Unsafe menstrual hygiene management practices and its associated factors among secondary school girls in Bukoba Municipality, Tanzania

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Master of Public Health Dissertation
Muhimbili University of Health and Allied Science
October, 2020

Muhimbili University of Health and Allied Sciences

School of Public Health and Social Sciences

UNSAFE MENSTRUAL HYGIENE MANAGEMENT PRACTICES AND ITS ASSOCIATED FACTORS AMONG SECONDARY SCHOOL GIRLS IN BUKOBA MUNICIPALITY, TANZANIA

By

Kamugisha Joseph Saulo

A Dissertation Submitted in (Partial) Fulfilment of the Requirements for the Degree of Master of Public Health of

Muhimbili University of Health and Allied Sciences
October, 2020

CERTIFICATION

The undersigned certifies that he has read and hereby recommends for acceptance by Muhimbili University of Health and Allied Sciences a dissertation entitled; **"Unsafe Menstrual hygiene management practices and its associated factors among secondary school girls in Bukoba Municipality, Tanzania",** in (partial) fulfillment of the requirements for the degree of Master of Public Health of Muhimbili University of Health and Allied Sciences.

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Prof. Method Kazaura

(Supervisor)

_____

Date

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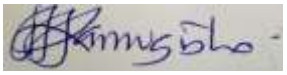
I, **Kamugisha, Saulo Joseph**, hereby declare that this **dissertation** is my original work and that it has not been presented and will not be presented to any other university for a similar or any other degree award.

Signature:  **Date:** ……..

ACKNOWLEDGEMENT

I wish to express my appreciation to all people who have directly or indirectly contributed to the accomplishment of this study. First, I thank my Almighty God for safeguarding me, care and lots of mercies to my entire family in course of this research. My warmly gratitude goes to my supervisor Prof. Method Kazaura for his inspiration and guidance.

To all the study assistants; Petrida Paul, Dions Mbezi and Jackline Kizito, very much thanks for your commitment, deep thoughts from the field and efforts you exerted to reach all schools.

The gratitude also is extended to Dr. Jonas Kwagwisage, and my fellow MPH students for guidance and other technical assistances you offered during proposal development, data analysis and report writing. You also provided a commendable guidance to all data collectors.

Many thanks, to my dear wife Lilian Angelo, my son Elison S. Kamugisha, my daughters; Salome S. Kamugisha, Success S. Kamugisha and my mother Salome Raphael for their patience and understanding, tolerance, endurance, moral support and encouragement during the entire course, and more especially during the period of this study. Thank you very much for always bearing with me especially for my exclusion in lots of family and social events, being there for me and serving out at crucial moments of this program.

Lastly but not least, I extend my sincere gratitude to the respondents with whom too many questions were asked and honestly responded. God bless you all.

DEDICATION

I sincely dedicate this dissertation to my beloved friend Dr. Jonas Kagwisage, Dr. Amon Sabasaba for their tireless advice and love during the time of study.

ABSTRACT

Background: Menstrual hygiene is a significant issues that every girl and woman has to deal with. Unfortunately, health talks surrounding menstrual hygiene are minimal owing to the fact that the topic of menstruation is not discussed at especially in developing countries. Consequently young girls end up receiving minimal menstrual information from parents and school teachers because menstruation is perceived as taboo by many communities and as results they fail to maintain safe menstrual hygiene practices. Limited studies have been conducted to address this issue in Tanzania.

Objective: This study aimed to assess unsafe menstrual hygiene practices and its associated factors among secondary school girls in Bukoba Municipality.

Material and methods: A cross-sectional study was conducted in which 766 adolescent school girls were interviewed. Data were collected using a pre tested and adapted structured questionnaire. Data analysis was done using SPSS version 23.0. Descriptive statistics was used to summarize the obtained data. Attributes of menstrual hygiene practices and knowledge levels were presented in percentages. Chi square tests was used for testing association of independent variables (age, religion, time taken from menarche, knowledge on menstruation, source of water supply, standard form of education and source of menstrual information) and outcome variable (unsafe menstrual hygiene practices). Binary logistic regression analysis was used to determine determinants for unsafe menstrual hygiene practices. P value <0.05 was considered statistically significant.

Results: The prevalence of unsafe menstrual hygiene practices in this study was found to be 50.7%. The most reported used menstrual absorbent was purchased sanitary pads (70%) More than half (55.4%) reported to change the menstrual absorbent three times a day or more. Burning was the most reported (32.8%) as the menstrual absorbent disposal mechanism. Almost half (44.5%) reported to clean the genitalia once a day. Majority of girls (80.9%) were knowledgeable on menstruation. The determinants of unsafe menstrual hygiene practices were younger age AOR=1.7(95 CI: 1.1-2.7), Muslim AOR=1.5 (95 CI: 1.1-2.1), shorter time from

menarche AOR=1.8 (95 CI: 1.2-2.6), poor knowledge on menstruation AOR=2.6 (95 CI: 2.1-3.3), household stand pipe as source of water AOR=0.2 (95 CI: 0.3-0.7) and source of menstrual information from relative AOR=0.5 (95 CI: 0.3-0.7).

Conclusion: Higher prevalence of unsafe menstrual hygiene practices and higher knowledge on menstruation was observed among study participants. Higher odds of unsafe menstrual hygiene practices were observed to be related to younger age, Muslim, shorter time from menarche and low knowledge on menstruation. Lower odds of such practices were observed in individuals who reported to use house water stand pipe as water supply and those who reported relatives to be the source of menstrual information. Awareness regarding the need for information about good menstrual practices is very important.

Key words: Safe Menstrual hygiene practices, Menstrual information, menstrual absorbent materials

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LIST OF ABBREVIATIONS

MHM: Menstrual Hygiene Management

MUHAS: Muhimbili University of Health and Allied Sciences

SNV: Stichting Nederlandse Vrijwilligers (Netherlands Development Organization)

TWESA: Tanzania Water and Sanitation Agency

TZS: Tanzanian Shillings

UNESCO: United Nations Educational, Scientific and Cultural Organization

UNICEF: United Nations Children's Fund

WASH: Water, Sanitation and Hygiene

DEFINITION OF TERMS

Menstrual Hygiene Management: refers to the state whereby women and adolescent girls use clean menstrual management material to absorb or collect menstrual blood that can be changed in privacy as often as necessary for the duration of the menstruation period. It also include the use of soap and water for washing the body as required, and having access to facilities to dispose of used menstrual management materials.

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background

Menstruation is a cyclic event that occurs during the reproductive phase of a woman's life. It involves monthly discharge of mainly blood, mucous and endometrial shreds from the lining of the uterus (Murye and Mamba, 2017). It is a key indicator of health and vitality for adolescent girls (UNICEF 2017). Most adolescents experience their first menstruation (menarche) between the ages of 11 and 14 years. However, some girls start as early as 8 and some at 17 or older. However, the girls have to manage it hygienically and with dignity. Managing menstruation hygienically among school girls is an integral path of good sanitation and hygiene that significantly increases the school enrolment, educational participation and academic performance (UNICEF 2017).

Menstrual hygiene products such as tampons, sanitary pads, menstrual cups, cloths have been reported to be used by women and girls to absorb menstrual blood and to maintain personal hygiene during the period of menstruation (Mohammed et al, 2020). In order to prevent physical discomfort and leakages, adolescent girls need to understand and the types of menstrual care products that exist and how to appropriately use and dispose of them hygienically (House, Mahon and Cavill, 2012; Selamawit, 2015; Sommer *et al.*, 2016). Knowledge on which product to use, how often to change it and access to adequate water may provide considerable assistance to women and girls to maintain safe menstrual hygiene practices (Murye and Mamba, 2017). In case of absence of such facilities, most women and girls might opt to utilize unsafe products such as newspaper, old rags, dried leaves, or socks as menstrual absorbents (House, Mahon and Cavill, 2012; Selamawit, 2015; Sommer et al., 2016).

Menstrual hyghene practices are of crucial given its significant impact on women health. Unfortunately, health talks surrounding menstrual hygiene are minimal owing to the fact that the topic of menstruation is not discussed especially in developing countries (Selamawit, 2015; Sommer et al., 2016). Consequently young girls end up receiving minimal menstrual information from parents and school teachers because menstruation is perceived as taboo by many communities and as results they fail to maintain safe menstrual hygiene practices (Sommer et al., 2016).

There are Limited studies conducted in Tanzania, specifically on this issue. This study therefor assessed unsafe menstrual hygiene practices and its associated factors among secondary school girls in Bukoba Municipality.

1.2 Statement of the problem

Menstrual hygiene practices have been of public health concern following the impacts it can pose to an individual. Although studies on the health risks of unsafe menstrual hygiene practices are inadequate (Murye and Mamba, 2017), it is believed that health risks related to reproductive and urinary tract systems is significant higher during menstruation (Sommer et al., 2016). It is reported that, the risks of such effects like Pelvic Inflammatory Diseases (PIDs) and infertility are 3 times higher among adolescents with unsafe menstrual hygiene practices (Murye and Mamba, 2017). Unsafe menstrual absorbent materials and lack of knowledge on menstruation may therefore predispose adolescent girls to reproductive tract infections with potential long-term effects on their reproductive health (Mohammed et al, 2020).

However, research provide evidence that, menstrual hygiene practices and knowledge are left for the girl child to discover as a mystery (Murye and Mamba, 2017). This lives a knowledge and practical gap. In addition, in the African tradition, issues surrounding menstruation are secretive issues which the girl child should discuss in the privacy with her parents or senior women in the community (Eijk et al, 2016).

