

**KNOWLEDGE, ATTITUDES, AND CHALLENGES CONCERNING MENSTRUAL
HYGIENE MANAGEMENT AMONG HIGH SCHOOL ADOLESCENT FEMALES
IN KAABONG TOWN COUNCIL, KAABONG DISTRICT**

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SCIENCE**

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DECLARATION

I, **LOKURE CLAUDIA LOMOE** hereby declare to the best of my knowledge that this dissertation is my original work and it has not been submitted to any other institution of higher learning for any academic award. I would therefore like to submit it to Makerere University School of Public Health in partial fulfillment for the award of a Bachelor of Environmental Health Science Degree from Makerere University.


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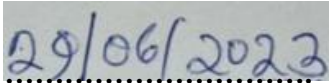
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APPROVAL

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DEDICATION

I dedicate this work to my family and friends for their love, care, guidance, and encouragement.

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I extend my thanks to my research supervisors, Dr. Edith Nakku Joloba and Ms. Carol Namata, for their time, patience, and efforts in guiding me as I worked on this research dissertation. May the almighty God reward them abundantly.

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LIST OF ACRONYMS

BEH	Bachelor of Environmental Health
DEO	District Education Office
LMICs	Low Middle Income Countries
MHH	Menstrual Health and Hygiene
MHM	Menstrual Hygiene Management
MOES	Ministry of Education
MoH	Ministry of Health
SGDs	Sustainable Development Goals
UNICEF	United Nations Children’s Fund
WASH	Water Access Sanitation & Hygiene
WHO	World Health organization

OPERATIONAL DEFINITIONS

An adolescent is a person in the transitional phase of growth and development between childhood and adulthood. Usually between the age of 11 to 19 year

High school is a secondary school, where teenagers are educated before starting college or getting jobs. According to this study, high school was senior one to senior six

Knowledge is awareness, understanding, or information that has been obtained by experience or study. According to this study, knowledge was on menstrual hygiene management

Menstrual Hygiene Management refers to the components of managing menstruation with dignity and comfort.

Menstrual hygiene materials are materials used during menstruation. According to this study, menstrual hygiene materials included sanitary materials.

Menstruation is normal vaginal bleeding that occurs as part of a woman's monthly cycle when blood and tissue from the uterus come out of the vagina

ABSTRACT

Background: Lack of menstrual knowledge, poor attitudes towards menstrual hygiene management, and the challenges faced by adolescent girls in school can make it difficult for girls to attend and remain in school. Menstrual hygiene management (MHM) challenges during changing and disposal of menstrual items are important in low-income countries (LICs) where schools lack sufficient water and sanitation. Therefore, this study aimed to assess the level of knowledge, attitudes, and challenges concerning menstrual hygiene management among high school adolescent females in Kaabong town council, Kaabong district to generate data to inform policy and direct interventions geared towards better management of menstrual hygiene among adolescent girls in schools.

Methods: A descriptive cross-sectional study involving the use of both quantitative and qualitative methods of data collection was used among high school adolescent females in Kaabong Town Council. A total of 120 high school adolescent females were included and data were collected by a self-administered approach of a paper semi-structured questionnaire where data was entered into EPI DATA. A total of 8 key informants also participated in the study. Quantitative data was analyzed univalent using Stata 13 software and presented into figures and tables while qualitative data were transcribed verbatim, coded, and analyzed thematically.

Results: More than half 66 (55.0%) of the adolescent girls were aged 18-19 years followed by 47 (39.2%) 16-17 years. It was found that the majority of the adolescent girls were knowledgeable on issues of menstrual hygiene management. Overall, 78 (65.0%) of the adolescent girls had good attitudes towards menstrual hygiene management with scores of 4 and above (≥ 4) while the rest 42 (35.0%) had poor attitudes with scores below 4 (< 4). Less than half 50 (45.0%) of the respondents reported that their menstrual hygiene facilities at the school lacked water followed by 55 (45.8%) bins for disposal of sanitary pads. On the other hand, about half 63 (51.7%) reported that the school offers privacy for changing menstrual materials.

Conclusion: Many girls and women are subject to restrictions in their daily lives simply because they are menstruating. Improvements to unmeasured aspects of menstrual hygiene management such as improving teachers' awareness of girls' needs or improved social support by prompting girls to discuss menstruation may contribute to their access to MHM requirements.

Keywords: Knowledge, Attitudes, Challenges, Menstrual Hygiene Management, Adolescent,

CHAPTER ONE

INTRODUCTION AND BACKGROUND

1.1 Introduction

Globally, most adolescent girls aged 11-19 years usually experience their first menstruation period (menarche) while unprepared (Lacroix., et al 2023). Menstrual hygiene management (MHM) is a crucial element for achieving girls' and woman's rights which are the key objective of the Sustainable Development Goals (SDGs) 3 (Good Health and Well Being) and 6 (Clean water and Sanitation) to promote health for all (UNICEF, 2022). At least 500 million women and girls globally lack adequate facilities for menstrual hygiene management (MHM)(WBG, 2018). In many African countries, appropriate menstrual hygiene management is impeded by taboos and secrecy surrounding menstruation. Unhygienic use of reusable sanitary pads and unpreparedness for managing menstruation has been associated with adverse health such as infections and social outcomes like stigma among adolescent girls (Shah et al., 2019).

Women and adolescent girls ought to use clean menstrual management materials to absorb or collect blood that can be changed in privacy as often as necessary for the duration of the menstruation period. They also should use soap and water for washing the body as required and should have access to facilities to dispose of used menstrual management materials (Shah et al., 2019). Recently, developed Water, Sanitation, and Hygiene (WASH) policies in schools present examples of potential approaches for different education stakeholders to better address girls' MHM needs in school through policy and program responses (Sommer et al., 2017). Inadequate privacy for washing menstrual materials and absorbents like reusable sanitary pads, pieces of cloth, and knickers is associated with difficulties concentrating in school programs. On the other hand, drying practices were associated with shame. Therefore, adequate privacy for washing is significantly associated with shame and insecurity thereby affecting MHM among adolescent females (Hennegan et al., 2016).

In many Sub-Saharan African communities, menstruation is associated with several taboos and myths which makes it hard for adolescent school-going girls to properly maintain a hygienic body and also to continue in school. Examples of taboos and myths include; perceiving women to be impure, dirty, or sinful while in their menstrual periods (Garg and Anand, 2015) as seen in some cultures. The menstrual hygiene challenges and lack of knowledge together with the poor attitude among high school adolescent females could be a

result of little or absence of guidance from an informed person. In Kaabong district, there is limited data on menstrual management among adolescents and women in general. The possible sources of information about menstruation for adolescents are insufficient since information is informally flowing from mothers to children and formally from teachers to students. Therefore, this study is aimed at assessing the level of knowledge, attitudes, and challenges concerning menstrual hygiene management among high school adolescent females in Kaabong town council, Kaabong district to generate data that will inform policy and direct interventions geared towards better management of menstrual hygiene among adolescent girls in schools.

1.2 Background

Every month, 1.8 billion people across the world menstruate (UNICEF, 2022). However, millions of these girls, women, transgender men, and non-binary persons are unable to manage their menstrual cycle in a dignified, healthy way (UNICEF, 2022). While health education in schools is a common thread around the world, there is no evidence of menstrual hygiene management (MHM) education offered systematically in most regular schools. In India, model schools' focused programmes significantly improved girls' awareness of MHM (Sivakami et al., 2019).

