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APPROVED BY THE BOARD OF EXAMINERS

This thesis by Balew Zeleke is accepted in its present form by the board of examiners as satisfying thesis requirement for the degree of Masters of Science in Maternity and Reproductive Health nursing.

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Abstract

Background: -Menstruation is the cyclical shedding of the inner lining of the uterus, the endometrium, under the control of hormones of the hypothalamo-pituitary axis.

In adolescents who experienced menstruation for the first time, menstrual hygiene management is constrained by practical, social, economic and cultural factors such as the expense of commercial sanitary pads, lack of water and latrine facilities, lack of private rooms for changing sanitary pads, and limited education about the facts of menstrual hygiene. However, menstrual hygiene management is an under researched issue in East Africa including Ethiopia.

Objective: -The aim of the study was to assess menstrual hygiene management and associated factors among secondary and preparatory school girls in Bahir Dar city administration, Northwest Ethiopia, 2016.

Methods: - A cross-sectional quantitative study was conducted from March 1st- 31th, 2016 to assess the menstrual hygiene management and associated factors among high school girls in Bahir Dar city administration Northwest, Ethiopia on a minimum sample of 685 .

Data was collected by self-administered structured questionnaire. After checking for completeness, data was coded and entered to SPSS version 20 for analysis.

Descriptive and analytical statistics were employed. Bivariate analyses were used to examine association between dependent and independent variables. All variables with p<=0.20 in bivariate analysis were fitted in to the multivariate logistic regression model to identify factors associated with menstrual hygienic practice. P value <= 0.05 were considered as a level of significance.

After bivariate analysis, the significant factors of menstrual hygiene were fitted in to the multivariate model.

Result: - Majority of the participants (84.3%) practiced good menstrual hygiene and had high level of menstrual hygiene knowledge (95.2%).

As the study found that; urban dwelling, access for water, school type and knowledge about sanitary pads before were the factors associated with menstrual hygiene management.

It showed that the practice of good menstrual hygiene was more among students who live in the urban (AOR 2.708:95% CI, 1.712, 4.285) than students who live in the rural area, students who have access for water (AOR 1.553:95% CI, 0.309, 0.989) than students who have no access for water, students from private schools (AOR 4.425:95% CI, 1.793, 10.924) than who are in the public schools and students who had knowledge about sanitary materials(AOR 2.493:95% CI, 1.478, 4.207) than who had not knowledge before.

Conclusion: Majority of the participants had high level of menstrual hygiene knowledge and good practice. Different factors affect the practice of menstrual hygiene such as access of water, residency, type of school and hearing about sanitary pads before.

Key words: - School girls, menstrual hygiene, Menarche, Hygiene factors, Bahir Dar

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Abbreviations and Acronyms

AAU: - Addis Ababa University

AIDS:-Acquired Immune Deficiency Syndrome

DCs:-Data Collectors

ETB:-Ethiopian Birr.

FGD:-Focus Group Discussion

HIV:-Human Immunodeficiency Virus

ICT: - Information Communication Technology

IRB:-Institutional Review Board.

MDG**:-**Millennium Development Goal

MHM:-Menstrual Hygiene Management

NGOS:-Nongovernmental Organizations

PI:-Principal Investigator

RH:-Reproductive Health

RTIs: Reproductive Tract Infections

SPSS:-Statistical Package for Social Science

SRS:-Simple Random Sampling

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1. Introduction

1.1. Background: -

Globally, approximately 52% of the female population (26% of the total population) is of reproductive age. Most of these women and girls menstruate each month for between two and seven days. Girls typically start to menstruate ('the time of menarche') during puberty or adolescence, typically between the ages of 10 and 19. It continues until they reach menopause, when menstruation ends, usually between their late forties and mid-fifties. The menstrual cycle is usually around 28 days but can vary from 21 to 35 days. The bleeding generally lasts between two and seven days, with some lighter flow and some heavier flow days (1).

During menstruation girls face both practical and strategic gender problems. These have negative impacts for their personal lives and development opportunities: restrictions on work and mobility, increased fears and tensions, early marriage, early and premature childbirth and higher infant mortality, and potential vaginal infections resulting in the worst case in infertility(2).

Menstrual hygiene management is the absorption of menstrual blood onto clean material which can be changed in privacy. It also incorporates the availability of soap and clean water, to wash reusable sanitary materials and the body, as well as a suitable place of disposal for used materials (3).

A girl needs to practice a high level of personal hygiene during her periods and the personal hygiene starts from the selection of best sanitary products, its proper usage, disposal, body cleanliness, diet, etc. Menstrual hygiene is important because it is a natural process of hygiene related to practice of girls during menstruation as it has an impact in terms of preventing reproductive tract infections and urinary tract infections(4).