Factors affecting menstrual hygiene practices include knowledge on menstruation, age, social economics status. Religion, source of menstrual information, and source of water supply.

There are limited studies in Tanzania focusing on unsafe menstrual hygiene practices and its associated factors among adolescent girls. Therefore, a study is needed to broaden knowledge on menstrual hygiene practices and its associated factors.

1.3 Conceptual framework

Unsafe menstrual hygiene practices are associated with various factors. Factors such as age, knowledge, source of water supply religion and source of menstrual information may significant affect menstrual hygiene practices. Younger age, poor knowledge on menstruation and religion has been seen to be associated with unsafe menstrual hygiene practices.

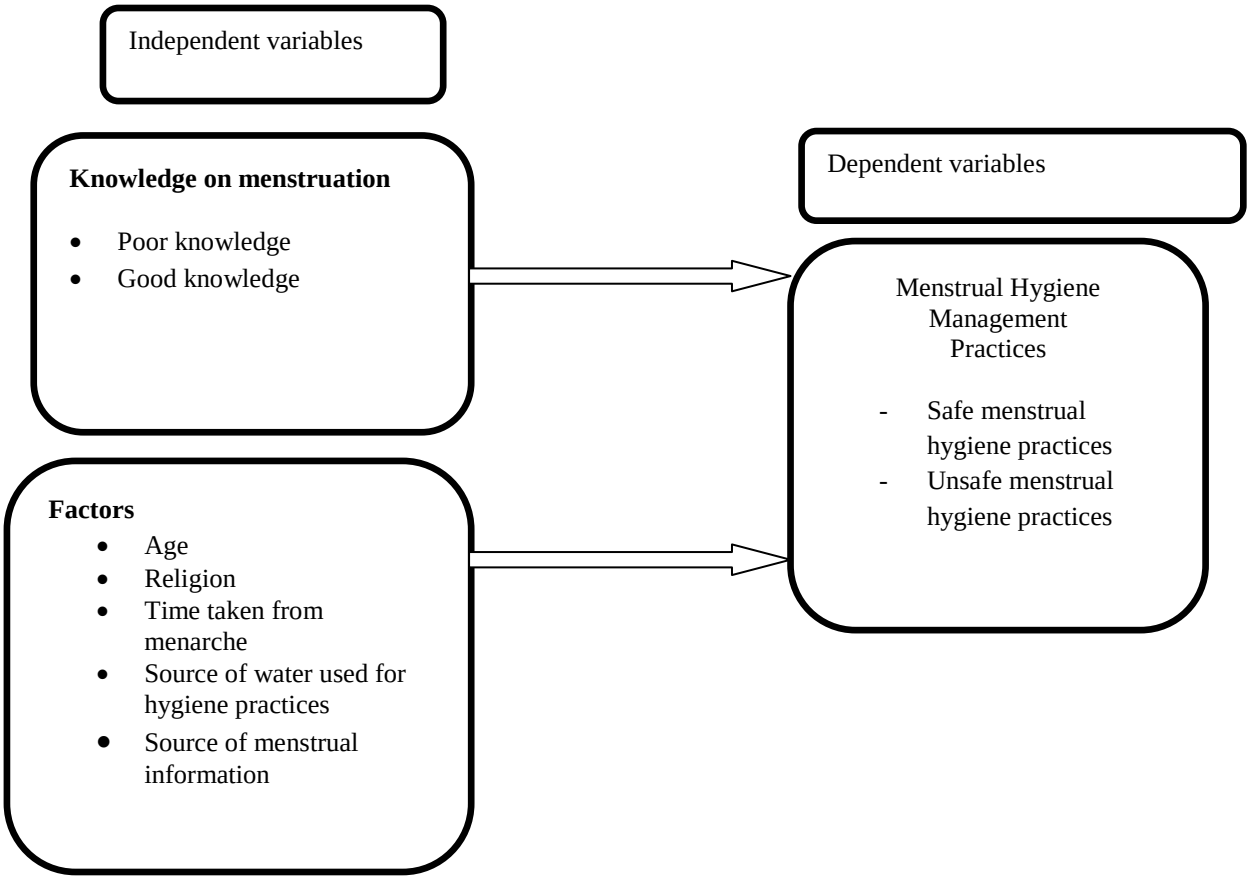

Figure 1: Conceptual framework for the main outcome, unsafe menstrual hygiene practices and the related determinants

1.4 Rationale of the study

This study will generate the evidence to inform school authorities, teachers and the public on the current MHM practices in schools. The generated information will be used by the ministry of education and its stakeholders on solving some existing challenges of MHM.

1.5 Research Questions

What is the prevalence of unsafe menstrual hygiene practices and its associated factors among secondary school girls in Bukoba Municipality?

1. What is the prevalence of unsafe menstrual hygiene practices among secondary school girls in Bukoba Municipality?
2. What is the level of knowledge regarding menstrual hygiene practices among secondary school girls in Bukoba Municipality
3. What are the factors associated with unsafe menstrual hygiene practices among secondary school girls in Bukoba Municipality?

1.6 Objectives

1.6.1 Broad Objective

To assess unsafe menstrual hygiene practices and its associated factors among secondary school girls in Bukoba Municipality.

1.5.2 Specific Objectives

1. To determine the prevalence of unsafe menstrual hygiene practices among secondary school girls in Bukoba Municipality.
2. To evaluate level of knowledge regarding menstrual hygiene practices among secondary school girls in Bukoba Municipality.
3. To analyse factors associated with unsafe menstrual hygiene practices among secondary school girls in Bukoba Municipality.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Menstrual hygiene practices

Menstruation Hygiene Management (MHM) is a concept defined as "women and adolescent girls using the clean material to absorb or collect menstrual blood, and this material can be changed in secrecy as frequently as needed for the period of the menstrual period". (Sinden, 2015). According to UNICEF,(2017) safe menstrual hygiene include four criteria i.e. type of absorbents used, frequency of absorbent exchange, frequency of washing genitalia during menses, and disposal methods for used absorbents. Accordingly, the females' menstrual hygiene practice is safe if it fulfils all of the following four criteria: i) If the females used safe absorbents (considered safe if they were commercially available sanitary pads or new clothes or re-usable type, used after washing with soap); ii) Changing absorbents twice or more times per 24 hours; iii) If girls wash their genitalia twice or more times per 24 hours and iv) disposed of menstruation pad by burying or burn it after use.

2.1.1 Menstrual absorbent materials

There is a wide variation on how adolescent girls manage their menses globally. These differences are due to socioeconomic disparity across regions. For example, disposable sanitary pads are provided at school among adolescent girls in Indonesia (Sinden, 2015), whereby majority of adolescent girls use rags and old cloth as absorbent material in Nigeria, only 20% use sanitary pads (Sommer 2012). A one year study that was done in Belagavi on menstrual hygiene practices by Suhasini and Chandra, (2016) reported that 43.4% of the adolescent girls used sanitary pads, 33.1% used cloth, 22.2'% used both sanitary pads and cloth and 1.3% used tampon (Suhasini and Chandra, 2016). The study further reported that among the cloth users, 63.0% were using reused cloth and 37.0% used afresh cloth every cycle.

Another study conducted in Northeast Ethiopia among adolescent school girls showed that 35.38% of students used sanitary napkins, 55.60% homemade pads with 91.84% of them reusing the material and 9.01% used nothing only underwear as menstrual absorbent materials.(Tegegne and Sisay, 2014).

Adding to that, a study done in Nigeria revealed that 31% to 56 % of the schoolgirls use toilet tissue or cloth as menstrual absorbents materials whereas in Ethiopia the rate of utilization of sanitary material was as low as 37.6 % and 62.4 % were using rags and pieces of cloth (Fehintola et al., 2017). Another review study on menstrual hygienic practices in adolescent girls showed that 79% of the adolescent girls used pads and 21% used clothes. The rate of pads use was explained with the reasons of availability as the availably was high in the areas (Eram, 2017).

In Tanzania, 97.3% of secondary school girls are reported to use disposable sanitary pads as their only menstrual absorbent materials, 1.3% reported to use rag cloth while 4.2% are reported to use both disposable sanitary pads and rag cloth (Guya, Mayo and Kimwaga 2014). The reasons behind the use of rag cloth were allergic reactions from disposable pads and uncomfortability for such use.

2.1.2 Frequency of changing absorbent material

Several studies have addressed of how often girls change their menstrual absorbent materials. These studies show poor frequency rate of changing menstrual absorbent materials. A study among adolescent done in Nigeria showed that only 40.7% of the adolescent girls changed the absorbent materials more than once a day (Adika et al, 2011). Miiro and his colleagues study in Uganda revealed poor frequency of changing menstrual absorbent materials and as a result majority of them experienced leakages in their outer clothes during their menstrual period (Miiro et al, 2018).

In Tanzania, 61.1% of the secondary girls are reported to change their menstrual absorbent materials after every six hours (Guya, Mayo and Kimwaga 2014).

2.1.3 Disposal of used menstrual absorbent materials

Poor methods of disposal of already used menstrual absorbent materials have been reported in various studies (Madhusudan et al., (2014). A study conducted among adolescent schoolgirls in Nigeria, reported poor disposal mechanisms for used menstrual absorbent. In their report, they showed that most of the girls never wrapped up the absorbent materials well after use (Madhusudan et al, 2014). They even never disposed of them in toilets. Similar findings were reported by Gultie and his colleagues in Ethiopia where the majority of the respondents unsafely disposed of the used menstrual absorbent materials (Gultie, et al., (2014).