Within the Sub-Saharan African countries, it has been reported that school-level MHM monitoring incentives improve compliance with standards, including the availability of emergency menstrual products in schools and the provision of adequate WASH facilities and MHM education (Sommer et al., 2021). Given the many components of MHM, literature proves that the provision of menstrual products without attention to other factors like knowledge, attitudes, and challenges is insufficient to improve MHM among adolescent females in schools (Hennegan et al., 2016). An integration of MHM and the capacity and resources to deliver inclusive MHM into the education system is pivotal in the promotion of MHM in schools (Sommer et al., 2016).

In Uganda, 96% of rural schools reported the use of an improved primary water source. Notably, rates of access to basic menstrual hygiene services were very low. The deficiencies in rural schools found in Uganda have associations with adverse health outcomes and poor school attendance. Therefore, immediate opportunities for increasing equitable access to MHM services with the prioritization of providing knowledge, changing attitudes, and solving the challenges are pivotal(Morgan et al., 2017).

In Kaabong district, MHM challenges which are a result of limited knowledge and poor attitude towards menstruation remain challenging as they are attributed to school absenteeism and dropout, early marriages, and pregnancies. There is therefore a need to assess the knowledge, attitudes, and challenges around menstrual hygiene management among adolescent females in Kaabong town council to generate data to inform policy and direct interventions geared towards better management of menstrual hygiene among adolescent girls in schools.

CHAPTER TWO

LITERATURE REVIEW

2.1 Overview of menstrual hygiene management among high school adolescent females

Around the world, MHM is now recognized as a definitive public health and development issue with a substantial increase in financial and human capital committed towards it (Sommer et al., 2021). Good menstrual hygiene management requires access to necessary resources such as menstrual materials to absorb or collect menstrual blood, soap, and flowing portable water, a private place to wash, change, and dry reusable menstrual materials, in addition to an adequate disposal system for menstrual materials as well as education about menstrual hygiene management. Studies have shown girls lack water and soap, privacy, and space to change, adequate time to manage their menses comfortably, safely, and with dignity, and hygienic sanitary products and sometimes underwear (Oduor et al., 2015). This could be attributed to the school setting, family financial status, and some traditional and cultural beliefs.

2.2 Knowledge concerning menstrual hygiene management among high school adolescent females

Understanding menstrual hygiene management (MHM) among high school adolescent females is of a great importance in providing them with the necessary knowledge on MHM. Although there has not been the existence of a broad consensus for one set of global guidelines to be followed, Global and national level guidance for MHM in schools have been developed and disseminated by the United Nations and different non-government organizations (NGOs) and government bodies respectively for the extension of knowledge on MHM to adolescent females in schools (Sommer et al., 2021). In a study done in Nepal, 67.4% of respondents had fair knowledge while 26.4% had good knowledge of menstrual hygiene management (Yadav et al., 2017).

In a study done in India, 34% of girls reported having received education about menstrual hygiene management in school; the proportion differed significantly by state, type of school, and within states (Sivakami et al., 2019). In the same study, the majority 58% of girls heard about it in a hygiene lesson, and 82% during lessons separate from boys. Written materials about menstruation were infrequently available (19%) and mainly present in model schools. Of the 1742 girls who heard about menstrual hygiene from their parents or guardians, 586

(34%) had lessons at school as well. Therefore, knowledge on MHM is of great importance to female adolescents in order to translate to practices with few challenges.

In the sub-Saharan African region, several studies show that mothers face difficulties in discussing menstruation with their children (Shah et al., 2019, Sommer et al., 2021). This makes teachers to be the primary sources of information on MHM yet in some cases, girls feel free to open up to their parents. In many African countries including Uganda, parents are the main source of information about menstruation. Therefore, efforts to equip families with information to prepare daughters on menarche and menstrual hygiene would add value to school-based initiatives and should be included in government guidelines (Chandra-Mouli and Patel, 2020). Even though the Ugandan education sector recognizes and demonstrates MHM as an integral part of its resources, plans, budgets, services, and performance monitoring, and delivers inclusive educational service to all children and adolescents (Sommer et al., 2016). However, high school girls in Uganda still lack the necessary information on MHM. Therefore, designing strategies for awareness creation about menstruation and menstrual hygiene management practices through the provision of regular health information and communication programs is crucial (Anchebi et al., 2017).

2.3 Attitudes concerning menstrual hygiene management among high school adolescent females

Privacy was associated with higher odds of avoiding standing in class to answer questions. Only adequate privacy for washing absorbents was associated with difficulties. Drying practices were associated with shame. Adequate privacy for washing was associated with shame and insecurity (Hennegan et al., 2016). Designing strategies for attitude-changing activities on menstruation and menstrual hygiene management through the provision of regular health information is of great importance in high school females (Anchebi et al., 2017). In a study conducted in Nepal with 141 adolescent girls, half of them had positive attitudes toward menstrual hygiene management-related issues (Yadav et al., 2017).

Psychosocial consequences which result from the poor attitude towards MHM, cultural stigma, and taboos, or as a result of transactional or coercive sex undertaken to meet MHM needs have been raised as a result of poor MHM. These psychosocial consequences are not limited to shame, insecurity, anxiety, and fear of stigma (Dolan et al., 2014). In another study conducted in rural areas of Kamuli, Uganda, disposal method adequacy was likely to be

contextually dependent and relied on latrine capacity, cultural appropriateness of burning absorbents, and other waste disposal methods(Hennegan et al., 2016).

2.4 Challenges around menstrual hygiene management among high school adolescent females

Several challenges are around MHM including limited information before menstrual onset, inadequate health education about menstruation and puberty, lack of social support from teachers and peers for managing menses in school, and from families, and insufficient access to water, sanitation, hygienic materials, and disposal infrastructure(Sommer et al., 2021).Inadequate WASH (water, sanitation, and hygiene) facilities in schools can pose a major obstacle to girls. The lack of separate toilets with doors that can be safely closed, or the unavailability of means to dispose of used sanitary pads and water to wash hands, means that girls face challenges in maintaining their menstrual hygiene in a private, safe, and dignified manner(WBG, 2018).

MHM is beginning to be integrated into country-level education systems, however capacity and resources continue to lag. Less than 20% of schools in rural Ethiopia, Kenya, Mozambique, Rwanda, Uganda, and Zambia had four out of the five recommended menstrual hygiene services which included; sex-separate facilities, water supply, doors with locks, waste disposal bins(Morgan et al., 2017). In another study done in Uganda, only 9.5% of the sample qualified as having adequate MHM services using the minimum requirements criteria (Hennegan et al., 2016). In the same study, the majority of the girls reported genital irritation, discharge, and concerns about odor. While self-reported symptoms may not be the best predictor of laboratory-confirmed infections, girls' discomfort and symptoms which may cause distress, represent important health outcomes.

Physical and health outcomes including irritation, discomfort, and urogenital symptoms, even if not confirmed infections, are also important potential consequences of poor MHM which impose on adolescent females' ability to participate in society with dignity(Kerubo et al., 2016).Discomfort, fear of soiling, and menstrual pain were the most common challenges reported in a study done among rural Ugandan schools. In addition, many girls reported embarrassment, shame, and insecurity associated with menstruation(Hennegan et al., 2016).