However, in most parts of the world, it remains taboo and is rarely talked about. As a result, the practical challenges of menstrual hygiene are made even more difficult by various socio-cultural factors.

To manage menstruation hygienically, it is essential that women and girls have access to water and sanitation. They need somewhere private rooms to change sanitary cloths or pads; clean water for washing their hands and used cloths; and facilities for safely disposing of used materials or a place(5).

In adolescents who experienced menstruation for the first time, menstrual hygiene management is constrained by practical, social, economic and cultural factors such as the expense of commercial sanitary pads, lack of water and latrine facilities, lack of private rooms for changing sanitary pads, and limited education about the facts of menstrual hygiene(6) .

Therefore, based on the above facts this study is aimed to assess the menstrual hygiene management practices and associated factors among secondary and preparatory school girls in the area and is also important to generate information for developing interventions that will be carried on problems associated with menstrual hygiene practice in the area.

1.2. Statement of the Problem

Menstrual hygiene management (MHM) is constrained by practical, social, economic and cultural factors such as the expense of commercial sanitary pads, lack of water and latrine facilities, lack of private rooms for changing sanitary pads, and limited education about the facts of menstrual hygiene. During menstruation, adolescent girls are faced with challenges related to the management of menstrual hygiene in secondary and preparatory places(6).

Girl's health and education is cornerstone of development and a gateway to the full participation of women in political, economic, and cultural spheres of life. However, globally girls miss up to 20% of school due to their monthly period, and one in ten will drop out altogether. Eighty percent of girls in Afghanistan and 39% of girls in India use water but no soap for washing their menstrual protection.

Menstruation affects girls' participation and performance at school. In various studies from Africa, the Middle East and Asia, up to 95% of girls reported missing school because of their periods(7).UNICEF estimates that 1 in 10 school age African girls do not attend school during menstruation. Similarly, World Bank statistics indicated that students have been absent from school 4 days every 4 weeks because of menstruation (6).

About 95% of girls in Ghana sometimes miss school due to menses, 86% and 53% of girls in Garissa and Nairobi (respectively) in Kenya miss a day or more of school every two months, in Malawi 7% of girls miss school on heavy days(8).

Menstrual hygiene practices of girls are also different in different countries .Fifty one percent of girls in Iran do not take a bath for eight days after the onset of their period. Eighty four percent girls in Afghanistan never wash their genital areas. Thirty percent of girls in Malawi do not use the latrine when menstruating. This was also noted by 20% of women in communities in India. Eleven percent of girls in Ethiopia and 60% of girls in India only change their menstrual cloths once a day(8).

Many myths and social norms restrict women and girls' levels of participation in society. This can make their daily lives difficult and limit their freedom. For example, in some cultures, women and

girls are told that during their menstrual cycle they should not bathe (or they will become infertile), touch a cow (or it will become infertile), look in a mirror (or it will lose its brightness), or touch a plant (or it will die)(8).

There are also religious practices and beliefs related to menstruation: in Christianity the *Old Testament* of the Bible indicates that a menstruating woman is impure, and that most things she touches become unclean. If a man touches her bed during this period he also becomes unclean and has to take a ritual bath. It is also stated that if a woman and man have sexual intercourse during menstruation they will be disowned by the community. In Russian Orthodox Christians menstruating women must be secluded during menstruation and are not allowed to attend church services or have contact with men. Coptic Christians in Ethiopia menstruating women are not permitted to enter a church or kiss religious icons. Islam; a woman is considered ritually impure for the entire duration of menstruation. She is supposed to stop certain forms of worship, eg the five daily prayers, fasting during the month of Ramadan (she fasts for an equivalent number of days later) or sitting in a mosque. She is also not allowed to touch the Qur'an (recitation is allowed as long as she does not physically touch the Qur'an and recites it from memory or, a recent adaption, reads it from a computer). She is not allowed to engage in sexual intercourse.

Poor hygiene practices of girls during menstruation increase susceptibility to infection especially urinary tract infections, repeated reproductive tract infections (RTIs) and infections of the perineum. The potential risk of contracting blood-borne diseases such as HIV or Hepatitis B through unprotected sex is also increased during menstruation because the highest concentrations of virus are found in blood. As a result many girls suffer from these diseases and their complications can even lead on to the infection being transmitted to the offspring when they conceive(10).

It is also clear that several of the millennium development goals will not be sustainably met unless menstrual hygiene needs have been responded to. *MDG 2 -Achieve universal primary education*: - Girls miss hours or even days of lessons because they are unable to manage their menstruation at

school, which has the potential to significantly affect their education. In some cases, female teachers are also absent due to a lack of menstruation facilities at school, affecting pupils' educational experiences. *MDG 3 – Promote gender equality and empower women*: - Women and girls have to manage their menstruation during school, at work and at home. Poor menstrual hygiene situations in any of these contexts can prevent them engaging fully.