A community-based and one year cross-sectional study done in Ashoknagar reported that of the 410 sanitary pad users, 69.3% of them wrapped the pad in paper and disposed of it in dustbin, 11.2% flushed the pad in the toilet, 16.3% threw it indiscriminately and 3.2% of the girls burnt the pad. (Suhasini and Chandra, 2016). Adding to that Hakim and his colleagues did a study in 2017 and reported two-thirds of girls with the habit of throwing the menstrual absorbent materials with household waste while burning was observed to be the second commonest method of absorbent disposal (Hakim, Shaheen and Tak 2017).

In Tanzania, basing on the existing assessment on menstrual hygiene management show evidence of existing habit for throwing used menstrual absorbent materials in the dumping site among secondary school girls (Guya, Mayo and Kimwaga 2014).

2.1.4 Menstruation knowledge

Menstruation is still a taboo among different culture worldwide. The quietness on addressing menstruation issues creates knowledge gap on the subject between communities. Some of community survey reports higher MHM awareness among adolescent school girls (Gultie, et al, 2014; Rajbhandari *et al.*, 2018). In the Ethiopian study, majority of adolescent school girls (90.7%) were aware of MHM (Gultie et al, 2014), similarly (94.6%) were aware in the Nepal study (Rajbhandari *et al.*, 2018). The findings were different in the studies by Anusree et al, Robyn and Yadav et al.

Less than half (46.7%) of adolescent school girls were aware of MHM in the Indian study (Anusree *et al.*, 2014). Similar findings were reported by Robyn in Uganda and Yadav et al in Nepal (Robyn, 2014; Yadav *et al.*, 2017).

A number of literature show that majority of adolescent girls possess insufficient knowledge on menstruation (Sommer, 2012; Sinden, 2015 ; Fehintola *et al.*, 2017). Many developing countries have partial education in schools about menstruation. Classroom teachers may be reluctant to discuss menstrual hygiene issues, especially male teachers, due to the taboos associated with menstruation in these settings (Rajbhandari et al., 2018). In certain circumstances, the teachers themselves are not well informed (Sinden, 2015). Without doubt, adolescent girls have no option than to seek information elsewhere than the formal learning environment (Sommer, 2012; Sinden, 2015; Fehintola et al., 2017).. In a study done in Nigeria, it was reported that only 33.8% of the girls knew that the range of a single menstrual cycle is from day one of menstruation to the beginning of the next menstruation and only 2.5% of the girls were aware that a normal menstrual cycle varies between 21 to 35 days

Some African studies have documented lack of scientific knowledge of menstruation and puberty among school girls (Kabuye et al 2013; Upashe, Tekelab and Mekonnen, 2015; Koril, et al 2018). In South Sudan, 62.9% consider menstruation as a disease (Kabuye et al 2013). In Kenya, some participants considered menstruation as a curse (26.6%) sin (7.8%) and disease (20.3%) (Koril, et al 2018). In a study done in Ethiopia, 9.7 % of study participants believed that menstruation was a curse from God (Upashe, Tekelab and Mekonnen, 2015).

2.1.5 Factors associated with unsafe menstrual hygiene practices

Factors affecting menstrual hygiene practices have been reported to include knowledge on menstruation, age, social economics status. Religion, source of menstrual information and source of water supply. Lower level of knowledge on menstruation has been reported to be associated with unsafe menstrual hygiene practices in various studies (Salve et al, 2012; Tamiru, et al. 2015). Knowledge provides information and awareness on one's health care and management including hygiene practices.

However, some studies report contrary findings (Koril, et al 2018). For the case of source of menstrual information, studies report that the students who are getting menstrual information from the relatives are protective from unsafe menstrual hygiene practices than having it from the teachers (Kabuye et al 2013; Koril, et al 2018). The reasons provided for such association is that relatives are the first-hand source of knowledge regarding menstruation from home. The other reason provided is that teachers may avoid discussions on menstruation, mainly due to local taboos or due to their own inadequacies on the subject, furthermore, teacher have been observed to focus on the menstrual physiology rather than the practical management (Shanbhag et al, 2012; Tegegne and Sisay 2014; Koril, et al 2018). Age is a contradicting factor, in some studies, younger age are seen to be associated with unsafe menstrual hygiene practices (Biruk et al, 2018). In that study, participants whose age was above fifteen were 3 times more likely to have safe menstrual hygiene practice than age less than fifteen. However, this finding is in centrally to the findings reported by Mohammed and his colleagues. In their study the odds of unsafe menstrual hygiene practices decreased with younger age compared to older age (Mohammed et al, 2020). For religion, muslims have been reported to have higher odds on unsafe menstrual hygiene practices than Christians. A study done in Kenya reported increased odds of unsafe menstrual hygiene practices among secondary girls who are Muslim (Koril, et al 2018).

CHAPTER THREE

3.0 MATERIALS AND METHODS

3.1 Study design

A cross-sectional study was carried out to assess unsafe menstrual hygiene practices and associated factors Secondary schoolgirls in Bukoba Municipality, Tanzania. The study design was selected because it intends to study menstrual hygiene practices and its associated factors at a specified time. The robustness of cross section research methods in studying exposure (factors) and outcome (unsafe menstrual hygiene practices) has been documented in a number of studies (Martin and Pitt, 2020; Sakyi, Musona and Mweshi, 2020).

3.2 Study population

The study included Secondary schoolgirls attending in their 3rd and 4th grades in Bukoba Municipality.

3.3 Study setting

This study was conducted in Bukoba Municipal – Kagera region involving both public and private secondary schools. Bukoba Municipal is located on the western shore of Lake Victoria, northwest of Tanzania (Republic, 2018). It is bordered to the north by Missenyi district and, to the south by Lake Victoria, to the east and west by Bukoba rural district. According to the 2012 health and demographic survey, the municipality has a total population of 128,796 of which 62,525 are males and 66,275 are females. The population are commonly members of the Haya ethnic group who are mainly petty traders. Other income generating activities include subsistence farming and fishing. The municipal has a total of 30 secondary schools. Among these, 17 are public owned and the remaining are private. Of the 30, there are two girl's only schools. There are 13 boarding schools; the rest offers day care services.

In the recent years, there has been an increase in number of enrolment for both girls and boys among secondary schools in the municipality. Girl's enrolment increased from 4,048 in 2017 to 6,126 and 6,577 in 2018 and 2019 respectively. Similarly, 3,562 boys were enrolled in year

2017 compared to 5,765 and 6,134 in the year 2018 and 2019 respectively. The school's management structure is similar for both public and private institutions. There are school governing committee headed by the nominated chairperson. The committee play key roles in the context of school governance and leadership. The supervision of routine school activities is set under control of the head masters. Health and wellbeing of the students is taken care of by all teachers in collaboration with a school nurse and/or nominated health and hygiene teacher.

3.4 Sample size

Sample Power analysis was used to estimate the sample size using the formula

$$n = \frac{z^2 p\,(1-p)}{\varepsilon 2}$$

Where n = the minimum sample size required, z = level of confidence set at 1.96, Ɛ = maximum likely error which is 5%, and p = 0.533 (proportional of secondary school girls with unsafe menstrual hygiene practices as reported by Shallo et al, 2020).

$$n = \frac{1.96^2 \times 53.3(100-53.3)}{5^2} \text{ x Deff}$$

n = 383,

The Deff is the adjustment made taking into account of clustering of events (management of menstrual hygiene) within the clusters (schools). The estimated factor is 2. Therefore, n′ = 383 ×2 = 766.

Therefore, 766 secondary school girls were invited for this study.

3.5 Sampling technique

The study involved 15 secondary schools which were selected by systematic sampling from the list of 30 secondary schools. We invited all girls in form three and form four to participate in this study hoping that majority had reached menarche and had a lengthy experience in menstrual hygiene management. Subsequent on obtaining written informed consent/assent, eligible participants were randomly selected until the target sample size was attained.

The number of participating girls at each school was estimated by dividing the school girls' population to the total municipal school girls' population and multiplying with the sample size.

Study Variables

Dependent variable

Unsafe menstrual hygiene practices

Independent variables

Age, Religion, menarche, standard form of education (form three or four), knowledge on menstruation, source of water supply and source of menstrual information.

Measures

Dependent variable

This was measured as a categorical variable. Safe menstrual hygiene practice was measured based on the UNICEF definition of safe menstrual hygiene containing four criteria i.e. type of absorbents used, frequency of absorbent exchange, frequency of washing genitalia during menses, and disposal methods for used absorbents. Accordingly, the females' menstrual hygiene practice is safe if it fulfils all of the following four criteria: i) If the females used safe absorbents (considered safe if they were commercially available sanitary pads or new clothes or re-usable type, used after washing with soap); ii) Changing absorbents twice or more times per 24 hours; iii) If girls wash their genitalia twice or more times per 24 hours and iv) disposed of menstruation pad by burying or burn it after use. If the respondents fulfil the criteria on a single criterion, 1 point was given and otherwise, zero was given. Finally, the value was added up together for all four variables (criteria). Those who score four out of four were classified as safe menstrual hygiene practice and otherwise classified as unsafe.

Independent variables

All the independent variables including age, Religion, menarche, standard form of education (form three or four), source of water supply and source of menstrual information were measured as categorical variables except for knowledge on menstruation.

To measure knowledge level on menstruation, eight items were considered. Each item had one score. An individual was considered knowledgeable if she scored at least four items out of eight items (thus 50% and more) otherwise not knowledgeable. The cut off for measuring knowledge was obtained from previous studies (Shah et al, 2019).

3.5.1 Inclusion criteria

All secondary school girls who consented to participate in the study were included.