Changing menstrual hygiene materials in poorly maintained latrines may expose girls to excrement and infections (Oduor et al., 2015). Menstrual health and hygiene interventions can help overcome the challenges faced by adolescents during menstruation. Not only do they fulfill the unmet demand for menstrual hygiene products; but they also protect their dignity, build confidence, and strengthen sexual and reproductive health, particularly among adolescents (UNICEF, 2022). On the other hand, literature proves that taboos, secrecy, and embarrassment associated with discussing menstruation issues among adolescent girls hinder them from seeking advice from parents and teachers on appropriate MHM practices (Shah et al., 2019).

CHAPTER THREE

PROBLEM STATEMENT, JUSTIFICATION, AND CONCEPTUAL FRAMEWORK

3.1 Problem statement

In Kaabong district, monthly periods put a lot of school-going adolescent females in challenging situations that potentially devastate ramifications for their health and well-being. These adolescent females lack credible information regarding their menstrual hygiene management to impact their attitudes to deal with the current myths and misconceptions around menstruation (Sommer et al., 2016). They are thereby faced with a lot of challenges regarding menstrual hygiene management including absenteeism from school, stigma, and discrimination, lack of sanitary pads, little or no privacy for change of sanitary pads, little or no water within the school premises, little or absence of psychological support, and others. Such challenges are not only experienced at school, others originate from their respective homes. Given the multiple challenges adolescent girls face, it is evident that promoting menstrual hygiene management (MHM) is not only a sanitation matter (WBG, 2018); rather it is also an important step towards minimizing their challenges, equipping them with knowledge, and changing their attitudes.

Even though some efforts and interventions including intuiting senior lady staff, NGO sensitizations, sanitary pads donations, and others have been done in high schools within Kaabong town council, indicators of poor knowledge, poor attitudes, and the presence of menstrual hygiene management challenges still existed among high school going females in Kaabong town council. In addition, there was still a gap in the literature on knowledge, attitudes, and challenges among the high school females in Kaabong town council. Therefore, this study was aimed at assessing the level of knowledge, attitudes, and challenges concerning menstrual hygiene management among high school adolescent females in Kaabong town council, Kaabong district to generate data to inform policy and direct interventions geared towards better management of menstrual hygiene among adolescent girls in schools.

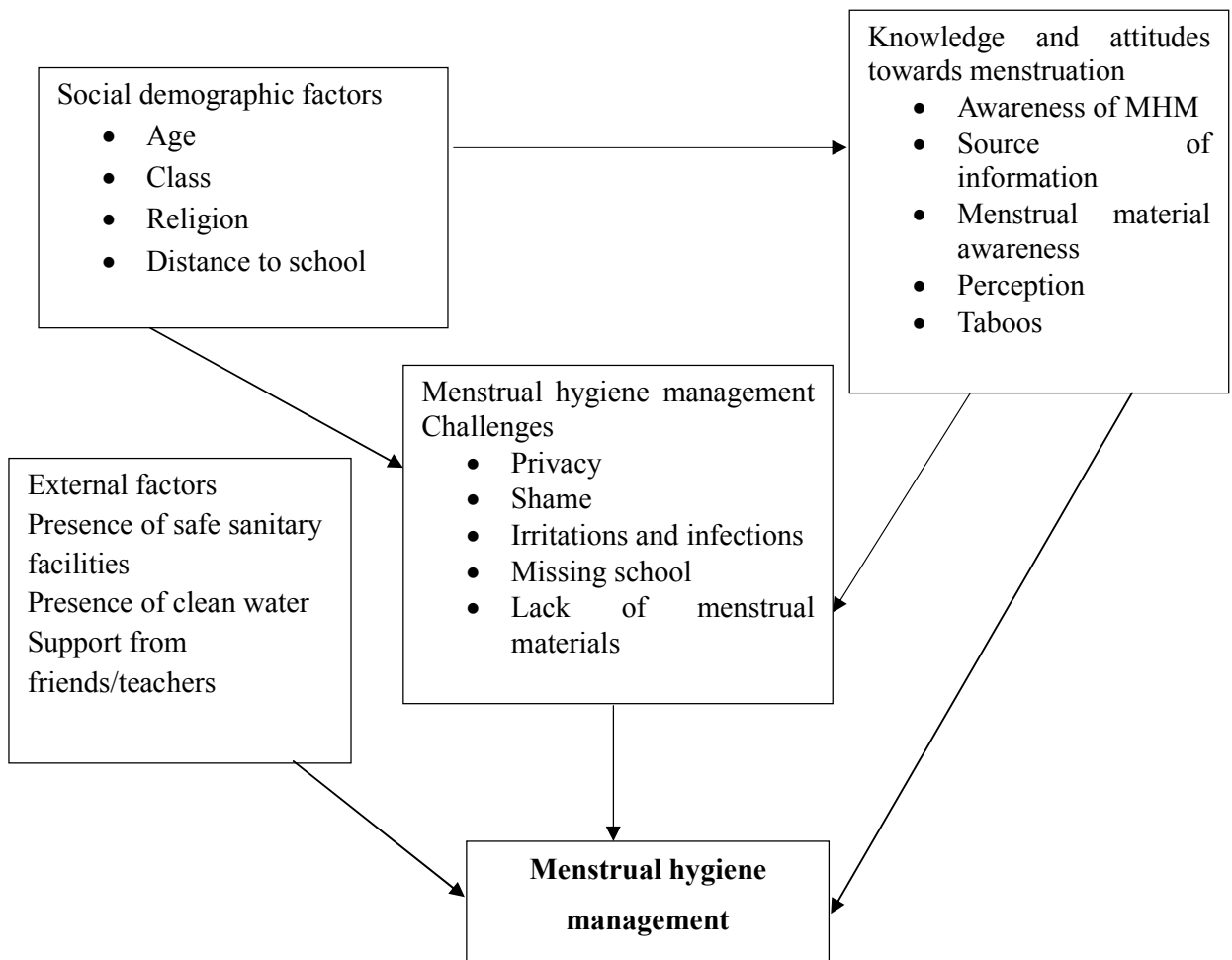
3.2 Justification

This study will generate information on the knowledge, attitudes, and challenges among high school adolescent females in Kaabong district to enable the bodies responsible for Policy and Institutional Framework at levels such as national, Community, Private Sector, and Non-Governmental Organizations to develop community-based interventions to improve the knowledge and services among the communities for better MHM.

This information will increase the knowledge available for developing workable interventions for the girl child to tackle the actual problems they face in the school communities at large. These will continuously help in promoting effective menstrual management.

3.3 Conceptual framework

Figure 1: Conceptual framework



Narrative

Social demographic characteristics like age, class, religion, and others, directly and indirectly, affect one knowledge and attitudes toward menstrual hygiene management. An individual's knowledge and attitudes towards MHM including; awareness about MHM, source of information, menstrual material awareness, perception and taboos on MHM together with the social demographic characteristics directly have an impact on one's MHM challenges. On the other hand, external factors like school settings, the presence of secure sanitary facilities with privacy, adequate portable water, and others also have an impact on the challenges faced by girls during menstrual hygiene management.

CHAPTER FOUR

RESEARCH OBJECTIVES AND RESEARCH QUESTIONS

4.1 Research objectives

General objective

To assess the level of knowledge, attitudes, and challenges concerning menstrual hygiene management among high school adolescent females in Kaabong town council, Kaabong district to generate information that can be useful in developing targeted interventions to encourage and improve Menstrual Hygiene Management.