MDG 4 – Reduce child mortality:-The education level of a mother has been shown to be directly linked to child survival. If girls are missing school because of menstrual hygiene, this could potentially contribute to reduced child survival(8).

There are very few studies that have examined menstrual hygiene management practices and associated factors among high school girls in the country especially in the study area.

This study was, therefore, aimed at assessing menstrual hygiene management practices and associated factors among high school girls: - a case of Bahir Dar city administration.

1.3. Justification of the Study

Addressing menstrual hygiene management directly contributes to the achievement of MDG. Due to its direct effect on:-school absenteeism, increased susceptibility to urinary and reproductive tract infections (RTIs), infections of the perineum, increased potential risk of contracting blood-borne diseases such as HIV or Hepatitis B virus and gender discrepancy, poor menstrual hygiene and management may seriously hinder the sustainable actualization of MDGs specifically MDG-2 on universal education and MDG-3 on gender equality and women empowerment. Lack of information, misconceptions and adverse attitudes to menstruation may lead to a negative self-image among girls who are experiencing menses for the first time and the culture of silence around menstrual hygiene further increases the perception of menstruation as something shameful that needs to be hidden.

However, MHM is an issue that is insufficiently acknowledged in Ethiopia particularly in the study area.

Thus, the objective of the study is to assess menstrual hygiene management practices and associated factors among secondary and preparatory school girls in Bahir Dar city administration. The study will serve as a baseline in the study area and the findings of the study can be used to develop and evaluate programs and policies in the area of interest.

2. Literature review

Menstrual hygiene management (MHM) is the practice done by women and adolescent girls by using a clean material to absorb or collect menstrual blood and this material can be changed in privacy as often as necessary for the duration of the menstrual period. It includes using soap and water for washing the body as required, and having access to facilities to dispose of used menstrual management materials (8).

However, in adolescents who experienced menstruation for the first time ,MHM is constrained by practical, socio demographic (social, economic and cultural) factors such as the expense of commercial sanitary pads, lack of water and latrine facilities, lack of private rooms for changing sanitary pads, and limited education about the facts of menstrual hygiene(6) .

2.1. Menstrual hygiene practice associated factors

2.1.1. Cultural beliefs associated factors

Several traditional norms and beliefs, socio-cultural conditions can and do influence the practices related to menstruation(10). For example, in some cultures, girls are told that during their menstrual cycle they should not bathe (or they will become infertile), touch a cow (or it will become infertile), look in a mirror (or it will lose its brightness), or touch a plant (or it will die)(8).

A study done in Uganda revealed that menstruation is taboo, shameful and embarrassing issue. It was manifested by girls' nervous laughs, avoidance of eye contact, and the fact that they often turned their faces towards the floor when speaking drew attention to the fact that menstruation is a shameful and embarrassing experience and topic of conversation, even in a private, confidential, female-only environment(11).

According to a need assessment report on MHM and Cultural Barriers of School Girls in South Gonder Zone , Amhara Regional State, menstruation is a secret issue and the reasons behind were; majority 109 (60.6) respondents reported that deep rooted culture, believes and customs of the society, and the remaining 29(16.1%) reported only the deep rooted culture and 42(23.3%) caused by believes and customs of the society and most of 140(77.7%) have no discussion about menstrual period , 40(22.2%) had not discussed with their parents due to forbidden/taboo, shamefulness, not habitual and privacy and only about 40(22.2%) had free discussion with their parents on the issues of menstrual hygiene management and how to manage menses(10).

There are also religious practices and beliefs related to menstruation: in Christianity the *Old Testament* of the Bible indicates that a menstruating woman is impure, and that most things she touches become unclean.

If a man touches her bed during this period he also becomes unclean and has to take a ritual bath. It is also stated that if a woman and man have sexual intercourse during menstruation they will be disowned by the community.

In *Russian Orthodox Christians*:-menstruating women must be secluded during menstruation and are not allowed to attend church services or have contact with men.

Coptic Christians in Ethiopia: - menstruating women are not permitted to enter a church or kiss religious icons. *Islam*; a woman is considered ritually impure for the entire duration of menstruation. She is supposed to stop certain forms of worship, eg the five daily prayers, fasting during the month of Ramadan (she fasts for an equivalent number of days later) or sitting in a mosque. She is also not allowed to touch the Qur'an (recitation is allowed as long as she does not physically touch the Qur'an and recites it from memory or, a recent adaption, reads it from a computer). She is not allowed to engage in sexual intercourse (1).

