nguna ka ayakaunun ngapesur lo lap ka epite ngolo esubakinere manan ka nguna eyaunito

nguna itiyaete sek ngapesur. Elosete nguna eripunio nu akisingarakin ata lojokotau ngulu uni nguna emaikina kitiyai kotere ngakiro nguna ka ayakau ngapesur lo lap, ka topedosi aanyun nguna itemokino kitiyata ikwapitai nguna eanyuwarito.

Apis ngina ka angaleu ka apukan ngina alo kwap alo Moroto, ikwa ngulu imanimanete ngarwongeta nguna ka angaleu ka eyakae angitunga angulu etapito ngakiro ka akisyom ana. Alotooma nguna itiyae edistrict kotere alemarya ngitalyo ngulu ka ayakau ngapesur lo lap alo Moroto, ecamunit edistrict dang nguna itemokinio kitiyai emoikinio alemar ngitalyo ngulu aronok nguna etapito ngakiro nguna ka aminenen ngapesur lo lap. Anguna elsoyo akisyom na akitemokin ngirotin ngulu etingitere ngakiro nguna ayakau ngapesur lo lap, epedorete nguna eripunio ana kisyom ana akisingarakin ngapesur ngirwa nguna eyakatar lo lap alo district.

Ngikauruunak ka ngidwe kec ngulu pesur epedorete arukaun ajokis ka akisyom ana kotere topedoryata ngidwe ngulu dang aripun ngipitesyo ngulu aronok ngulu sek etingitotor ikec angaleu ngarwa nguna eyakatar ikec lo lap, inges nait atemar epedorete ngikauruunak dang akiwarun ngirotin ngulu ajuwak ngulu etingitere ngakiro ka ayakau lo lap. Epedorete ngisukulo dang akirokun epite ngolo ajokan ngolo kiganget ngidwe ngulu pesur alo sukul.

Akimunono, akiwuit ka nyikilimor: Emam nyitomoryo isua idyo tunganan ngakiro nguna ikitapito iyong, kinga lo tunga ngulu ka akisyom ana. Ngakiro nguna iraraunio isua ana kisyom ana erai nguna ingadaiyaryo. Ngakiro nguna etapit ikon koku nguna elomunete ana kisyom ana ingadaiyaryo ka itunganan itaanyikinio. Ngakiro kon daadang emam nyiwuakinio ekiro kon nait enamba. Ngulu asyomak bon eanyunete ekon namba ka ingadakinio isua ngakiro neni eyai engaet.

Ayakau na kisyom ka akon camit: Ikiyeni isua abali etyoner atubun ayakau ikon koku na kisyom ani erai etyoko kire ngakiro nguna elosyo akimor ka emam nyerai ngakiro nguna epatana akiyan nguna ikote ngakiro nguna ka ayakau ngapesur lo lap. Ipedori ka ikon koku iyong akingit ngakingiseta nguna icamit iyong daadang ka akiyai isua apaki abongokin ikec. Nyiitana iyong atubunn nakuwar na. Itamakini iyong mono tosodi nait ikilimok ayong nguna iseu iyong akau. Ipedori iyong atubun abali nyeyakaun ikoku kon na kisyom na ka epedori ikon koku akinger ayakaun na kisyom na erai ketubu alope/ilope nguna. Atubun ayakaun na kisyom kori mam emam nyemunauni ayakaun a ikoku kon lo sukul, aryemunet amukyan alo dakitar ke edyo alo kitela alo kori akingarakinnet adyo ngina ebuni kotere ngakiro nguna ka ayakaun ngapesur lo lap ngina

einakinio ngidwe ngulu pesur ngulu ce alo kitela alo. Ipedori iyong akinger ayakaun na kisyom na edyo saa daadang kori emam adyo pedor alosit aneni kon anege.

Akinyakakinio eropit

Ayakaun na kisyom na erai acamunet ke etau kon, ka emam ngislinga ngidi elosete aneni kon anguna ka ayakaun na kisyom na, emam tar edyo siling ikiinio iyong anguna ka ayakaun na kisyom na.

Enamba: Keya nguna icamit iyong aanyun, toramak itunganan ngini epol ana kisyom ana Enamba: 0775.....