Specific objectives

1. To assess the level of knowledge regarding menstrual hygiene management among high school adolescent females in Kaabong town council, Kaabong district
2. To assess the perceptions regarding menstrual hygiene management among high school adolescent females in Kaabong town council, Kaabong district
3. To assess the challenges around menstrual hygiene management (MHM) among high school adolescent females in Kaabong town council, Kaabong district

4.2 Research question

1. What is the level of knowledge concerning menstrual hygiene management among high school adolescent females in Kaabong town council, Kaabong district?
2. What are the perceptions regarding menstrual hygiene management among high school adolescent females in Kaabong town council, Kaabong district?
3. What are the challenges around menstrual hygiene management among high school adolescent females in Kaabong town council, Kaabong district?

CHAPTER FIVE

METHODOLOGY

5.1 Study area

The study was conducted within secondary schools in Kaabong town council, Kaabong district. Kaabong district lies on the northeastern side of the Karamoja Northern region in Uganda. Kaabong Town Council is surrounded by Loyoro in the eastern and southern directions together with Kaabong West [rural] in the northern and the western direction. Kaabong town council has 27 villages, 9 parishes, and 2 secondary schools.

5.2 Study population

The study involved female adolescent students aged 11-19 years from the 2 secondary schools in Kaabong town council. This was because most girls in the menstruating age (11-19 years) are usually at a secondary schooling level.

5.3 Study design

A cross-sectional study involving the utilization of both qualitative and quantitative research methods was conducted.

5.4 Sample size determination

The sample size was determined using the Kish Leslie (1965) method for a single proportion. The proportion/prevalence of 38.3% for adolescents without menstrual-related reasons for missing school in a study on “menstrual hygiene management amongst schoolgirls in the Rukungiri district of Uganda and the impact on their education: a cross-sectional study”(Boosey et al., 2014).

$$n = \frac{pqz^2}{d^2}$$

p taken to be 0.383

$q=1- p$, so $q=1-0.383$, therefore $q=0.617$

z Represents the standard normal deviation corresponding to the 95% confidential interval=1.96

d Represents the precision of the study. A precision of 5% was used for this study.

n Represents the sample size estimate to be studied.

Therefore;

$$n = \frac{0.383 \times 0.617 \times 1.96^2}{0.05^2}$$

=363 study participants

Since there were 182 female students in the two secondary schools of Kaabong Town Council, the sample size was further corrected using the Cochran's formula of correcting sample size in order to sample from the population of 182 female students. Where:

$$n = \frac{N}{1 + \frac{N-1}{K}}$$

N is the calculated sample size = 363

K is the exact number of female students in secondary schools of Kaabong Town Council. = 182

n is the corrected sample size

$$n = \frac{363}{1 + \frac{363-1}{182}}$$

=121 adolescent girls

On the other hand, 8 key informants were involved in the collection of qualitative data from senior women teachers, head teachers, and the municipal education officer.

5.5 Sampling procedure

Both the two high schools in Kaabong town council were considered to participate in the study. Within each sampled school, respondents were selected purposively due to their having had at least one menstrual period. Then a simple random pick of the study participants was done among the screened participants till when the desired sample was obtained.

5.6 Data collection tools

For quantitative interviews, a semi-structured questionnaire with both open-ended and close-ended questions was used to collect data from female adolescent students aged 11-19 years. This Questionnaire was adopted and modified from a study "Knowledge and practices of self-hygiene during menstruation among adolescent females students in Buraidah city" (Hayam and Saulat 2021). The questionnaire consisted of 4 sections which include; A) social demographic characteristics with 5 questions, B) knowledge on menstrual hygiene management section with 5 questions, C) attitudes towards menstrual hygiene management with 7 questions, and D) challenges around menstrual hygiene management with 6 questions.

The questionnaire collected information on the sociodemographic data of the respondents, knowledge, attitudes and challenges faced by adolescent females aged 11-19 years during menstrual hygiene management. The questionnaire was printed and self-administered to adolescent girls to ensure privacy. All questionnaires were screened for completeness, and data were entered in a computerized EPI DATA 3.0 software and imported to Stata 16 for data analysis. The findings were presented in tables and charts. For qualitative interviews, a key informant interview guide was used among 8 key informants to collect data from school administrators, key staff, and the municipal education officer since they are knowledgeable and influencing people on issues of MHM. Key informants provided information on menstrual hygiene management challenges, practices, attitudes, and knowledge among female adolescent students aged 11-19 years.

5.7 Data collection procedure

The data collection tool was printed and paper-based questionnaires were self-administered to the adolescent girls to ensure clarity of responses without reporting bias. To maximize quality, all questions were first explained to the girls before they attempted filling them. All the 2 high schools in Kaabong town council were selected to participate in the study. Within the schools, adolescent females in senior one to four were purposively selected since they highly qualified to be adolescents aged 11-19 years. A simple random sampling technique was done to obtain study participants from each class until the desired sample size was reached. Verbal and written informed consent was obtained from all respondents after verbally informing the purpose of the study and their need to take part. All study participants received a copy of the signed informed consent form.

Key informant interviews were collected by a face-to-face approach between the respondent and the principal investigator (PI) at the favorable time scheduled by the key informant. These interviews were done in the respective offices of the key informants.

5.8 Selection criteria

Inclusion criteria

Students

Female students from the 2 high schools in Kaabong Town Council aged 11-19 years who had experienced at least one menstrual period and had given their consent to participate in the study were included.

Key informants

Knowledgeable and informative in the area of MHM among adolescents in Kaabong Town Council, Kaabong District, and those who had been in office for 3 months and above

Exclusion criteria

Students

Female students younger than 10 years and older than 19 years, those who had not experienced a single menstrual period, and those who withdrew their consent were excluded from the study. Female students who were sick and absent at the time of the visit were also excluded.

Key informants

All key informants who were new in office for less than 3 months, those who withdrew their consent were excluded from the study, and those who were sick and absent at the time of the visit were also be excluded

5.9 Quality control

All data collection tools were pre-tested before actual data collection in a population that was not included in the study.

Questions were in English language and highly explained to ensure that the questions are rightly understood to get the right response.

5.10 Study variables

Dependent variable

Knowledge, attitudes, and challenges around menstrual hygiene management

Independent variables

Age, class, tribe, household income, distance to school, mode of transport, household head, school setting

5.11 Data handling and management

Confidentiality was assured before carrying out the research. All the information received from the respondents was and will only be used for purposes of research.

Filled questionnaires, audio recordings, and notes taken during key informant interviews were kept in secure lockable places only accessible to the principal investigator and the supervisor.

5.12 Data analysis

For quantitative data, a 5-point knowledge scale was used to measure the respondents' knowledge. A correct knowledge response attracted one (1) point while wrong knowledge response zero (0). A score of ≤ 3 points was considered poor while a score ≥ 4 was considered good in determining composite score for knowledge variable. Menstrual hygiene attitudes were determined using a 7-point attitude scale. A good menstrual hygiene attitude attracted a score of one (1) while the score for a poor attitude a zero (0). Scores of < 4 and ≥ 4 points were considered poor and good attitudes respectively. Each challenge response was analyzed independently basing on the responses recorded where a one (1) was awarded for a right response and a zero (0) for a wrong response. Students' responses were coded and scored for their level of knowledge, attitudes, and the challenges they encounter concerning menstrual hygiene management. A univariate descriptive analysis was done to present the study findings in form of tables and chats.