According to a study conducted in India the study participants belonged to low (20.8%), middle (49.1%) and high (11. 7%) SES. There was statistically significant association between SES and practices such as use of disposable pads (P=0.004), storage behavior (P=0.049), wearing stained dresses (P=0.004) and expressing the need for information about menstruation (P=0.027) (15).

A study conducted in Udupi Taluk , Manipal , India indicated that more of rural participants dried their sanitary pads inside the house because menstruation is considered as impure and dirty and meant to be hidden which reflects the taboos found in the society(12).

2.1.2. Sanitary material associated factors

According to a cross sectional study done in India, menstrual hygienic practices were different in girls aged 19 years and above as compared to younger ages. There were significant associations between type of napkin/pads used and the age (P=0.001) of the participants, higher proportion of older girls used disposable pads than the young girls.

Significant associations were also found between age and practice of storage (P= 0.002), change of pads during nights (P=0.018); number of pads used per day (P= 0.045); higher proportion of older girls practiced storage changing pads during nights and used more pads per day more than the young girls (13).

In another study conducted in India, about two-thirds of the selected, 242 from 350 girls (68.9%) regardless of age use disposable pads and a small proportion (7.4% and 19.1%) used cotton or cloth material, respectively(14).

A study conducted in rural Nepal in 2013,shows more than half of respondents (54.1%) use sanitary pads and (50.8%) change their pads twice a day(9).

According to a study conducted in Tanzania about 97.3% of respondents were using disposable sanitary pads as their only absorbent material during their last menstruation at schools, 1.3% used rag cloth only whereas 4.2% used both disposable sanitary pads and rag cloth whereas 61.1% of the respondents change their absorbent pads at an average interval of 3 to 6 hours when they are at school. However, about 32.2% of the respondents change their pads at interval of 6 to 12 hours and the remaining 6.7% at interval of more than 12 hours(15).

In a study conducted in Nigeria during 2010, three hundred and forty eight (93.8%) of the school girls that have commenced menstruation used sanitary pads as absorbent during their last menstrual period. The remaining 23 (6.2%) use either designated pieces of cloth that they wash/ boil, dry and re-use; or use any available piece of cloth that they discarded after use. The reason why they do not use sanitary pads as absorbent during their last menses were, 21 (91.3%) claim it is expensive and 2 (8.7%) claim that sanitary pad causes vaginal discharge.

In a study done in northwest Nigeria, high school girls change their menstrual protection dressings from one to five times with a mean of 2.6 ± 0.8. Three hundred and twenty three (87.1%) and barely more than half (56.5%) of the students change the dressings at night and during school hours respectively(4).

Fifty one percent of girls in Iran do not take a bath for eight days after the onset of their period. 84% of girls in Afghanistan never wash their genital areas. Eighty percent of girls in Afghanistan and 39% of girls in India use water but no soap for washing their menstrual protection. Thirty percent of girls in Malawi do not use the latrine when menstruating. This was also noted by 20%

of women in communities in India. Eleven percent of girls in Ethiopia and 60% of girls in India only change their menstrual cloths once a day (17).

A study conducted in Udupi Taluk , Manipal , India indicated that use of sanitary napkin is higher in the urban area (75.9%) compared to rural participants (65%) and this could be due to the awareness and literacy of the mothers.

According to a study done in Mehalmeda in Amhara regional state Ethiopia , all respondents use menstrual absorbent; 349(70.9%) use commercially made sanitary pad, 128(26.01%) homemade sanitary pad and 17(3.4%) use other methods such as underwear and sponge .One hundred forty six (29.7%) of the participants reuse sanitary.

According to a study done in mehalemeda about 56.6% of girls store their clean (unused) pads in the cupboards or drawers, and 15. 1 and 21.1% girls use dress cabinet and bathrooms to store their pads respectively. One hundred seventy one (34.8%) participants change pad two times per day and 94(19.1%) change only once per day . two hundred fifty three girls (51.4%) throw used menstrual soaking materials in the toilet pan and 45(9.1%) throw used pad in the open field(16).

According to a need assessment report on MHM and Cultural Barriers of School Girls in South Gonder Zone , Amhara Regional State ,More than 141(78.3%)of respondents kept and put their reusable sanitary pads in hidden and unclean places and 39(21.7%) kept their reusable sanitary pads at safe place. The reasons for the unclean and hidden place were 112 (62.2%) due to shame/disgrace, 15(8.3%) due to soiling of reusable sanitary pads, 12(6.7%) due to Secrecy and forbidden and 2(1.1%) due to all of the above taboos(10) .