PART II: Akaratas ngina ka acamakinet(Ekauruunan)

Engisitai ayong acamakin ikoku kang toyakaun na kisyom n angina iitani akirikakin apei kingito ka akaratas apei ngina angakingiseta, asyom ayong ngakiro, kori akasyomakin ayong ejok. Ayakaunor ayong apaki ngina kingiset ngakingiseta ka akingiset daadang ngina abu ayong engit aponi okobongokin ejok. Acamu ayong abali toyakaun ikaa koku na kisyon na.

Ekuro ke ekauruunan/ekeuryaran _____

Eseej a ikauruunan/ekeuryaran _____

Ngirwa ke elap _____

Ngirwa/elap/ekaru

Ani pa kesyomit

Aanyuwa ayong kire esyomakinio akaratas ngina ka acamkinet neni a ikauruunan a ikoku angina elosi ayakaun na kisyom na, ka abu itunganan toyakaunor apaki ngina kingiset ngakingiseta. Acamunit ayong abali acamu ayakaun na kisyom.

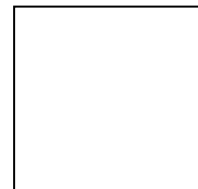
Ekuro ke esuuda _____

KA Ekimoin angini ingisingisiyo

Eseej ke esuuda _____

Ngirwa ke elap _____

Ngirwa/elap/ekaru



PART II: Akaratas ngina ka acamakinet (Ngidwe)

Acamu ekaa kauruunan ayong ayakaun na kisyom na; Acamu ayong dang ayakaunn na kisyom na

Eseej aikoku _____

Ngirwa ke elap _____

Ngirwa/elap/ekaru

Ekiro a esuuda _____

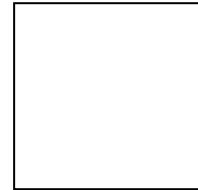
Ka

Ekimoin angina ingisingisiyo

Eseej a esuuda _____

Ngirwa ke elap _____

Ngirwa/elap/ekaru



Nguna elimuni ekasyoman

A dau ayong asyomakin ngakiro nu neni a ikauruunan a itunganan angina elosyo akingitingit, ka alotooma aka yenut aanyu ayong atemar eyeni itunganan ngakiro nu:

- 1.
- 2.
- 3.

Acamunit ayong abali aponi inakinai ekauruunan apaki ngina kingiset ngakingiseta nguna etapito akisyom na, ka ngakingiseta daadang nguna abu inges kingit aponi tobongokinoi ejok alotooma epite ngolo eteo ayong. Acamunit ayong abali emam pa etingakinio itunganan acamun ayakaunn na kisyom na, ka ecamunit ke ekeetau.

Akigurunet akaratas angina ka acamakinet ana inges aponi inakinai ekauruunan kori ikeuryaran angini ingisingisiyo _____

Ekiro ke ekasyoman/itunganan ngini ilelebi akaratas na _____

Akaratas ngina ka acamakinet _____ KORI emam _____ kilelebai.

APPENDIX C: QUESTIONNAIRE

PART A: Socio demographics of child

Number	Question	Choices	Code of choice
1	Age of child	1. 14 years 2. 15 years 3. 16 years 4. 18 years	
3	Are you currently in school	1. Yes 2. No	
2	If yes, what is your current school level?	3. Primary 4. Secondary	
3	If primary, which primary school class are you in currently	1. Primary five 2. Primary six 3. Primary seven	
4	If Secondary, which level of secondary school are you in currently	1. Secondary (O level) 2. Secondary (A level)	
5	Section of school belonged to	1. Boarding section 2. Day section	
6	If not in school currently, in which class did you dropout	1. Lower primary 2. Upper primary 3. Other.....	
7	What is your birth order	1. One 2. Two 3. Three 4. More than three	

PART B: Assessment of menstrual hygiene practices

Number	Question	Choices	Code of choice
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8	Do you use absorbent materials during my menstrual flow	1. Yes 2. No	
9	If yes how often do you do so	1. Always 2. Sometimes 3. Rarely	
10	Do you always use commercially made sanitary pad during your menstruation period	1. Yes 2. No	
11	If yes how often do you do so	1. Always 2. Sometimes 3. Rarely	
12	Do you change pads or cloths more than three times a day during menstruation	1. Yes 2. No	
13	If yes how often do you do so?	1. Always 2. Sometimes 3. Rarely	
14	Do you use clean clothes and wash with soap and water during your menstrual bleeding	1. Yes 2. No	
15	If yes how often do you do so	1. Always 2. Sometimes 3. Rarely	
16	Do you commonly dry sanitary clothes with sunlight	1. Yes 2. No	
17	If yes how often do you do so	1. Always 2. Sometimes 3. Rarely	
18	How frequently do you clean your external genitalia during menstruation, using soap and water	1. Once 2. Twice 3. Thrice	