3.5.2 Exclusion criteria

Those students who were absent from school during data collection

3.5.3 Data collection

Data were collected using a researcher-administered close ended questionnaire adapted from a study by Shah et al. (Shah, et al. 2019). The questionnaire was translated in Swahili language. The trained field assistants supervised data collection process. The questionnaire captured information on menstrual hygiene management practices (safe practices or unsafe practices) and associated factors.

3.6 Validity and reliability

The questionnaire was pre-tested Pre among adolescent school girls from two secondary schools in Missenyi District before application to the study area to ensure that there were no errors. The aim of the study and the way of filling out the questionnaire was thoroughly explained in each classroom to the students by the principal investigator. Questionnaires were checked for consistency and completeness of information obtained from the study participants so as to ensure the reliability of the collected information.

3.7 Data management and analysis

Data collected were sorted and checked on daily basis to check their completeness and consistence. In case of any missing information or inconsistence, the interviewer went back to the particular study unit to make necessary adjustment. Then, data was entered to, cleaned and analysed using SPSS version 23. Descriptive statistics was used to summarize the obtained data.

To analyse objection number one, frequencies and percentages on the four attributes (criterion) for safe menstrual hygiene practices were run to obtain the proportion of those participants who had unsafe menstrual hygiene practices (prevalence of unsafe menstrual hygiene practices).

To analyse objective number two, frequencies and percentages were run to obtain the proportion of participants who were knowledgeable (those who scored 50% and above on the eight items measuring level of knowledge on menstruation) and those who were not knowledgeable on menstruation(those who scored <50% on the eight items measuring level of knowledge on menstruation) .

To analyse objective number three, Chi square tests was used for testing association of independent variables (age, religion, time taken from menarche, knowledge on menstruation, source of water supply, standard form of education and source of menstrual information) and outcome variable (unsafe menstrual hygiene practices). Binary logistic regression analysis was used to determine determinants for unsafe menstrual hygiene practices. P value <0.05 was considered statistically significant.

3.8 Ethical consideration

The study was approved by the Muhimbili University of Health and Allied Sciences (MUHAS) Institutional Review Board (IRB). Permission to conduct the study were sought from the Bukoba Municipal executive director. Further, research permit were sought and obtained from heads of respective schools. The written informed consent were obtained from all participants aged 18 years and above, those below 18 years were provided with all information and asked whether or not they wish to participate in the study. For those who opted to participate, an informed consent was obtained from their class teachers and nominated hygiene teachers. The study had no potential harm to the participants; hence the participants were assured confidentiality of the information they provided.

CHAPTER FOUR

4.0 RESULTS

4.1 Introduction

This chapter presents the results of the study produced by quantitative analysis. It starts by describing socio-demographic characteristics of study participants. This is followed by the substantive findings of the study, presented according to the research objectives. These findings have been used to provide the foundation for the conclusions and implications outlined in chapter six.

4.2 General Characteristics of the study population

The general characteristics of the study population (i.e the hairdressers) are summarized in Table 3. Data were collected from 15 secondary schools within Bukoba municipality. A total of 766 girls from 15 schools were included in the study resulting in a response rate of 100%. The mean age was 16±3 years. The distribution of religion in this study was skewed with Christian respondents (73%). Out of 766 respondents, 484 (63.2%) were in form three and 202 (36.8%) were in form four.

Table 1: General characteristics of study participants (N=766)

Variable	Frequency (n)	Percentage (%)
Age (years)		
10-17 y	634	82.8
18+	132	17.2
Standard year of study		
Form three	484	63.2
Form four	202	36.8
Religion		
Muslim	207	27
Christian	559	73
Period onset		
Within the year	161	21
Two years ago	305	39.8
More than two years ago	300	39.2
Mothers level of education		
No formal education	7	0.9
Primary education	237	31.1
Secondary education	292	38
Higher education	230	30
Fathers level of education		
No formal education	65	8.5
Primary education	153	20
Secondary education	314	41
Higher education	234	30.5

4.3 The prevalence of unsafe menstrual hygiene practices

The prevalence of unsafe menstrual hygiene practices in this study was found to be 50.7%. The most reported used menstrual absorbent was purchased sanitary pads (70%). The rest of the variables are shown in table 2.

Table 2: Menstrual Hygiene Management Practices among study participants (N=766)

Variable	Frequency	Percentage (%)
Type of adsorbent		
piece of Cloth/towel	284	37.1
Purchased sanitary pads	536	70
Homemade sanitary pads	114	14.9
Toilet paper	85	11.1
Frequency of sanitary pad exchange		
Once a day	180	23.5
Twice a day	162	21.1
Three times a day or more	424	55.4
Disposing sanitary pad		
In the toilet	111	14.5
In the dustbin	166	21.6
Open field	62	8.1
In the pond	176	23
Burn it	251	32.8
Frequency for cleaning the genitalia		
Once a day	339	44.3
Twice a day or more	427	55.7
Do you usually get pocket money for sanitary pad		
Yes	561	73.2
No	205	26.8

4.4 Factors affecting menstrual hygiene practices

4.4.1 Knowledge on menstrual hygiene practices

Table 3 shows knowledge/awareness on menstruation among study participants. Among 766 students studied, 620 (80.9%) were knowledgeable on menstruation. Almost all participants, (91.8%) knew that menstruation is a normal physiological process.

Table 3: knowledge on menstruation among study participants (N=766)

Information	Knowledgeable	
	Frequency (n)	Percentage (%)
Women stop menstruating as they grow very old		
Knowledgeable	631	82.4
Menstruation is a normal physiological process		
Knowledgeable	703	91.8
Pregnant women do not menstruate		
Knowledgeable	663	86.6
Menstrual blood do not come from the stomach where the food is digested		
Knowledgeable	561	73.2
Menstrual blood comes from the uterus		
Knowledgeable	435	56.8
Menstrual blood contains blood, secretions, and tissue debris		
Knowledgeable	293	38.3
Pain during menstruation do not mean that someone is sick		
Knowledgeable	511	66.7
It is not harmful for a woman's body if she runs or dances during her period		
Knowledgeable	405	52.9

4.4.2 Factors associated with unsafe menstrual hygiene practices

Table 4 shows various factors that were found to be associated with unsafe menstrual hygiene practices.

Table 4: Factors associated with unsafe menstrual hygiene practices.

Factors	Unsafe menstrual hygiene practices				
Age	**Yes**	**No**	**Total**	**X^2**	**p-value**
10-17 y	328 (51.7%)	309 (48.3%)	634 (100%)	4.724	0.042
18+	60(45.5%)	72(54.5%)	132 (100%)		
Standard year of study					
Form three	247 (51.0%)	237 (49.0%)	484 (100%)	0.076	0.783
Form four	141(50.0%)	141(50.0%)	282 (100%)		
Religion					
Muslim	119 (57.5%)	88 (42.5%)	207 (100%)	5.302	0.021
Christian	269(48.1%)	290(51.9%)	559 (100%)		
Time from menarche					
Within the current year	88 (59.5%)	60 (40.5%)	148 (100%)	6.156	0.013
One year ago and more	285(48.1%)	308(51.9%)	593 (100%)		
Source of water					
House hold stand pipe	266 (61.9%)	104 (38.1%)	430 (100%)	12.43	0.0001
Other	122(36.3%)	214(63.7%)	336 (100%)		
Menstrual education					
Educated in Primary education	384 (51.5%)	362 (48.5%)	430 (100%)	7.72	0.005
Educated in secondary education	4(20%)	16(80%)	20 (100%)		
Source of menstrual information					
Relative	130 (40.9%)	188 (59.1%)	318 (100%)	20.77	0.0001
Teacher	258(57.6%)	190(42.4%)	448 (100%)		
Knowledge on menstruation					
Not knowledgeable	92 (63%)	54 (37.0%)	146 (100%)	11.026	0.001
Knowledgeable	296(47.7%)	324(52.3%)	620 (100%)		

The result show that there is no significant relationship between unsafe menstrual hygiene practices and the standard year of education the participant was ($p>0.05$).

However, there is an evident of existing relationship between unsafe menstrual hygiene practices with factors related to age, religion, period onset, source of water, the level of education where they first had menstrual education, source of menstrual education and knowledge on menstruation ($p<0.05$).

4.4.3 Determinants of unsafe menstrual hygiene practices

Table 5 shows various factors that were found to be independently associated with unsafe menstrual hygiene practices.

Table 5: Determinants of unsafe menstrual hygiene practices

Factors	Crude Odds (95% CI) (95% CI)	p-value	Adjusted Odds	p-value
Age (years)				
10-17	1.4 (1.2-2.4)	0.042	1.7 (1.1-2.7)	0.025
18+	Reference		Reference	
Standard year of study				
Form three	1	0.783	1	0.188
Form four	Reference		Reference	
Religion				
Muslim	1.4 (1.1-2.0)	0.021	1.5 (1.1-2.1)	0.018
Christian	Reference		Reference	
Time from menarche				
Within the current year	1.6 (1.1-2.3)	0.013	1.8 (1.2-2.6)	0.006
One year ago and more	Reference		Reference	
Source of water				
House hold stand pipe	0.4 (0.1-0.8)	0.0001	0.2 (0.3-0.7)	0.0001
Other	Reference		Reference	
Menstrual education				
Educated in Primary education	4.2 (1.4-12.8)	0.005	1	0.097
Educated in secondary education	Reference		Reference	
Source of menstrual information				
Relative	0.5 (0.4-0.7)	0.0001	0.5 (0.3-0.7)	0.0001
Teacher	Reference			
Knowledge on menstruation				
Not knowledgeable	1.9 (1.3-2.7)	0.001	2.6 (2.1-3.3)	0.02
Knowledgeable	Reference			

Among the factors studies, six factors were seen to be the determinants of unsafe menstrual hygiene practices. Higher odds of unsafe menstrual hygiene practices were seen in participants who were younger (AOR=1.7), those who were Muslim (AOR=1.5), those who just had their period in the year of data collection (AOR=1.8) and those who were not knowledgeable on menstruation (AOR=2.6). However, the lower odds of unsafe menstrual hygiene practices were observed in participants who reported to use household stand pipe as source of water (AOR=0.2) and those who preferred to disclose about menstruation issues to relative (AOR=0.5).