2.1.3. Environmental associated factors

A study conducted in Tanzania showed that among 149 school girls involved in the study, 24.8% were absent from school or classrooms at least once because of lack of any of the MHM facilities at their schools and the main reasons were lack of privacy, absence of soap in toilets, unavailability of water, absence of doors on toilet rooms and absence of bins for disposal of used absorbent pads(15).

A study done in Uganda showed that the main reason girls reported for menstrual related school absenteeism was the lack of a private place for them to wash and change at school (n=88, 63.8%)

followed by fear of staining their clothes (n = 82, 59.4%), discomfort from bloating and tiredness (n= 75, 55.1%), and pain (n-= 71, 51.4%) (11).

A study done in Northeast Ethiopia indicated that out of 455 students who had their menarche, 389 (85.49%) of them did not change menstrual soak up at school and the main reasons were 177 (45.50%) absence of separate toilet for female students 152 (39.07%) fear of other students, 73 (18.77%) lack of water sources, 59 (15.17%), shortage of sanitary napkins or material used as absorb ent as a reason(17).

According to a need assessment report on MHM and Cultural Barriers of School Girls in South Gonder Zone , Amhara Regional State, majority 104(57.8%) of respondents have been facing lack of maintenance of privacy during menstruation, which accounts 23(12.8%), 15(8.3%), 5(2.8%), 36(20%) and 101(56.1%) lack of private toilet, lack of door and lock for the toilet, common toilets for male and female, lack of water and other types of privacy problems respectively(10).

2.1.4. Knowledge, awareness and source of information associated factors

A study done in India indicated that age of menarche of girls ranged from 10 to 16 years and maximum numbers of girls 119 (31.7%) were 12 years of age and 170(45.3%) were 13 years of age(18).

Another study done in India indicated that only 42% of the girls had knowledge about menstruation before their onset of menarche, the main source of knowledge being mother and sister (45%).About one third of the population did not have the correct knowledge of the actual cause of menstruation and only 17.9% of the adolescent girls knew that uterus was the source of blood in menstruation. Majority (62.6%) of the girls used only cloth as their menstrual absorbent(19).

A comparative study done in Udupi Taluk ,India showed that only 83 (33.27%) and 197 (35.82%) of the urban and rural participants respectively had awareness about menstruation prior to menarche(12).

A study in Nigeria Amassoma Community , Bayelsa State revealed that 64.2% of the participants were aware about menstruation and the most important source of information are their mothers, while friends and television also contributed to their information (14). In this study 114 (54.5%) perceived that menstruation is regular monthly flow of blood from the female genital tract while

the remaining (45.5%) did not know this. About 123 (58.9%) thought menstruation means bleeding from the vagina while the remaining 86 (41.1%) did not know this(20).

A study from south India in 2010 illustrated that 64.2% of the participants were aware and the most important source of information were mothers, while friends and television also contributed to their information(13).

A study conducted in Tanzania showed that mothers are the main source of information on menstrual hygiene before menarche, followed by sisters(15).

A study done in,Northeast Ethiopia, majority of the girls, 478 (86.75%) had heard about menstruation before they had menarche and the leading sources of information were their sisters, 204 (42.68%), followed by mothers, 183 (38.28%), friends 141 (29.50%) and teachers, 64 (13.39%).In this study about 319 (57.89%) of the girls knew correctly that menstruation is a physiologic process and they reported different feelings during their menarche such as: embarrassment among 195 (42.86%) of the girls, 144 (31.65%) were upset and tensioned and 77 (16.92%) were irritated or disgusted. The mean score of the school girls' knowledge of menstruation and its hygienic management is found to be 6.95 ± 2.03 on a scale of 1–12. (17).

Different studies indicated that menstrual hygiene management is affected by different factors around the globe, and the African region including the country Ethiopia. But most of the studies used cross sectional study design and there are no adequate studies done in the study area.

This study is therefore designed primarily to assess menstrual hygiene management practices and associated factors among secondary and preparatory school girls. The result would be useful in helping stakeholders to introduce measures that could improve menstrual hygiene management practices and associated factors.