19	Do you dispose the used pads by wrapping with paper	1. Yes 2. No	
20	If yes how often do you do so	1. Always 2. Sometimes 3. Rarely	
21	Do you bathe daily during menstruation	1. Yes 2. No	
22	If yes how often do you do so	1. Always 2. Sometimes 3. Rarely	
23	How frequently do you clean your genital organ during menstruation	1. Once 2. Twice 3. Thrice	
24	Where do you dispose used pads	1. Dustbin 2. Toilet/latrine 3. In the open	

PART C: Intrapersonal characteristics

Number	Question	Choices	Code of choice
26	Which of the following is the most important characteristics of an absorbent material that should be used during menstruation	1. Should be clean 2. Should be absorbent 3. Should be colored 4. Should be soft	
27	Which of the following materials is the most important when it comes to menstrual hygiene	1. Basin 2. Water 3. Soap and water	
28	How many times should a girl who is menstruating bathe?	1. Once 2. Twice 3. Thrice	

		4. More than three times	
31	Do you discuss menstrual hygiene with any of your friends?	1. Yes 2. No	
32	Do you discuss menstrual hygiene with any of your family members, including parents?	1. Yes 2. No	
33	Do you believe that your religion allows use of menstrual hygiene materials and frequent genitalia cleaning with soap and water?	1. Yes 2. No	
34	What is your perception of the cost of commercially available sanitary pads?	1. They are very expensive 2. They are expensive 3. They are cheap and affordable	
35	Do you always have regular of menses	1. Yes 2. No	
36	How long do your menses usually last?	1. Less than five years 2. More than five years	
37	Do you usually experience complications during menstruation?	1. Yes 2. No	
38	If which, which are the commonest complications you experience?	1. Abdominal pain 2. Smelly discharge 3. Heavy bleeding 4. Other.....	

PART D: Interpersonal characteristics

Number	Question	Choices	Code of
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			choice
39	Do you stay with both parents	4. Yes 5. No	
40	If no, which parent do you stay with	1. Mother only 2. Father only 3. Guardian	
41	Is your mother educated	1. Yes 2. No	
	If yes, to what level is she educated?	1. Primary 2. Secondary 3. Tertiary	
42	Is your father educated	1. Yes 2. No	
43	If yes, to what level is he educated?	1. Primary 2. Secondary 3. Tertiary	
44	Has your mother ever educated you about how you should practice menstrual hygiene properly?	1. Yes 2. No	
45	Has your father ever educated you about how you should practice menstrual hygiene properly?	1. Yes 2. No	
46	Are there any members in this community who have ever educated you about menstrual hygiene management?	1. Yes 2. No	
47	How easy is it to access absorbent materials in this community?	1. Very easy 2. Easy 3. Not easy	
48	Do you have friends who menstruate?	1. Yes 2. No	

49	If yes, do those friends practice proper menstrual hygiene management?	1. Yes 2. No	
50	How many are you in this household?	1. Less than 5 2. More than 5	
51	Are there any other school girls in the house that menstruate?	1. Yes 2. No	

PART E: Institutional characteristics

Number	Question	Choices	Code of choice
48	Does the school you go have a reliable water supply system? Is the water available?	1. Yes 2. No	
49	Does the school have a female bathroom?	1. Yes 2. No	
50	Is it separated to a great distance from the male bathroom?	1. Yes 2. No	
51	Do the female bathroom and toilets at your school have an inside lock	1. Yes 2. No	
52	When at school, are you allowed to move out of class and go bathe during menstruation	1. Yes 2. No	
53	How would you rate the privacy in the toilets and bathrooms you have at school?	1. High 2. Moderate 3. Low	

54	Have you ever been educated about MHM by your teachers at school?	1. Yes 2. No	
55	Does your school have a disposal site designated for menstrual hygiene waste?	1. Yes 2. No	
56	Have you ever been bullied by your male counterparts, due to menstruation?	1. Yes 2. No	