CHAPTER FIVE

5.0 DISCUSSION

5.1 Prevalence of unsafe menstrual hygiene practices

The prevalence of unsafe menstrual hygiene practices in this study was 50.7%. The higher prevalence of unsafe menstrual hygiene practices in this study may be attributed by various reasons including insufficient water supply, lack of money to purchase disposable sanitary pads and use of poorly disposable methods which are the main attribute to safe menstrual hygiene practices. Results from direct questionnaire revealed that nearly half of study participants reported to access water from the river, Community bore hole, wells and rain water. Almost three quarter of study participants reported improper disposal of the used sanitary absorbent and nearly half of them reported to clean their genitalia once a day.

The prevalence of unsafe menstrual hygiene practices of this study was higher compared to studies conducted in Kenya (Koril, et al 2018) and India (Khan, Ahmad, Singh, & Dwivedi, 2019) where the prevalence was 32.8% and 28.8% respectively. The differences with the study done in Kenya might be due to the various reasons. The first reason may be the type of menstrual absorbent material used, for example in a Kenyan study, only 1.9% of study participants used toilet paper while in this study it is 11.1%. Also 80.6% of participants in the study done in Kenya used sanitary pads while in this study it was 70%. In addition, the participants in a Kenyan study were reported to frequently change their menstrual absorbent materials as compared to participants in this study. Only 14.1% participant in the Kenyan study were reported to change their menstrual absorbent material once per day while it is 23.5% in this study. Furthermore, almost all participants (90.7%) in the study reported in Kenya practiced proper menstrual material disposal compared to this study in which only 47.3% reported to do so. The above mentioned reasons for the differences in prevalence of unsafe menstrual hygiene practices may also apply for such differences in the study done in India. Majority of study participants (73.1%) in the Indian study practiced proper disposal of used menstrual materials while in this study it was only 47.3%.

Also, in the study done in India, all study participants (100%) used the correct menstrual absorbent material as compared to this study which was 89%. All the mentioned factors could be the reasons for differences in prevalence among the three countries because the reasons discussed are the main attribute to safe menstrual hygiene practices

The prevalence of unsafe menstrual hygiene practices of this study was lower compared to studies conducted in Ethiopia where the prevalence was 60.1% (Upashe, Tekelab and Mekonnen 2015). The reason for the observed difference could be due to low awareness and communication of menstrual hygiene by Ethiopian girls which affects their menstrual hygienic practices.

This study found that the most known absorbent material to school girls was disposable sanitary pads. This finding is not surprising given the observed school material support to girls. About half of study participants admitted to ever receive free sanitary pads at school every month. Supporting needy girls with sanitary pads free of charge at school may have been the catalyst of disposable sanitary pad use by adolescent school girls. These findings are similar to studies done in Kenya (Koril, et al 2018), Ethiopia (Upashe, Tekelab and Mekonnen 2015) and India (Khan, Ahmad, Singh, & Dwivedi, 2019).

5.2 Knowledge on menstrual hygiene practices

Accurate information on menstruation and menstrual hygiene management is crucial for women and girls to manage their periods with confidence and dignity and be able to make informed decisions about their menstrual health (Koril, et al 2018). In this study, higher knowledge on menstruation was observed among study participants. Knowledge on the contents of menstrual blood, origin of menstrual blood and whether it is harmful to one's body to run or dance during the period was low. This finding is different to other African studies done elsewhere in which lack of scientific knowledge of menstruation and puberty among school girls has been documented (Kabuye, and Nathan 2013; Upashe, Tekelab and Mekonnen 2015; Koril, et al 2018). In South Sudan, 62.9% considered menstruation as a disease (Kabuye, and Nathan 2013).

In Kenya, some participants considered menstruation as a curse (26.6%) sin (7.8%) and disease (20.3%) (Koril, et al 2018). In this study almost all participants considered menstruation as a normal physiological process (91.8%). In a study done in Ethiopia, 9.7 % of study participants believed that menstruation was a curse from God (Upashe, Tekelab and Mekonnen 2015). In this study, only 293 (38.3%) of the study participants knew that menstrual blood contains blood, secretions, and tissue debris and that it comes from the uterus (56.8%). This finding may be due to inadequate proper health education programs offered in the schools focusing on the menstrual health and hygiene among younger girls. Furthermore, this could be due to the assumption that some of these girls were still very young provided that issues of sexuality still have cultural restrictions in our society making them vulnerable to limited sources of information. This finding is similar to a study conducted by Mohammed and his colleagues in Uganda (Mohammed et al, 2020).

5.3 Factors associated with unsafe menstrual hygiene practices

In this study, after adjusting for all the variables, factors that were observed to affect the odds of unsafe menstrual hygiene practices were age, religion, time from when the period started knowledge on menstruation, water source and source of menstrual information. Higher odds were observed to be related to younger age, Muslim, shorter length of time from when the period started and low knowledge on menstruation. However, lower odds of unsafe menstrual hygiene practices were observed in individuals who reported to use house water stand pipe as water supply and those who reported relatives to be the source of menstrual information.

The association of lower level of knowledge and higher odds of unsafe menstrual hygiene practices in this study is corroborated with other studies done elsewhere (Sommer, 2012; Sinden, 2015 ; Fehintola et al., 2017). Knowledge provides information and awareness on one’s health care and management including hygiene practices. However, some studies observed contrary findings (Murye and Mamba, 2017). The association of lower odds of unsafe menstrual hygiene practices among participants who reported to get source of menstrual information from relatives in this study could be due to the reasons that relatives are the first-hand source of knowledge regarding menstruation from home.

Similar results were reported in Uganda (Mohammed et al, 2020).The other reason for this association may be that teachers avoid discussions on menstruation, mainly due to local taboos or due to their own inadequacies on the subject (Kabuye et al 2013; Koril, et al 2018), furthermore, teacher have been observed to focus on the menstrual physiology rather than the practical management (Koril, et al 2018),

The higher odds of unsafe menstrual hygiene practices in younger age in this may be explained by the reason that, older age increases the probability of one exposure to menstrual information and education. This finding is similar to the study done in Ethiopia where study participants whose age was above fifteen were 3 times more likely to have safe menstrual hygiene practice than age less than fifteen a (Biruk et al, 2018). However, this finding is in centrally to the findings reported by Mohammed and his colleagues. In their study the odds of unsafe menstrual hygiene practices decreased with younger age compared to older age (Mohammed et al, 2020).

The higher odds of unsafe menstrual hygiene practices among participants who were Muslim in this study could be explained due to difference in culture and norms between Islamic and Christian community. For Islamic, it is believed that being in menstruation periods means that someone is dirty and therefore considered isolated, therefore due to this belief, young girls may be feeling unhappy during their menses that could reduce their hygiene capacity. Similar findings were reported in Kenya (Koril, et al 2018),

5.4 Study limitation

The study had several limitations; the first limitation was the cross-sectional nature of the data that could murky the causal effect relationships of different factors and it lacks qualitative data. Basically, the study addressed the sensitive issue about menstrual hygiene and the possibility of social desirability bias is unavoidable even if we have tried our best to minimize it. Another limitation is that, the study could not focus on environmental conditions of the schools that have been reported to affect menstrual hygiene practices.

CHAPTER SIX

6.0 CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

In this study a higher prevalence of unsafe menstrual hygiene practices was observed among study participants. The most known absorbent material to school girls was disposable sanitary pads. Higher knowledge on menstruation was observed among study participants. Higher odds of unsafe menstrual hygiene practices were observed to be related to younger age, Muslim, shorter time from menarche and low knowledge on menstruation. Lower odds of such practices were observed in individuals who reported to use house water stand pipe as water supply and those who reported relatives to be the source of menstrual information.

6.2 Recommendation

Awareness regarding the need for information about good menstrual practices is very important. Teachers should also emphasize on health information about menstrual hygiene. Also, policy makers and stakeholders should setup health education program to create awareness and practice of good menstrual hygiene among this group of miners.

Further studies should focus on evaluating the problem basing on qualitative findings to get into depth of the problem as well as investigating environmental school conditions.

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APPENDECIES

Appendix I: Consent Form – English Version

I: INFORMATION SHEET

My name is Saulo Joseph Kamugisha, a student at Muhimbili University of Health and Allied Sciences (MUHAS). I am studying the menstruation hygiene management among secondary school girls in Bukoba municipality, Tanzania.

I ask your consent to answer questions about this topic. These questions will take about a bout one hour. But feel free to give your responses. All the information you provide will remain a secret. I will not use your name or identify you in any writings or talks. I will use the number instead. I will keep all the information safe.

I will retain this information forever because I will keep referring to it for writing and further research. I will continue to keep it safe at all time.

I have informed all the authorities about this study. You are therefore safe when participating in this study. However, some of the questions I will ask will require you to tell me about your personal experiences and sometimes they may upset you

You are not forced to participate in this study. You have the right to refuse to answer certain questions. You are also free to refuse to tell me certain information. And you are free to withdraw from the study at any time.

You will not benefit directly by agreeing to participate in this study. The information you provide will help policy makers and service providers to think about the best ways to address menstruation hygiene management in schools.

In that case, I will read you this consent information again, and ask you to participate in this study for another time.