2.3.Conceptual framework

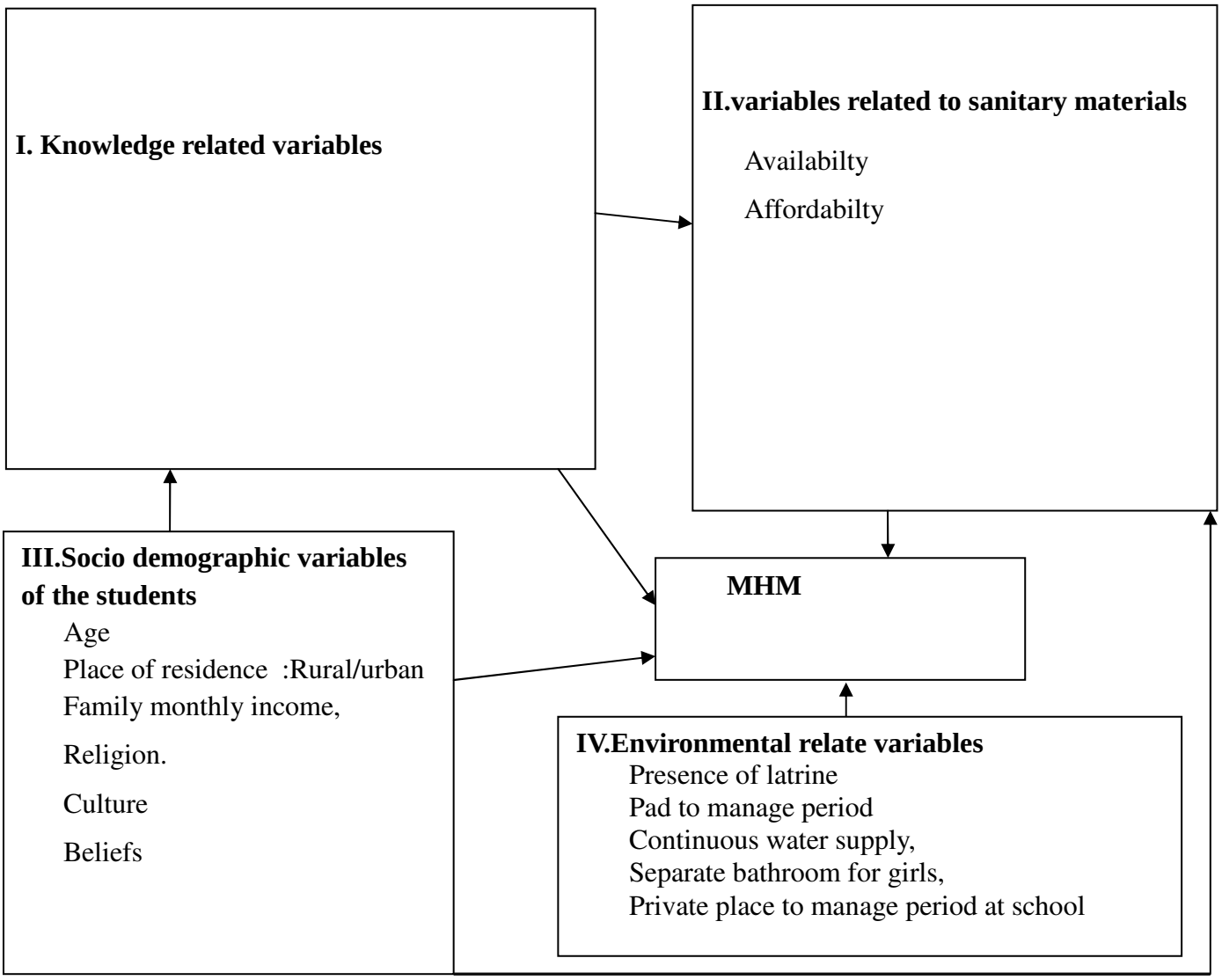

Figure 1:-Conceptual framework of menstrual hygiene management and associated factors among *female high school students in Bahir Dar city administration Northwest, Ethiopia, 2016.* **Source: developed after extensive litrature review .**

3.Objectives

3.1.General objective

The general objective of the study was to assess menstrual hygiene management and associated factors among secondary and preparatory school girls in Bahir Dar city administration, Northwest Ethiopia in 2015/16 academic year.

3.2. specific objectives

The specific objectives of the study were to:-

1. Determine the level of hygienic practice of girls during menses among high school female students in Bahir Dar city administration, Northwest Ethiopia.

2. Determine knowledge and awareness of hygienic practice of girls during menses among high school female students in Bahir Dar city administration, Northwest Ethiopia.

3. Identify factors associated with hygienic practices during menses among secondary and preparatory school girls in Bahir Dar city administration, Northwest Ethiopia.

4. Methods and materials

4.1. Study area and period: - The study was conducted among high school girls in Bahir Dar city a capital of Amhara Regional State, Northwest Ethiopia from March 1st- 31th, 2016 .

Metropolitan Area of Bahir Dar city is found in the Bahir Dar Zuria Wereda. It is specifically located in the central part of Amhara National Regional State encircling the periphery of Lake Tana's southern tip. The city stretches about 25 km radius from the center of Bahir Dar city proper. Bahir Dar, the city proper, is located at the center of the metropolitan area; its absolute geographical location is at about 11°37' north latitude and 37°25' east longitude.