END

AKARATAS ANGAKINGISET

PART A: Ngakiro nguna etapito ikoku

Ekimar	Ngakingiseta	Ngaseuneta	Ekimar ka aseunet
1	“Ngikaru a ikoku”	5. Ngikaru Ngitomon angomwon 6. Ngikaru Ngitomon angikan 7. Ngikaru Ngitomon angikanikapei 8. Ngikaru Ngitomon angikanikaunei	
3	Iyae iyong tokona lo sukulaa kori isiom i yongaa?	5. Ee 6. Emam	
2	Anikerai Ee, ani doketait alosukul tokona?	7. Ngakilasia nguna cicik. 8. Ngakilasia nguna alokiding.	
3	Anikerai ngakilasia nguna cicik, ani kilas a losukul tokona.	4. Akilas ngina angakan. 5. Akilas ngina angakanikapei 6. Akilas ngina angakanikarei	
4	Anikerai ngakilasia nguna alokiding, anidoketait kona iyai iyong tokona?	3. Ngakilasia nguna alokiding. 4. Ngakilasia nguna alokidiana.	
5	Natiakatait ani iyae iyong a losukul?	3. Eperi lo sukul pei. 4. Ebongi lore.	
6	Ani paki iya alo sukul tokona, anikilas	6. A kilas ngina cici ngina	

	iisikinia iyong akisiom?	alokwap. 7. Akilas ngina cici ngina alokidama. 8. Ngace.....	
7	Ikidounitoy iyong irae ikoku ngini angiae?	5. Ipei 6. Ngerae 7. Ngiunie 8. Ngiunie kidiana.	

PART B: Aripikin epite ngolo ka angaleu eyakai lo lap

Ekimar	Ngakingiseta	Ngaseuneta	Ekimar ka aseunet
8	Isityaene iyong ngiboro ngulu enakete ngaokot iyae lolapaa?	3. Ee 4. Emam	
9	Anikerai ee, Ngapakio ngai itiyaa iyong nguna.	4. Ngapakio daadang. 5. Ngapakio ngadi. 6. Ngace pakio.	
10	Isityaene iyong ngapakio daadang ngapadia nguna itiyaunitae ani iyae iyong lolap konaa?	3. Ee 4. Emam	
11	Anikerai Ee, napakio ngayae isityaa iyong?	4. Npakakio daadang. 5. Ngapakio ngadi. 6. Ngace pakio	
12	Iloconokini iyong ngapadia kori ngilowi ngarwa ngaunei kidiana anakolongit iyae lolapaa?	3. Ee 4. Emam	
13	Anikerai ee, ngapakio ngayae itiyaa iyong?	4. Ngapakio daadang.	

		5. Ngapakio Ngadi. 6. Ngace pakio	
14	Isitiyaene iyong ngilowi ngulu asegak ka ilosio ke esabuni ka ngakipi iyae lolapaa?	3. Ee 4. Emam	
15	Anikerai ee, anupakio itiyaa iyong	4. Ngapakio daadang. 5. Ngapakio Ngadi. 6. Ngace pakio	
16	Itowonene iyong nooi ngilowi angilapio kotere a segis ka akolongaa?	3. Ee 4. Emam	
17	Anikerai ee, anupakio itiyaa iyong ngun?	4. Ngapakio Daadang. 5. Ngapakio Ngadi. 6. Ngace pakio	
18	Ikwae jik anapakio anguna ekidioko itosegia iyong akonikuwan iyae lolap isitiyae esabuni ka ngakipi?	4. Apei kitoseget 5. Ngarwatin ngarei 6. Ngarwatin ngaunei.	
19	Imasanari iyong ngapadia nguna isitiyat iyong alolap ilogilogit angakaritasaa?	3. Ee 4. Emam	
20	Anikerai ee, anupakio itiyaa iyong ngun?	4. Ngapakio daadang. 5. Ngapakio Ngadi. 6. Ngace pakio	
21	Ilonganar iyong angina kolongit iyae lolapaa?	3. Ee 4. Emam	

22	Ani kerai ee, anupakio itiyaa iyong ngun.	<ul style="list-style-type: none"> 4. Ngapakio daadang. 5. Ngapakio Ngadi. 6. Ngace pakio 	
23	Anupakio itosegia iyong a koni kuwan ikwa aberu iyae lolap?	<ul style="list-style-type: none"> 4. Apeirwait 5. Ngarwa ngarei 6. Ngarwa ngaunei 	
24	Neni erae imasanakini iyong ngapadia nguna isitiyat iyong?	<ul style="list-style-type: none"> 4. Neni iwanakinio agasia. 5. Locoron. 6. Neni eoworori daadang. 	