For qualitative data, transcription of the audio recordings was done followed by coding and development of sub-themes and themes. Qualitative data was analyzed manually and thematically and presented into themes and texts.

5.13 Ethical considerations

The research proposal of the study was submitted to Makerere University School of Public Health (MakSPH) to seek approval before the commencement of data collection. A letter of authorization and introduction was obtained from the BEH program coordinator that was presented to the Head teachers of the various respective schools for data collection. The study sought approval and permission for data collection within the two secondary schools of Kaabong District. During data collection, permission from DEO to school administrators was sought first and all target respondents had to first consent before taking part in the study by signing or thumbprint the informed consent form.

5.15 Dissemination of findings

The results of the study will be disseminated as a dissertation to the Makerere University School of Public Health. Other copies of the results will be submitted to the public health department of Kaabong District and various school heads in the District.

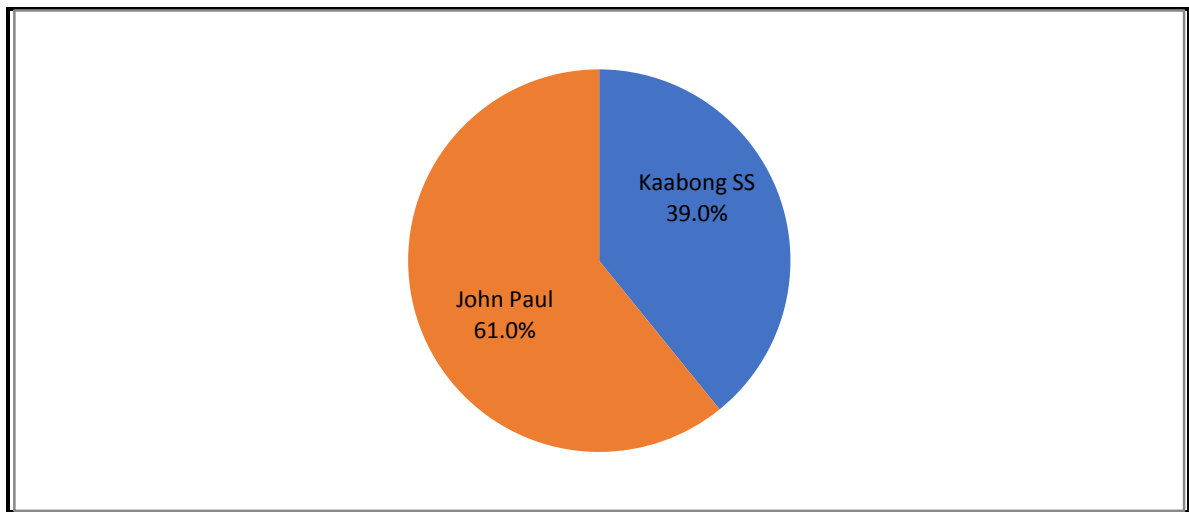
CHAPTER SIX

RESULTS

6.1 Social demographics among high school adolescent females in Kaabong town council

The study registered a 99.2% response since 120 adolescent students were eligible to participate in the study out of the anticipated 121 adolescents. Among these, the majority 73 (61.0%) were from Pope John Paul Memorial College Secondary School while the others were from Kaabong Secondary School as shown in Figure 2 below.

Figure 2: Percentage distribution of the participants by school



Distribution by class, Senior 2 (S.2) constituted the majority 55 (45.8%) followed by S.3 30 (25.0%) as shown in Figure 3 below.

Figure 3: Percentage distribution of adolescent girls by class



More than half 66 (55.0%) of the adolescent girls were aged 18-19 years followed by 47 (39.2%) 16-17 years. The mean age was 17.6 years and the standard deviation of 1.1. Of the students who participated in the study, 113 (94.2%) were boarding students while their counterparts 7 (5.8%) were day scholars who used more than 1 hour to reach school. By religion, Catholics constituted the majority 85 (70.8%) followed by Pentecostals 16 (13.3%) and Anglican 16 (13.3%) as shown in Table 1 below.

Table 1: Social demographic characteristics

Variable	Frequency (n=120)	Percentage (%)
Age in completed years		
15 and below	7	5.8
16-17	47	39.2
18-19	66	55.0
mean/standard deviation =17.6/1.1		
Time it takes to reach school		
10 minutes or less	54	45.0
11-30 minutes	24	20.0
31-60 minutes	35	29.2
more than 1 hour	7	5.8
Students with access to*		
Soap at home	48	40.0
Water at home	55	45.8
Soap at school	56	46.7
Water at school	80	66.7
None of the above	2	1.7
Religion		
Anglican	16	13.3
Catholic	85	70.8
Muslim	3	2.5
Pentecostal	16	13.3
Others	0	0.0

*multiple response variable

6.2 Knowledge regarding menstrual hygiene management among high school adolescent females in Kaabong town council

Majority 110 (91.7%) of the adolescent girls had heard about menstrual hygiene management by the time of the study. And among these, the biggest percentage 84 (76.4%) had heard of it from their sisters/friends followed by 23 (20.9%) who heard of it from their mothers. In addition, 96 (80.0%) know that menstruation is controlled by hormones as shown in Table 2 below.

Table 2: Knowledge regarding menstrual hygiene management among high school adolescent females in Kaabong town council

Variable	Frequency (n=120)	Percentage (%)
Ever heard of MHM (awareness)		
Yes	110	91.7
No	10	8.3
First source of information on MHM (n=110)		
Mother	23	20.9
Sister/friend	84	76.4
Teacher	2	1.8
Other	1	0.9
Ever received menstrual information in a course while at school		
Yes	100	83.3
No	20	16.7
Known menstrual hygiene materials*		
Disposable sanitary pads	111	92.5
Reusable cloth	47	39.2
Tampon	1	0.8
Menstrual cup	3	2.5
Others	1	0.8
Menstruation is controlled by hormones		
True	96	80.0
False	24	20.0

*multiple response variable

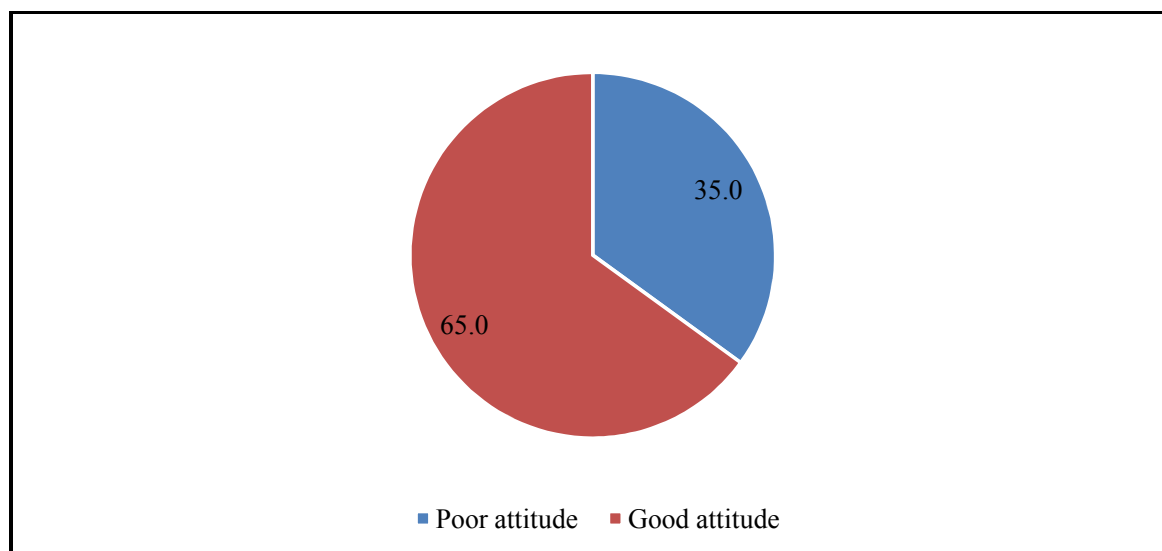
Some key informants reported how adolescent females attending secondary schools in Kaabong Town Council were knowledgeable about menstrual hygiene management. This was attributed to the fact that the school management provided them with the necessary information upon enrollment. Furthermore, it was observed that they already had prior experience with menstruation before joining secondary school, which aligned with their understanding of menstrual hygiene management.