Bahirdar is found 563 Kms from Addis Ababa .The ethnic composition of the city shows that 96.2% of the residents are Amhara 1.1% Tigrie, 1.1% Oromo, and .5% others (Agew, Guragie).

Amharic is the official language spoken in the city. The city is administratively divided into nine sub cities (Hidar 11, Tana, Shumabo, Gish Abay, Sefene Selam,Shimbet,Fasilo,Ginbot-20 and Belay Zeleke) .There are 4 public secondary and preparatory schools in the city administration namely (Tana haik, Ghion, Bahir Dar 'Mesenado' and Ethio-Japan) and 6 private secondary and preparatory schools (Bahir Dar Academy,SOS ,Catholic ,Horizon, millennium progress and W/ro Ayelech) (21).

All the 10 high schools namely (Tana haik, Ghion, Bahir Dar 'Mesenado' , Ethio-Japan, Bahir Dar Academy ,SOS, Catholic ,Horizon, Millennium and W/ro Ayelech) enrolled a total of 14,570 students for 2015/16 academic year of these students 8364 are female students(22).

4.2. Study design: - Cross sectional quantitative study design was employed.

4.3. Source population:-All female high school students who were enrolled and attended at the time of the study in 2015/16 academic year.

4.4. Study population:-All female students who were registered in the selected high schools of Bahir Dar city administration for 2015/16 academic year.

4.5. Study unit: - All the sampled female students in the selected high schools of Bahir Dar city administration for 2015/16 academic year were the study units.

4.6. Eligibility criteria

4.6.1. Inclusion criteria:-

All high school female students in regular programs who have started menstruation were included..

4.6.2. Exclusion criteria:-

All female students who were seriously ill, with mental disorders and who had not started menstruation were excluded from the study.

4.7. Sample size and sampling procedure

4.7.1 Sample size determination

The sample size were determined using single population proportion formula with the following assumptions:-A 95 % confidence interval and 39.9 % good menstrual hygiene practice from previous study (15), marginal error 5 % , design effect 2 and 10% non-response rate was added to the total sample.

$$n = \frac{z^2\ \alpha/2\ (P\ (1-P))}{d^2}\ D$$

Where

- Z α/2= critical value at 95% confidence interval (1.96), P= 39.9 %prevalence of good menstrual hygiene practice from previous study, n = sample size, D= design effect 2.

Using the above formula the calculated sample size was 736. Since the source population was less than 10,000 populations the correction formula was used. ($n/1 + n/N$):- 736 / (1+ (736 /4099) was 623 and considering non response rate of 10% the total sample size was 685.

4.7.2. Sampling procedure

Due to resource and time constraints, 4 out of 10 high schools (two from public and two from private) were included in the current study selected by SRS method and were stratified by grade levels. Half of the sampled sections from each grade level were selected by SRS method (*Tana Haik high school;* from grades9and10 eight sections, from grade 11 six sections and from grade 12 seven sections, *Ghion high school*; from grade 9; twelve sections, from grade 10; ten sections, from grade 11; four sections and from grade 12 seven sections, *Catholic high school*; from grades 9 and 10; two sections from each, from grades 11and 12; one section from each and *Bahir Dar Academy high school;* from grades9-12;two sections from each grade level were selected) and the study participants were allocated proportionately into each grade levels. Lastly the participants again were picked out by SRS method.