PART C: Ngipitesyo a ipei tunganan

Ekimar	Ngakingiseta	Ngaseuneta	Ekimar ka aseunet
26	Ani analimunta anu erae alimoret ngina epol noi alotoma ngiboro ngulu enakete ngaokot nguna emaikana kisitiyae anapak angilapio?	<ul style="list-style-type: none"> 5. Emaikina toseg. 6. Emaikina kijujiete/tonakete. 7. Emaikina toyakar erangi. 8. Emaikina tononok kori todelet. 	
27	Ani aloboro alu erae ngina epol nooi ana segis alolap”.	<ul style="list-style-type: none"> 4. Alala kori abesen. 5. Ngakipi. 6. Esabuni ka Ngakipi” 	
28	Ngarwatin ngai emaasi apesi ngina eyae lolap kilongar?	<ul style="list-style-type: none"> 5. Aperwait 6. Ngarwa ngarei 7. Ngarwa ngaunei 	

		8. Ngarwa ngaunei kidiama.	
31	Iyanene iyong nguna ka asegis alo lap ka ngapalon koniaa?	3. Ee 4. Emam	
32	Iyanene iyong asegis alolap ka ngutunga ngulu ke ekaal, ikwa ngikaurunak konia”	3. Ee 4. Emam	
33	Inupit iyong atemar ecamakinit ekoni diin a kisitiya ngiboro ngulu asegak ka akitoseg jikjik akuwan ke esabuni ka ngakipia?	3. Ee 4. Emam	
34	Nyo erae akoni tametait alobeyo angapadia?	4. Egogong ebei 5. Egogong 6. Epatana ebei ka epedor.	
35	Iyakaunun iyong lolap jwijwi angololap aa?	3. Ee 4. Emam	
36	Awoyau ngina ebi ai iyakari iyong a lolap?	3. Ngikaru ngikan kwap. 4. Ngikaru ngikan kidiama.	
37	Ipupunei iyong aronis kori ariabo iyai lolapaa?	3. Ee 4. Emam	
38	Anikerae ee, nganu ngapupunieta nguna epetuna nooi aneni kon.	5. Ariebo alokwap akook. 6. Eure ngolo abosan anabukunieta ka akuwan angaberu. 7. Eyiye ngolo a potwon. 8. Ngace.....	

PART D: Ngipitesyo angitunga angulu alalak

Ekimar	Ngakingiseta	Ngaseuneta	Ekimar ka aseunet
39	Iboyete iyong ka ngikaurunak kon daadangaa?.	9. Ee 10. Emam	
40	Anikemam, ali kaurunan iboyoto iyong?	4. Toto Bon. 5. Papa Bon. 6. Ekawaikinan.	
41	Esiomit Toto aa?	3. Ee 4. Emam	
	Anikerai ee, esiomit inges paka nadoketait ani?.	4. Ngakilasia ngina cici. 5. Ngakilasia ngina alokiding. 6. Ngakilasia nguna apolok.	
42	Esiomit Papa aa?	3. Ee 4. Emam	
43	Anikerai ee, esiomit paka nadoketait ani?	4. Ngakilasia ngina cic. 5. Ngakilasia nguna alokiding. 6. Ngakilasia nguna apolok	
44	Ikitatamitor iyong atokon epite ngolo emaikina kisisia asegis alolap ejokaa?	3. Ee 4. Emam	
45	Ikitatamitor iyong apakon epite ngolo emaikina kisisia asegis alolap ejokaa?	3. Ee 4. Emam	
46	Eya ngidii tunga anakibois ana ngulu ikitatamitor iyong epite ngolo kimukekinet asegis iyae lolapaa?	3. Ee 4. Emam	

47	Ikwaee epatania arukar ngiboro ngulu ejujuak anakibois ana?	4. Epatana nooi. 5. Epatana. 6. Ngepatana.	
48	Iyakar iyong ngapaalon/ngakonei nguna eminenete lolapaa?	3. Ee 4. Emam	
49	Anikerae ee, isisaete ngakonikonei ejok asegis alolap imukekinitoa?	3. Ee 4. Emam	
50	Irakasi iyes ngeai alokal kori alokeno?	3. Ngikan kwap. 4. Ngikan kidiama.	
51	Eya ngapesur asukul lokal nguna epete lolapaa?	3. Ee 4. Emam	