If you have any questions about the study or study procedures, you may contact me at any time. My cell phone numbers are +255-754821159.

Subject (Print) _____

Subject Signature _____ Date _____

Principal Investigator Signature _____ Date _____

Appendix II: Consent Form – Swahili Version

Fomu ya ridhaa kushiriki —Toleo la kiswahili

I: UTANGULIZI

Kwa jina naitwa Saulo Joseph Kamugisha, mwanafunzi wa Chuo Kikuu cha Afya na Sayansi shirikishi Muhimbili (MUHAS). Ninafanya tafiti nikwa jinsi gani wasichana ujihifadhi kipindi cha hedhi wakati wanapokuwa shuleni katika manisipaa ya Bukoba.

Naomba idhini yako kukuuliza maswali juu ya mada hii. Maswali yatachukua kama muda wa saamoja. Lakini jisikie huru kutoa majibu iwezekanavyo.

Maelezo yote unayotoa yatatabaki siri yangu. Sitatumia jina lako au kukutambulisha kwa maandishi. Nitatumia namba badala ya jina lako.

Nitahifadhi taarifa hizi kwa muda wote kwa sababu nitaendelea kuirejelea kwa maandishi na utafiti zaidi. Nitaendelea kuiweka salama wakati wote.

Nimezitaarifu mamalaka husika juu ya utafiti huu. Kwa hivyo uko salama wakati unashiriki katika utafiti huu. Hata hivyo, maswali kadhaa ambayo nitakuuliza yatakuhitaji kuniambia juu ya uzoefu wako binafsi na wakati mwingine yanaweza kukukasirisha.

Haulazimishwi kushiriki katika utafiti huu. Una haki ya kukataa kujibu maswali kadhaa. Pia uko huru kukataa kuniambia taarifa fulani. Na uko huru kujiondoa kutoka kwenye zoezi hili wakati wowote.

Hautafaidika moja kwa moja kwa kukubali kushiriki katika utafiti huu. Taarifa unazotoa zitasaidia watunga sera na watoa huduma kufikiria juu ya njia bora za kushughulikia maswala ya hedhi kwa wasichana pindi wapo mashuleni.

Ikiwa nitahitaji maelezo zaidi juu ya baadhi ya mambo ambayo tutajadili leo, nitaomba mahojiano mengine na wewe katika siku zijazo. Katika hali hiyo, nitakusomea maelezo haya ya idhini tena, na nitakuuliza ushiriki katika utafiti huu kwa muda mwingine.

Ikiwa una maswali yoyote juu ya utafiti au mchakato wa utafiti, unaweza kuwasiliana nami wakati wowote. Namba yangu ya simu + 255-754821159.

Jina la Mhusika _____

Saini ya Mhusika _____Tarehe _____

Saini ya Mkuu wa utafiti _____ Tarehe _____

Appendix III: Questionnaire – English Version

Questionnaire	
Identification Number : _ _ _ _ _ _ _ _ _	Date : _ _ / _ _ / _ _
Social -demographic information	
Location:	Age (years): _ _
1. Standard Year of study: Form 3: _ _ _ _ _ _ _ _ Form 4:……	
2. Religion: ☐ Muslim ☐ Christian Other _ _ _ _ _ _ _ _ _	
3. How long does it take to reach school? _ _ _ _ _ _ _ _ _ _ _	
4. Have you started your period? ☐ Yes ☐ No (skip to Q6)	
5. In what year did you have your first period? _ _ _ _	
6. What is your main water source at school? ☐ Household standpipe ☐ Household borehole ☐ Community standpipe ☐ Community borehole ☐ Protected well ☐ Rain water ☐ River water ☐ Unprotected well ☐ Drum	
7. What is the main toilet facilities members usually use? ☐ Flush toilet ☐ Pit latrine with a slab ☐ Pit latrine without a slab ☐ Communal latrine ☐ Bucket ☐ Use the bush	
8. What is the standard year of education that your **mother** has completed? ☐ No formal education ☐ Some secondary (7-10th year) ☐ Some primary (1-4th year) ☐ Completed secondary (13th year) ☐ Completed primary (6th year) ☐ Further education (university, etc) ☐ Arabic ☐ I don't know	

9. What is the standard year of education that your **father** has completed?

☐ No formal education ☐ Some secondary (7-10th year)

☐ Some primary (1-4th year) ☐ Completed secondary (13th year)

☐ Completed primary (6th year) ☐ Further education (university, etc)

☐ Arabic ☐ I don't know

Knowledge

10. In what grade/year did you learn about menstruation? _ _ _ _

11. Who did you learn about menstruation from? (select all appropriate answers)

☐ Grandmother ☐ Mother ☐ Sister ☐ Father ☐ Teacher

☐ Other _

	Yes	No	I don't know
12. Women stop menstruating as they grow very old?	☐	☐	☐
13. Menstruation is a disease	☐	☐	☐
14. Pregnant women menstruate	☐	☐	☐
15. Menstrual blood comes from the stomach where the food is digested	☐	☐	☐
16. Menstrual blood comes from the womb	☐	☐	☐
17. Menstrual blood contains dangerous substances	☐	☐	☐
18. Pain during menstruation means that someone is sick	☐	☐	☐
19. It is harmful for a woman's body if she runs or dances during her period	☐	☐	☐

20. What do you think about menstruation?

☐ It is a natural part of being a woman ☐ It is a curse

☐ Other _

21. Are you/were you afraid to start menstruating? ☐ Yes ☐ No

22. What are/were your fears of starting menstruating? (tick all the appropriate ones)

☐ I felt I didn't know enough to manage it well

☐ Bullying/teasing

☐ Shame

☐ Fear of staining

☐ Guilt

☐ Sign that you will have to stop studying and get married

☐ Pain

☐ Other _

_ _

Missing school - It can often be difficult to get to school every day, even when you are trying your hardest

23. How many days of school have you missed in the last 2 months?

0 ½ 1 2 3 4 5 6 7 8 9 10 10+

24. In a normal month how many days do you miss of school because of illness?

0 ½ 1 2 3 4 5 6 7 8 9 10 10+

25. In a normal month how many days do you miss of school because of lack of money?

0 ½ 1 2 3 4 5 6 7 8 9 10 10+

26. In a normal month how many days do you miss of school because of burden of domestic duties?

0 ½ 1 2 3 4 5 6 7 8 9 10 10+

27. In a normal month how many days do you miss of school because of your period?

N/A – pre-menarche girl

0 ½ 1 2 3 4 5 6 7 8 9 10 10+

28. Are there any other reasons you personally miss school? _	
Practices **Absorbent material**	
29. Which of these products used to absorb menstrual blood have you heard of? ☐ Disposable sanitary pad ☐ Tampon ☐ Menstrual cup ☐ Reusable Pad (you can use again) made from old cloth or towel ☐ Commercially available reusable Pad (you can use again)	
30. What do **your family members** normally use during your period? ☐ Cloth/Towel ☐ Purchased sanitary pad ☐ Hand-made sanitary pads ☐ Toilet paper ☐ ☐ I don't know	
31. What do you normally use during your period? ☐ Cloth/Towel ☐ Purchased sanitary pad ☐ Hand-made sanitary pads ☐ Toilet paper	
32. Have you or a family member bought disposable sanitary pads from a shop in the last six months?	☐ Yes ☐ No
33. Have you ever wanted to buy disposable sanitary pads from a shop but been unable to? ☐	☐ Yes ☐ No (skip to Q35)
34. Why were you unable to buy disposal sanitary products from the shop? ☐ I did not have enough money to buy disposable sanitary products from a shop. ☐ There were no disposable sanitary products in the shops. ☐ I felt embarrassed to go buy sanitary products from the shop Other _	

35. Does your school give girls a supply of pads?	☐ Yes ☐ No (skip to Q37)
36. How many pads are you provided with each month? _ _ _	
37. How often would you change the absorbent material on one of the more heavy days of bleeding? ☐ Once a day ☐ Twice a day ☐ Three times a day or more ☐ Other_ _	
38. Do you feel you can change your absorbents in school?	☐ Yes ☐ No
39. Where do you change your absorbent once you are at school? ☐ Toilet ☐ Classroom ☐ Wait till you reach home ☐ Other _	
40. What do you do with absorbent material if you change it at school? ☐ Keep it and bring it at home for future use ☐ Wash it and use it again at school ☐ Wash It and dry it at school ☐ Dispose it (skip to Q45) ☐ Other_ _	
41. If the material is reused, how is it washed at school? (please select the main one) ☐ With water ☐ With water and soap/detergent ☐ With water and mud/ash ☐ Other_ _	
42. Is it washed differently at home as compared to at school? ☐ Yes … How _ ☐ No	

43. After washing it, how is it dried? (please select the main one)

- ☐ Dry it in the sun or open space
- ☐ Dry it inside the house or a room
- ☐ I don't dry it
- ☐ Other ____

44. Can the material be dried in school? ☐ Yes ☐ No

45. Where do you dispose your sanitary pad (once you have finished using it?)

- ☐ Inside a latrine
- ☐ In a rubbish bin inside or close to the latrine
- ☐ In the household rubbish bin
- ☐ Put it in the pond
- ☐ I burn it
- ☐ Discard in any open space

Other

Activities your period makes you miss

46. Does your period make you miss housework?	☐ Yes ☐ No
47. Are there any other activities your period makes you miss?	☐ Yes ☐ No (skip to Q49)

48. What activities do you miss?

____

____

____

____

____

49. Average level of pain experienced during your period? *(10 being the worst pain you have ever experienced and 0 being pain free)*