“These adolescents are knowledgeable since the school teaches them all the basic information and we also believe that by the time they join secondary, they are knowledgeable basing on their experience” School matron/Senior woman teacher

6.3 Perceptions regarding menstrual hygiene management among high school adolescent females in Kaabong town council, Kaabong district

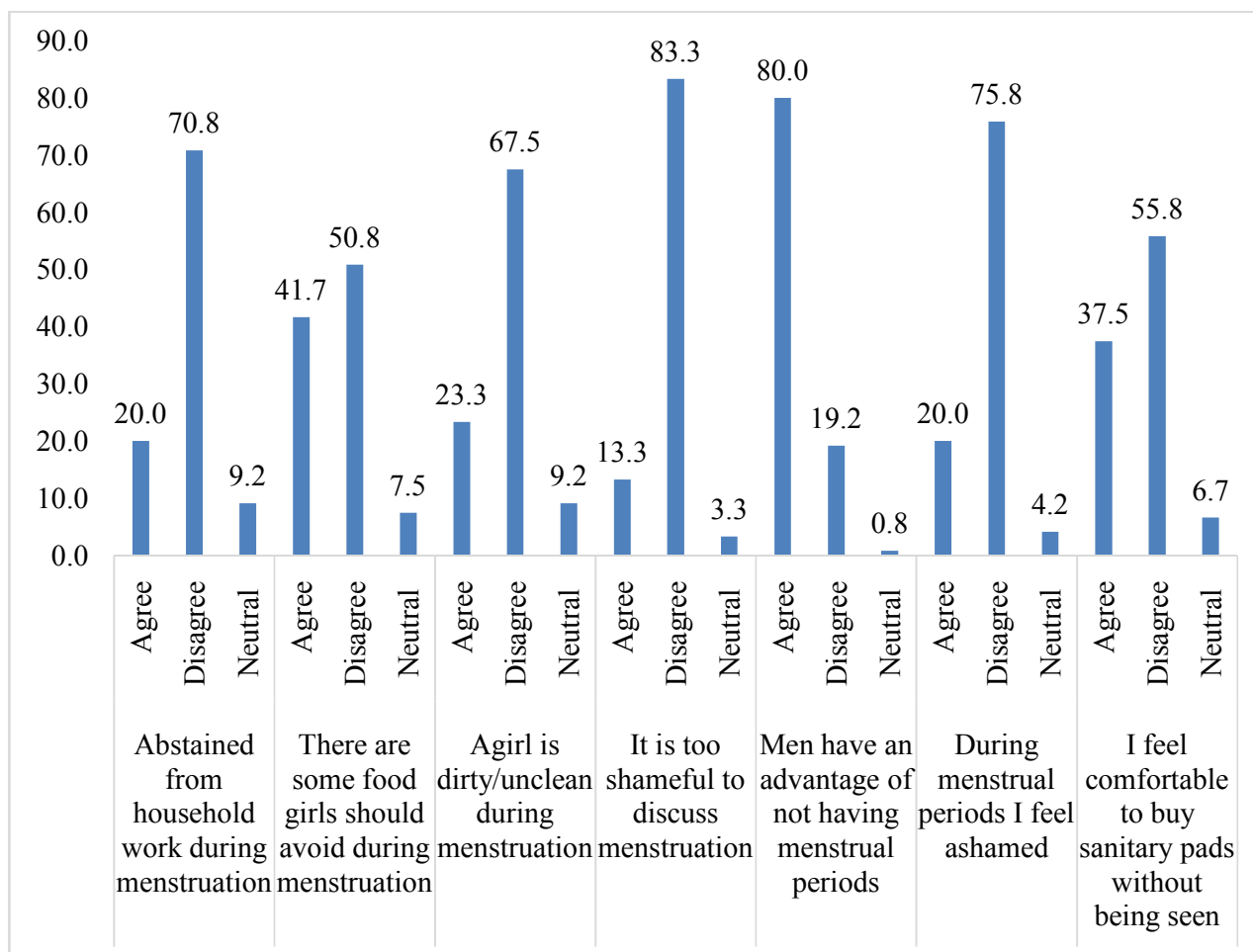
Overall, 78 (65.0%) of the adolescent girls had good attitudes towards menstrual hygiene management with scores of 4 and above (≥ 4) while the rest 42 (35.0%) had poor attitudes with scores below 4 ($4 >$) as shown in figure 4 below.

Figure 4: Percentage presentation of overall attitude scores regarding menstrual hygiene management among high school adolescent females



Majority 100 (83.3%) of the adolescent females disagreed that it is too shameful to discuss menstruation followed by 96 (80.0%) who agreed that men have an advantage of not having menstrual periods over women as shown in Figure 5 below.

Figure 5: Attitude towards menstrual hygiene management among high school adolescent females in Kaabong town council, Kaabong district



Based on the accounts of key informants, it was revealed that some adolescent females harbor a sense of fear towards their male peers during menstruation, accompanied by apprehension about potential embarrassment if they were to experience any accidental staining.

“Fear to be seen and ashamed by the classmates of the opposite sex is one of the most pressing challenges these adolescents face” School head teacher

6.4 Challenges around menstrual hygiene management (MHM) among high school adolescent females in Kaabong town council

In the survey, it was found that less than half, specifically 50 respondents (45.0%), expressed that their school's menstrual hygiene facilities suffered from a lack of water. Similarly, 55 respondents (45.8%) reported a deficiency in designated bins for the disposal of sanitary

pads. Conversely, approximately half, 63 respondents (51.7%), acknowledged that the school provided privacy for changing menstrual materials, as indicated in Table 3 below.

Table 3: Facilitators and barriers of menstrual hygiene management (MHM) among high school adolescent females in Kaabong town council

Variable	Frequency (n=120)	Percentage (%)
Did you experience skin irritation/rashes in the pelvic area during your last?		
Yes	58	48.3
No	62	51.7
Did you experience itching or burning in the pelvic area during menstrual periods (since the start of the school year)?		
Yes	69	57.5
No	51	42.5
Do you worry people can smell your menstrual periods		
Yes	79	65.8
No	41	34.2
Do the sanitary facilities at school offer privacy for changing menstrual materials? (Criteria: not worried about being observed changing menstrual materials)		
Yes	62	51.7
No	58	48.3
Does your menstrual period ever cause you to;*		
Miss school	36	30.0
Not do your home work	54	45.0
School attendance only at intervention	54	45.0
The menstrual hygiene management facilities at school have;*		
Lockable doors for MHM privacy	22	18.3
Water for MHM	54	45.0
Soap for hand washing	31	25.8
Bin for pad disposal	55	45.8
None	3	2.5

*multiple response variable

According to key informants, some adolescent females encountered a dual challenge of poverty and the fear of being noticed and humiliated by the opposite gender. These obstacles were noted to be effectively tackled through ongoing counseling and guidance sessions, as well as the establishment of health clubs dedicated to producing reusable sanitary pads, aiming to address the existing gaps.