PART E: Ngipitesyo angatuketa

Ekimar	Ngakingiseta	Ngaseuneta	Ekimar ka aseunet
48	Esukul ngolo ilosene iyong eyakar neni eponeneta ngakipia ka eya ngakipia?	3. Ee 4. Emam	
49	Eyakar esukul ekisakat anga beruaa?	3. Ee 4. Emam	
50	Epakara nooi aneni angolo angikiliokaa?	3. Ee 4. Emam	
51	Ngikilongieta ka ngicoronin anga beru alo sukul kus eyakatar ngigolioto alo tomaa?	3. Ee 4. Emam	

52	Ani iyae alo sukul ikicamakinitai iyong alomun ana kilas ka tolot akilonga iyae lolap?	3. Ee 4. Emam	
53	Ikwaee ipimaria iyong eyakae kon bon alo coronin ka ngikisakatia ngulu eya lo sukul?.	4. Elal 5. Eyae kiding 6. Edit	
54	Ikitatamitere iyong alo sukul epite ngolo kimukekinet asegis iyae lolapaa?	3. Ee 4. Emam	
55	Eyakar ekus sukul neni eseunit kan akimasanakin ngiboro ngulu angilapio ngulu aronok aa?	3. Ee 4. Emam	
56	Ikitingitotor iyong ngikonisiomet ngulu sapa erono kan aminene lolap aa?	3. Ee 4. Emam	

ASALUNET

APPENDIX D: LETTERS

UCU REC Letter



UGANDA CHRISTIAN UNIVERSITY

A Centre of Excellence in the Heart of Africa

To: Esther Loma

Uganda Christian University
0773281652

Type: Initial Review

Re: UCUREC-2023-702: Menstrual Hygiene Management and Its Associated Factors Among Adolescent Girls in Tapac Subcounty, Moroto District- Karamoja Region

I am pleased to inform you that the Uganda Christian University REC, through expedited review held on 28/11/2023 approved the above referenced study.

Approval of the research is for the period of 28/11/2023 to 28/11/2024.

As Principal Investigator of the research, you are responsible for fulfilling the following requirements of approval:

1. All co-investigators must be kept informed of the status of the research.
2. Changes, amendments, and addenda to the protocol or the consent form must be submitted to the REC for re-review and approval **prior** to the activation of the changes.
3. Reports of unanticipated problems involving risks to participants or any new information which could change the risk benefit: ratio must be submitted to the REC.
4. Only approved consent forms are to be used in the enrollment of participants. All consent forms signed by participants and/or witnesses should be retained on file. The REC may conduct audits of all study records, and consent documentation may be part of such audits.
5. Continuing review application must be submitted to the REC **eight weeks** prior to the expiration date of **28/11/2024** in order to continue the study beyond the approved period. Failure to submit a continuing review application in a timely fashion may result in suspension or termination of the study.
6. The REC application number assigned to the research should be cited in any correspondence with the REC of record.
7. You are required to register the research protocol with the Uganda National Council for Science and Technology (UNCST) for final clearance to undertake the study in Uganda.

The following is the list of all documents approved in this application by Uganda Christian University REC:



28/11/2023

Tapac Subcounty Letter

Email: lotukg@yahoo.com
Airtel Phone: 0754-174797
MTN Phone: 0774-174797

IN ANY CORRESPONDENCE O
THIS SUBJECT PLEASE QUOTE



The Republic of Uganda

MOROTO DISTRICT LOCAL GOVERNMENT
Office of the Senior Assistant Secretary
Tapac
C/o. Box 4,
Moroto.
Uganda

23 January 2024

TO WHOM IT MAY CONCERN

RE: ADMINISTRATIVE CLEARANCE FOR DATA COLLECTION

This is to formally introduce and grant administrative clearance to Ms. Loma Esther, a Masters of Public Health student of Uganda Christian University, conducting a study titled:

“Menstrual Hygiene Management and Associated Factors among Adolescent Girls in Tapac Sub county, Moroto District”.

The purpose of this study is to assess menstrual hygiene practices, challenges, and related factors affecting adolescent girls in Tapac Sub county. The findings are intended to inform strategies that improve adolescent girls’ health and well-being in the area.

The researcher is hereby authorized to conduct data collection within specified communities, schools, and institutions in Tapac Sub county. Local leaders, school administrators, and community members are requested to provide the necessary support and cooperation. All information gathered will be treated with strict confidentiality and used solely for academic purposes.

Your support and cooperation are highly appreciated.

Yours sincerely,

Mr. Godfrey Lotuk
Senior Assistant Secretary
Tapac Subcounty