0 ½ 1 2 3 4 5 6 7 8 9 10

50. You miss school during my period because: *(please select all that apply)*

- ☐ I am afraid of staining my clothes
- ☐ I am afraid of others making fun of me

- ☐ I am afraid it makes me smell bad
- ☐ Periods cause me a lot of pain
- ☐ Periods can make me feel uncomfortable or tired.
- ☐ There isn't anywhere for girls to wash and change at school
- ☐ There is nowhere to dispose of sanitary products.
- ☐ I am afraid others will suspect I am on my period and will tease me

School facilities

	Yes	**No**
51. Is there soap and water available for personal hygiene?	☐	☐
52. Are the latrines ever kept locked?	☐	☐
53. Can girls dispose of menstrual absorbents in school?	☐	☐

54. Where can girls dispose menstrual absorbents when in school?

☐ Pit latrine ☐ Old toilet ☐ Bin ☐ Take it home

☐ Other _

55. Do you feel comfortable using the school latrines?

☐ Yes always ☐ Not when I am menstruating ☐ Never

56. Who cleans the latrines?

☐ Students ☐ Teachers ☐ Parents ☐ Caretaker/cleaner

☐ I don't know ☐ Other _

Appendix IV: Questionnaire – Swahili Version

Dodoso la wasichana	
Namba ya mdodoswaji : _ _ _ _ _ _ _ _ _	Tarehe : _ _ / _ _ / _ _
Taarifa za	
Mahali:	Miaka: _ _
1. Upo Kidato cha ngapi? Kidato cha 3: _ _ _ _ _ _ _ _ _ Kidato cha 4: ……	
2. Dini: ☐ Muislam ☐ Mkristu Wengineo _ _ _ _ _ _ _ _ _ _	
3. Unachukua muda gani mpaka kufika shule? _ _ _ _ _ _ _ _ _ _ _	
4. *Umeshaanza kupata hedhi* ☐ Ndio ☐ Hapana (luka mpaka swali la 6)	
5. Ulivunja ungo mwaka gani? _ _ _ _	
6. Nini ni chanzo chenu cha maji shuleni? ☐ bomba la nyumbani ☐ Kisima cha mkono cha nyumbani ☐ Bomba la wananchi ☐ Kisima cha wananchi ☐ Kisima kilichojengewa ☐ Maji ya mvua. ☐ Maji ya mtoni ☐ Kisima ambacho hakijajengewa ☐ Pipa	
7. Familia yenu inatumia miundombinu gani ya choo? ☐ Choo cha maji ☐ Choo cha shimo chenye mfuniko ☐ Choo cha shimo kisichokuwa na mfuniko ☐ Choo cha jumuiya ☐ Ndoo ☐ Kichakani	
8. Mama yako ana elimu gani? ☐ Hajasoma ☐ Kidato cha 1- 4 ☐ Darasa 1-4 ☐ Kidato cha 5- 6 ☐ Darasa 7 ☐ Chuo kikuu ☐ Kiarabu ☐ Sijui	

9. Baba yako ana elimu gani?

☐ Hajasoma ☐ Kidato cha 1- 4

☐ Darasa 1- 4 ☐ Kidato cha 5- 6

☐ Darasa 7 ☐ Chuo kikuu

☐ Kiarabu ☐ Sijui

Maswali ya uelewa kuhusu masuala ya hedhi

10. Ulikua darasa la ngapi ulipojifunza kuhusiana na hedhi? _ _ _ _

11. Nani alikufundisha kuhusiana na hedhi? (Chagua majibu yote sahihi)

☐ Bibi Mama ☐ Dada ☐ Baba ☐ Mwalimu ☐

☐ Wengineo _

	NDIO	HAPANA	SIJUI
12. Wanawake wanaacha kupata hedhi pindi wanapofikia umri mkubwa/ uzee?	☐	☐	☐
13. Hedhi ni ugonjwa	☐	☐	☐
14. Wanawake wajawazito huwa wanapata hedhi	☐	☐	☐
15. Damu ya hedhi inatokea kwenye tumbo sehemu ambayo chakula umeng'enywa	☐	☐	☐
16. Damu ya hedhi hutokea kwenye tumbo	☐	☐	☐
17. Damu ya hedhi ina chembe hatarishi	☐	☐	☐
18. Maumivu kipindi cha hedhi humaanisha kua mtu anaumwa	☐	☐	☐

19. Ni hatari kwa mwili wa mwanamke kama akikikmbia au kucheza mziki wakati wa hedhi yake ☐ ☐ ☐

20. Unafikiria nini kuhusiana na hedhi?

☐ ni kitu asili pale unapokua mwanamke ☐ Ni laana

☐ Zingine _

21. Unahofia au ulikuwa unahofia kuanza hedhi? ☐ ndio ☐ hapana

22. Zipi ni au zilikua hofu zako za kuanza hedhi? (weka alama ya vema kwenye majibu yote ambayo ni sahiihi)

☐ Nilihisi sina uzoefu au ujuzi wa kutosha

☐ Kuonewa

☐ Aibu

☐ Hofu ya kujichafua/ doa

☐ Hatia

☐ Ishara kua unahitaji kuacha masomo na kuolewa

☐ Maumivu

☐ Zingine _

Kukosa shule – Wakati mwingine inaweza kuwa ngumu kwenda shule kila siku, hata kama unajitahidi kadri ya uwezo wako

23. Kwa miezi 2 iliyopita, ni siku ngapi ulishindwa kuhudhuria shule?

0 ½ 1 2 3 4 5 6 7 8 9 10 10+

24. Kwa kawaida kwa mwezi, unaweza ukashindwa kuhudhuria shule siku ngapi kutokana na ugonjwa?

0 ½ 1 2 3 4 5 6 7 8 9 10 10+

25. Kwa kawaida kwa mwezi, unaweza ukashindwa kuhudhuria shule siku ngapi kutokana na ukosefu wa fedha?

0 ½ 1 2 3 4 5 6 7 8 9 10 10+

26. Kwa kawaida kwa mwezi, unaweza ukashindwa kuhudhuria shule siku ngapi kutokana na kazi za nyumbani?

0 ½ 1 2 3 4 5 6 7 8 9 10 10+

27. Kabla ya hedhi kwa mwezi ulikua unaweza kushindwa kuhudhuria shule siku ngapi?

N/A – msichana kabla ya hedhi

0 ½ 1 2 3 4 5 6 7 8 9 10 10+

28. Kuna sababu nyingine binafsi zinazokufanya ushindwe kuhudhuria shule?

_ _

_ _

_ _

Jinsi unavyofanya ukiwa kwenye hedhi na vifaa vya kutumia kwenye hedhi

29. Je ushawahi kusikia vifaa hivi vinavyotumika kufyonza damu ya hedhi?

☐ Pedi

☐ Kisodo

☐ Kikombe hedhi

☐ Kutumia kitambaa chakavu au taulo

☐ Pedi zinazofuliwa nakurudiwa kutumika

30. Wanafamilia wengine wantumia nini wakati wao wa hedhi?

☐ kitambaa/taulo ☐ pedi za kununua ☐ pedi za kutengenezwa kwa mkono

☐ karatasi ya kujipangusia choon

31. Kwa kawaida hua unatumia nini wakati wa hedhi?

☐ kitambaa/ taulo ☐ Pedi za kununua ☐ pedi za kutengeneza kwa mkono

☐ Karatasi zakujipangusia chooni

32. Je wewe au mwanafamilia amewahikununua pedi katika kipindi cha miezi sita iliyopita?	☐ ndio ☐ hapana
33. Umewahi kutaka kununua pedi dukani lakini ukashindwa kufanya hivyo?	☐ ndio ☐ hapana (ruka hadi swali namba 35)

34. Kwanini ulishindwa kununua pedi kutoka dukani?

☐ nilikua sina pesa za kutosha

☐ kulikua hakuna pedi dukani.

☐ nilijisikia aibu kununua pedi dukani

☐ zingine _

35. Je, shule yenu inawapatia pedi?	☐ ndio ☐ hapana (ruka hadi swali namba 37)

36. Mnapewa pedi ngapi kila mwezi? _ _ _

37. Unabadilisha mara ngapi kitu unachotumia kufyonza damu ya hedhi kwenye siku ambazo damu hutoka nyingi?

☐ mara 1 kwa siku ☐ mara 2 kwa siku ☐ mara 3 au zaidi

☐ zingine_ _ _ _ _ _ _ _ _ _ _

38. Je, unaweza badilisha kitu unachotumia kufyonza damu ya hedhi ukiwa shuleni?	☐ Ndio ☐ Hapana

39. Unabadilishia wapi kitu unachotumia kufyonza damu ya hedhi ukiwa shuleni?

☐ chooni ☐ darasani ☐ subiri mpaka ufike nyumbani

☐ zingine _

40. Je, hua unakifanyaje kitu unachotumia kufyonza damu ya hedhi ukisha kibadilisha ukiwa shuleni?

☐ unakitunza na kukipeleka nyumbani kwa ajili ya kutumia siku nyingine

☐ unakifua na kukitumia tena shuleni

☐ Unakifua na kukianika

☐ unakitupa (ruka mpaka swali namba 45)

☐ zingine_ _

41. Kama hicho kitu unachotumia kufyonza damu ya hedhi kinatumika tena, je kinafuliwaje ukiwa shuleni? (Changua njia kuu moja unayoitumia)

- ☐ Na maji
- ☐ Na maji na sabuni
- ☐ Na maji na matope/majivu
- ☐ Zingine _

42. Je, zinafuliwa tofauti ukiwa nyumbani kulinganisha na shuleni?

- ☐ Ndio … Elezea _
- ☐ Hapana

43. Baada ya kufua, njia gani unatumia kukausha? (Changua njia kuu moja unayoitumia)

- ☐ kuanika kwenye jua au sehenu ya wazi
- ☐ kuanika ndaninya nyumba au chumbani
- ☐ sianiki
- ☐ zingine _