“Some of these girls come from poor families where purchase of sanitary pads is a challenge.....having school healthy clubs where girls can learn how to make their own reusable sanitary pads can be a good innovation” Senior woman teacher

“Fear to be seen and ashamed by the classmates of opposite sex is one of the most pressing challenges these adolescents face” School head teacher

CHAPTER SEVEN

DISCUSSION

7.1 Summary of the study results

The mean age was 17.6 years and a standard deviation of 1.1 where more than half 66 (55.0%) of the adolescent girls were aged 18-19 years. Majority 110 (91.7%) of the adolescent girls had heard about menstrual hygiene management by the time of the study from their sisters/friends 84 (76.4%) followed by mothers 23 (20.9%). Majority 100 (83.3%) of the adolescent females disagreed that it is too shameful to discuss menstruation followed by 96 (80.0%) who agreed that men have an advantage of not having menstrual periods over women. Over 50 respondents (45.0%), expressed that their school's menstrual hygiene facilities suffered from a lack of water while 55 respondents (45.8%) reported a deficiency in designated bins for the disposal of sanitary pads.

7.2 Knowledge on menstrual hygiene management (MHM) among high school adolescent females

The current study records female friends/sisters (76.4%) as the major source of information while the previous studies conducted around the world recorded mothers (42.1%) (Ha and Alam, 2022, Tashi et al., 2021, Idoko et al., 2022). This could be due to the cultural differences, employment, technological advancements and the assumption that adolescents get the information from school where parents are no longer having time for their children. Therefore, in order to improve on knowledge about MHM, mothers have to play their roles and friends/sisters need to be knowledgeable in order to pass on accurate information. Similarly, to the current study, other studies conducted around the world found out that the major sources of information about menstruation were mothers and female friends (Anna Maria van Eijk et al., 2016). There were statistically significant variations in availability and sources of information and perception about the use of sanitary pads between adolescent girls in urban and rural settings. For instance, urban adolescents were more likely to receive information before menarche, specifically from female teachers, than their counterparts who rely on peer-to-peer information flow.

Proper education and information on menstruation before reaching menarche are the right to information of adolescent girls and are crucial for healthy menstrual management. It might be expected that a higher level of education of the participants to correspond with a higher knowledge of menstruation (Karout, 2016). However, this isn't the case despite low scores on

comprehensive knowledge and proportions of right and wrong responses (Tashi et al., 2021). Studies in China, Bangladesh, and elsewhere have shown that educational sessions have enhanced knowledge and improved practices such as managing menstrual cramps (Hennegan et al., 2019, Fakhri et al., 2012). It is therefore important that knowledge is raised on this subject and any misconceptions are eliminated in order to better the practices surrounding menstrual hygiene management.

7.3 Attitudes towards menstrual hygiene management (MHM) among high school adolescent females

In the current study, 20.0% of the adolescents agreed that menstruation affects their daily activities while another study in Bhutan reported a slightly higher proportion 44.9% (Tashi et al., 2021). The difference could be attributed to the different age groups engaged since the current study reported a mean age of 17 years while the previous study had 20 years. Furthermore, the current study had 13.0% of girls attributing discussions around menstruation to be shameful and 80.0% agreeing that men have an advantage over women for not having menstruation which is drastically different from that in Bhutan where 94.0% of the participants strongly agreed on the importance of talking about menstruation and 45% of the participants strongly agreed that men have the advantage of not having menstruation (Tashi et al., 2021). Results further show that half (50.2%) of the girls have positive perceptions about the use of sanitary pads (Ha and Alam, 2022). Therefore, the presence of such negative perceptions with the tendency of parents passing on knowledge to the children might result into inherited menstrual health challenges across generations (Day, 2018).

Based on the accounts of key informants, it was revealed that some adolescent females harbor a sense of fear towards their male peers during menstruation, accompanied by apprehension about potential embarrassment if they were to experience any accidental staining. In Nigeria, 34 (20.1%) of the respondents believed sanitary pads should be bought secretly while 135 (79.9%) were of the opinion that sanitary pads should not be bought secretly (Idoko et al., 2022). The difference could be in the study setting where the current study was only among adolescent females aged 14-19 years while the previous study was among males and females aged 20-35 years. Different studies have shown that educational sessions have enhanced knowledge and also promoted a more positive attitude among adolescent girls (Fakhri et al., 2012, Haque et al., 2014). It can be noticed that the attitude levels are fairly well thereby requiring improvement.

7.4 Challenges around menstrual hygiene management (MHM) among high school adolescent females

About a third (30.0%) of the adolescent girls in Kaabong reported missing school while 45.0% not doing your household chores. Similarly, 55.1% students in Bhutan reported that their daily activities were affected due to menstruation, and 24.2% of the female students missed college due to dysmenorrheal (Tashi et al., 2021). Therefore, improving the accessibility of a safe water supply, hygiene, sanitation facilities and affordability of menstrual products should be part of government-level public health policy to prevent related health issues, loss of economic output and education opportunities among adolescent girls (Anbesu and Asgedom, 2023).

Girls' MHM challenges differ slightly from physical discomfort or pain, lack of water, hygiene and disposal facilities in school toilets, fear of staining their clothes and restrictions imposed by relatives, friends and/or teachers (Anna Maria van Eijk et al., 2016). Furthermore, unavailability of water in college, absence of soap for hand washing, no bins for disposal of menstrual materials are some of the main challenges reported in the current study and globally. The participants also reported that in 33.7% of hostel toilets, the door locks were missing (Tashi et al., 2021) which was also reported in the current study. This could be attributed to the fact that school properties are used by a large number of users with limited knowledge on operation and maintenance. Tap water and soap were reported to be missing in college toilets by 21.3% and 80.1% of the participants respectively (Tashi et al., 2021). This is closely different from the current study where 45.0% and 25.8% reported absence of water and soap in the latrines. This could be due to the fact that the current study was conducted in a rural setting with latrines while the former in an urban setting with pour flush toilets thus influencing the responses for water availability.

According to literature, urban adolescent girls are more likely to wash their genitalia four or more times a day than rural girls, while rural girls are less likely to use water only to wash external genitalia than urban girls (Ha and Alam, 2022). Ensuring access to an essential amount of water available for personal use, access to ready-made hygienic kits and sanitary pads, and ensuring women's safety and dignity in using toilets and wash areas are fundamental rights of every adolescent girl (Budhathoki et al., 2018). These findings have been corroborated by a systematic review carried out in low- and middle-income countries where women and girls were unable to undertake their preferred menstrual practices due to

inadequate MHM infrastructure (Rossouw and Ross, 2021, Bulto, 2021, Okare, 2020, Hennegan et al., 2016). It is therefore necessary for all schools to have adequate MHM infrastructure since their absence compromise the ability for students to practice proper hygiene.