44. Je, unaweza anika pedi ukiwa shuleni?	☐ ndio ☐ hapana

45. Unatupa wapi pedi yako ukimaliza kutumia

- ☐ ndani ya choo
- ☐ kifaa cha kutupia takataka kilicho ndani au karibu na choo
- ☐ unatupa kwenye shimo la takataka
- ☐ *zingine*
- ☐ Unatuupa kwenye dimbwi
- ☐ Unachoma
- ☐ Unatupa sehemu yoyote

Shughuli ambazo unashindwa kushiriki wakati wa hedhi

46. Je, unashindwa kushiriki kazi za nyumbani wakati wa hedhi?	☐ ndio ☐ hapana
47. Je, kuna shughuli nyingine ambazo unashindwa shiriki wakati wa hedhi ?	☐ ndio ☐ hapana (ruka hadi swali namba 49)

48. Ni shughuli zipi unashindwa shiriki? _		
49. Wastani wa maumivu unayopata wakati wa hedhi (chagua namba 10 ikiwa ni maumivu makali amabayo ujawahi kabiliana nayo hapo awali, au 0 kama hupati maumivu yoyote.) 0 ½ 1 2 3 4 5 6 7 8 9 10		
50. Ninashindwa kuhudhuria masomo wakati wa hedhi kwasababu: ☐ Naogopa kuchafua nguo zangu ☐ Naogopa watu wengine kunitania ☐ Naogopa kuwa nitanuka sana ☐ Hedhi zangu huwa zinaniuma sana ☐ Siku zangu zinanifanya nijisikie sipo huru na kuchoka ☐ Hamna sehemu yoyote ya wasichana kunawa mikono na kubadirisha nguo shuleni ☐ Hamna sehemu yoyote ya kutupa pedi ama vitambaa ninavyotumia. ☐ Naogopa watu wengine watagundua kwamba nipo kwenye siku zangu na wataanza kunitania.		
Miundo mbinu ya shuleni		
	ndio	**hapana**
51. Huwa kuna maji na sabuni kwaajili ya afya zetu?	☐	☐
52. Vyoo huwa vinafungwa ?	☐	☐
53. Je, wasichana wanaweza kutupa kitu wanachotumia kufyonza damu ya hedhi wakiwa shuleni?	☐	☐

54. Wapi ambapo unaweza kuhifadhi kitambaa au pedi zilizotumika uwapo shulen?

☐ Vyoo vya shimo ☐ vyoo vya zaman ☐ shimo la takataka ☐ peleka nyumbani

☐ zingine _

55. Huwa mnajisikia huru kutumia vyoo vya shuleni?

☐ Ndio ☐ Situmii nikiwa kwenye hedhi ☐ Hapana

56. Ni nani ambaye husafisha vyoo?

☐ Wanafunzi ☐ Walimu ☐ Wazazi ☐ Wafanya usafi.

☐ Sijui ☐ Wengineo _

Appendix V: Introduction Letter

MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES
OFFICE OF THE DIRECTOR OF POSTGRADUATE STUDIES

P.O. Box 65001
DAR ES SALAAM
TANZANIA
Web: www.muhas.ac.tz

Tel G/Line: +255-22-2150302/6 Ext. 1015
Direct Line: +255-22-2151378
Telefax: +255-22-2150465
E-mail: dpgs@muhas.ac.tz

Ref. No. HD/MUH/T.488/2017

06th August, 2020

The Executive Director,
Bukoba Municipal Council,
P.O. Box 284,
BUKOBA

Re: INTRODUCTION LETTER

The bearer of this letter is Saulo Joseph Kamugisha, a student at Muhimbili University of Health and Allied Sciences (MUHAS) pursuing MPH-Distance Learning.

As part of his studies he intends to do a study titled: "**MENSTRUATION HYGIENE MANAGEMENT AMONG SECONDARY SCHOOL GIRLS IN BUKOBA MUNICIPALITY, TANZANIA.**"

The research has been approved by the Chairman of University Senate.

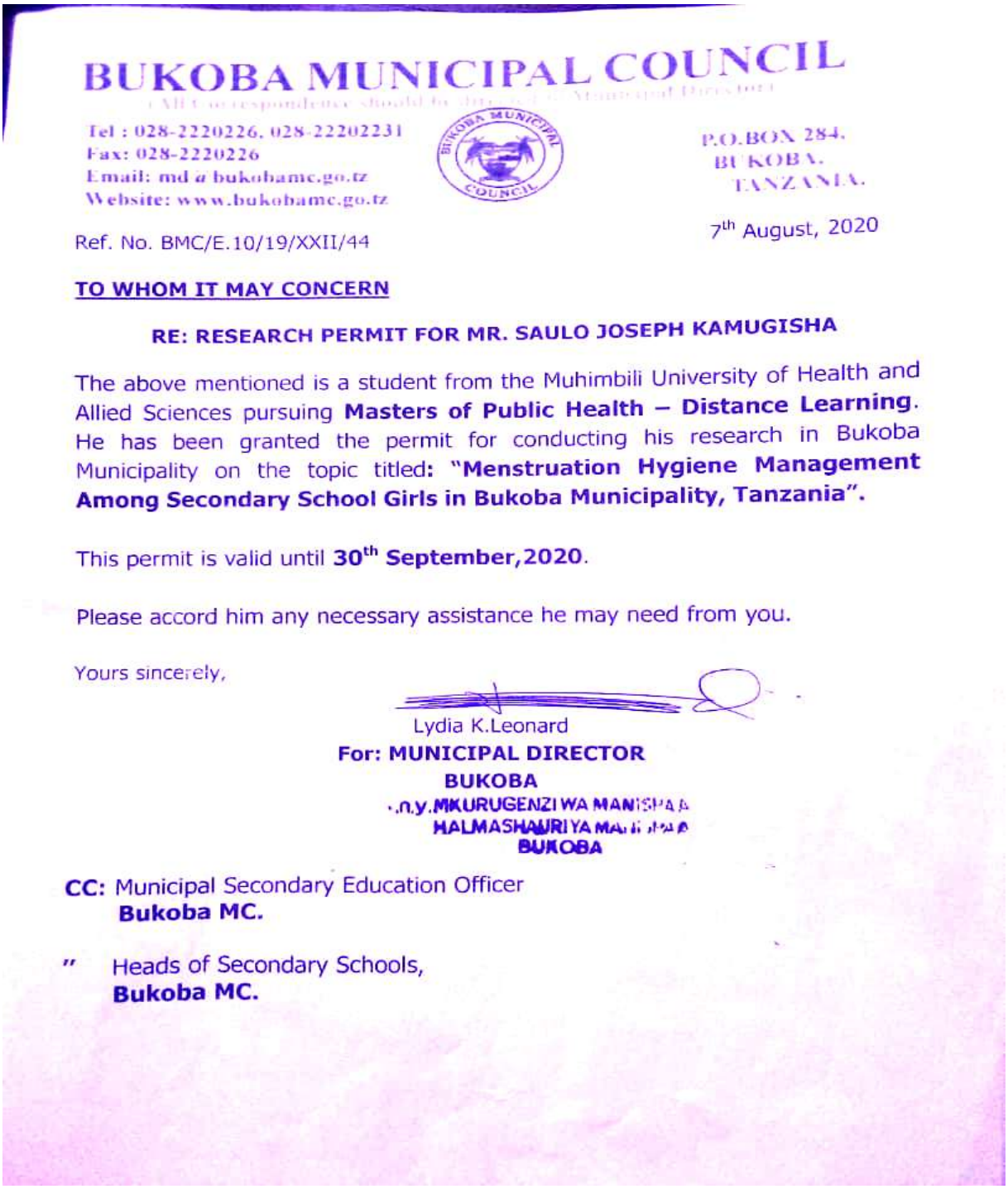
Kindly provide him the necessary assistance to facilitate the conduct of his research.

We thank you for your cooperation.

Ms. Victoria Mwaniwa
For: DIRECTOR, POSTGRADUATE STUDIES

cc: Dean, School of Public Health and Social Sciences, **MUHAS**
cc: Saulo Joseph Kamugisha

Appendix VI: Research Permit



BUKOBA MUNICIPAL COUNCIL

All correspondence should be addressed to the Municipal Director

Tel : 028-2220226, 028-22202231
Fax: 028-2220226
Email: md@bukobamc.go.tz
Website: www.bukobamc.go.tz

P.O.BOX 284,
BUKOBA.
TANZANIA.

Ref. No. BMC/E.10/19/XXII/44

7th August, 2020

TO WHOM IT MAY CONCERN

RE: RESEARCH PERMIT FOR MR. SAULO JOSEPH KAMUGISHA

The above mentioned is a student from the Muhimbili University of Health and Allied Sciences pursuing **Masters of Public Health – Distance Learning**. He has been granted the permit for conducting his research in Bukoba Municipality on the topic titled: **"Menstruation Hygiene Management Among Secondary School Girls in Bukoba Municipality, Tanzania".**

This permit is valid until **30th September,2020**.

Please accord him any necessary assistance he may need from you.

Yours sincerely,

Lydia K.Leonard
For: MUNICIPAL DIRECTOR
BUKOBA
n.y.MKURUGENZI WA MANISPAA
HALMASHAURI YA MANISPAA
BUKOBA

CC: Municipal Secondary Education Officer
Bukoba MC.

" Heads of Secondary Schools,
Bukoba MC.