7.5 Strengths and limitations of the study

The Strengths of the study was in the fact that it involved all the adolescent students in both the schools there by making the study results conclusive of the actual state of menstrual hygiene in Kaabong Town Council. In addition, the study involved a self administered approach which guaranteed accuracy of the responses without reporting bias. The study was conducted by involving both qualitative and qualitative. This in itself was a strength as the study was able to obtain more inclusive and distinctive understanding of thee research objectives. Qualitative data provided rich and detailed information on knowledge, attitudes, and challenges while quantitative data provided broader patterns and trends. By combining both types of data, researchers can explore a research question from multiple angles, gaining a more complete picture of the phenomenon under investigation. There are several ways to combine qualitative and quantitative data, including triangulation, complementary methods, and mixed methods. Each approach has its own strengths and weaknesses, and researchers must carefully consider which approach is best suited to their research question and evaluation methodology. Ultimately, combining qualitative and quantitative data can enhance the rigor and validity of research findings and lead to more informed conclusions

However, this study used a cross-sectional research design. Thus, causal inferences about relationships observed in the data were not established. Another limitation of the study was that it was confined to a single geographic location (Kaabong Town Council) in Kaabong District. Therefore, findings from the study may not represent the experiences of all adolescent girls in the country. Due to the sensitivity of the research topic, during the data collection procedure, we faced some challenges. One of the biggest challenges was the hesitancy of the heads of selected schools to allow their girls to participate in the survey. We had to go through a lengthy discussion to convince them in this regard. A self-administered approach was used were participating respondents were seated in a class environment where at least two or more respondents were seated on a single bench. We suspected that some of them had either been influenced by the fellow respondent or copied responses from others. A face-to-face interview would produce more quality data. We also noticed that some

respondents were too shy to ask for help from their overseer even though they could not understand a particular question properly. Finally, the sample size of this study was relatively small; as a result, true population parameters may not be found.

CHAPTER EIGHT

CONCLUSIONS AND RECOMMENDATIONS

8.1 Conclusions

This study of knowledge, attitudes and challenges around MHM found significant knowledge and belief gaps toher with stressing challenges among adolescent girls in Kaabong Town Council. Although the research findings show that many adolescent girls have information on MHM, it should be considered that only 80.0% knew that menstruation is controlled by hormones. This study suggests that adolescent girls should be provided with enough accurate information because there are peer agents to their other adolescents. It also revealed important inadequate physical and psychosocial MHM facilities/infrastructure to support the practices of these students, leading to absenteeism. There are clear ways forward to tackle these problems, and we encourage the respective stakeholders to address them. All those necessary measures must be taken to ensure adolescent girls' healthy menstrual management to meet the SDG goals of good health and wellbeing, quality education, gender equality, and clean water and sanitation.

8.2 Recommendations

- Secondary school teachers need to provide an adequate information package that will normalize menstruation, change attitudes, and end negative social norms among adolescent females.
- School administrators and directors to consider providing adequate MHM infrastructure within school premises.
- Ministry of Education and Sports, policy makers and leaders at the various tiers of Government should also set up a structure where menstrual products can be made available and affordable to females.
- Future studies should assess the factors and the intensity of the menstrual hygiene management challenges among adolescent girls in order to guide the implementation of the different key interventions.

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APPENDICES

APPENDIX 1: Consent form for students

I am Lokure Claudia Lomoe a student of Bachelors in Environmental Health Science at Makerere University. I am conducting a research study on “Knowledge, attitudes and challenges concerning menstrual hygiene management among high school adolescent females in Kaabong Town Council, Kaabong District.” as part of the requirements for the award of the degree.

The study will generate information useful in the planning and implementation of adolescent female students’ well-being in school and also inform policy and direct interventions geared towards better management of menstrual hygiene among adolescent girls in schools. Your participation in this study as a respondent to the questionnaire is voluntary and free. The information provided is very important and will be dealt with confidentiality. Your participation in this study is encouraged since you are an important source of information on knowledge attitudes and challenges concerning MHM among high school adolescents in Kaabong Town Council, Kaabong District.

This exercise will take about 10 minutes of oral interview.

Would you be willing to participate in this study?

I hereby voluntarily agree to participate as a subject in this study.

Signature _____ Date ____/____/____

Principal investigator’s signature _____ Date ____/____/____

APPENDIX II: Consent form for key informants

I am Lokure Claudia Lomoe a student of Bachelor in Environmental Health Science at Makerere University. I am conducting a research study titled “Knowledge, attitudes and challenges concerning menstrual hygiene management among high school adolescent females in Kaabong Town Council, Kaabong District” as part of the requirements for the award of the degree.

The study will generate information useful in the planning and implementation of adolescent female students’ well-being in school and also inform policy and direct interventions geared towards better management of menstrual hygiene among adolescent girls in schools. Your participation in this study as a key informant respondent is voluntary and will involve an interview of about 20 minutes. The information provided is very important and will be dealt with confidentiality. Your participation in this study is encouraged since you are an important source of information on knowledge attitudes and challenges concerning MHM among high school adolescents in Kaabong Town Council, Kaabong District.

Would you be willing to participate in this study?

I hereby voluntarily agree to participate as a subject in this study.

Signature _____ Date ____/____/____

Principal investigator’s signature _____ Date ____/____/____

APPENDIX III: Qualitative data collection tool

Knowledge, attitudes, and challenges concerning menstrual hygiene management among high school adolescent females in Kaabong Town Council, Kaabong District

Key informant guide

1. Are high school adolescent females in Kaabong Town Council knowledgeable enough about MHM? If not, what are the gaps?
2. How can the MHM knowledge gaps among high school adolescent females in Kaabong Town Council be filled?
3. What are some attitudes around MHM among high school adolescent females in Kaabong Town Council?
4. What are some of the MHM challenges faced by high school adolescent females in Kaabong Town Council?
5. How have these MHM challenges faced by high school adolescent females in Kaabong Town Council been previously addressed?
6. Who is responsible for addressing these challenges? How? Why?
7. How can your office be of help in improving knowledge, and attitudes and addressing MHM challenges faced by high school adolescent females in Kaabong Town Council?

Thank you for your time

APPENDIX IV: Quantitative data collection tool

Knowledge, attitudes, and challenges concerning menstrual hygiene management among high school adolescent females in Kaabong Town Council, Kaabong District

CIRCLE/PUT A RING ON THE APPROPRIATE RESPONSE

SECTION A: SOCIAL DEMOGRAPHICS

A1. Class _____

A2. Age in completed years _____

A3. How long does it take you to get to school?

- a) 10 min or less b) 11–30 min c) 31–60 min d) >1 hour

A4. Do you have regular access to: (*Hint: Circle all that apply*)

- a) Soap at home? b) Water at home? c) Soap at school? d) Water at school?

A5. Religion

- a) Catholic b) Anglican c) Pentecostal d) Muslim

e) SDA f) Others (specify).....

SECTION B: KNOWLEDGE

B1. Ever heard of MHM (awareness)

- a) Yes b) No

B2. First Source of information on MHM

- a) Mother
b) Sister/friend
c) Teacher
d) Others

B3. Ever received menstrual information in a course while at school

- a) Yes b) No

B4. Known menstrual hygiene materials (Multiple answers)

- a) Disposable sanitary pad b) Reusable cloth c) Tampon
d) Menstrual cup e) Others (Specify).....

B5. Menstruation is controlled by hormones

- a) True b) False

SECTION C: ATTITUDES

C1. Abstained from household work during menstruation

- a) Agree b) Neutral c) Disagree

C2. There are some food girls should avoid during menstruation

- a) Agree b) Neutral c) Disagree