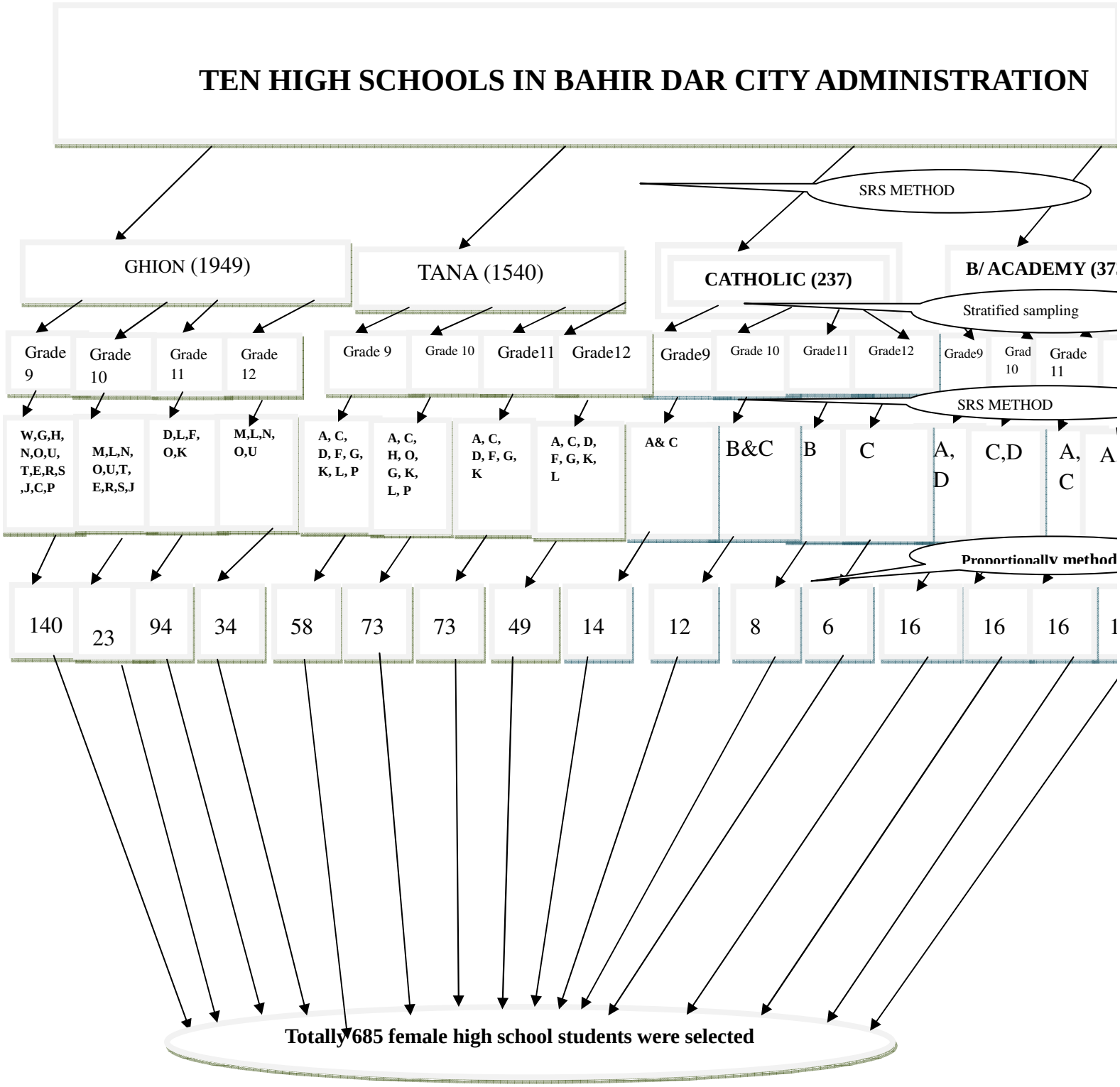

Figure 2:-Diagrammatic illustration of the Sampling Frame on assessment of menstrual hygiene management and associated factors among *female high school students in Bahir Dar city administration Northwest, Ethiopia, 2016*. * Alphabets like A, B, C, W; O etc indicate the numbers of sampled sections in the selected high schools

4.8. Data collection procedure

4.8.1 Instrument

Self-reported data was collected from the study subjects by administering a pretested /validated / structured questionnaire to assess menstrual hygiene management practices and associated factors .It consists of four sections (socio demographic information, knowledge and awareness about menstruation, menstrual hygiene management practice and menstrual hygiene management practice associated factors questions.

The questionnaire was prepared by referring related works. It was prepared in English version and was translated back to Amharic (local language) to check its consistency.

4.8.2. Data quality assurance

To ensure quality of data, pre-test of data collection tools was done on female students in Merawi high schools by taking 5% of the total sample size. The collected data were checked out for the completeness, accuracy and clarity by the principal investigators and supervisors daily. Data clean up and cross-checking were done before analysis. Training was given to data collectors and supervisors for one day on how to approach study subjects, on how to use the questionnaire and the guidelines. Supervision was also done on the spot by principal investigator and supervisors.

4.9. Study variables

4.9.1. Dependent variable: - Menstrual hygiene management practice.

4.9.2. Independent variable:-

I.Socio demographic variables: - Age, Residence, religion, Mother's educational status, father's educational status, family monthly income.

***II.Sanitary material related variables*:-**Availability, Affordability

***III. Environmental related variables (school environment)*:-** Presence of latrine, pad to manage period, continuous water supply, separate bathrooms for girls, private place to manage period at school.

***IV.Knowledge& Source of information related** variables: - poor knowledge, good knowledge*

4.10. Operational definition

The students' knowledge and practices was scored using a scoring system adapted from a past study. Each correct response under knowledge was attracted one point, whereas any wrong or don't know answer was attracted no (0) mark.

The measurement of practice of menstrual hygiene focus on use of material during menstruation (assign 1 point for use of sanitary pad, 0 other sanitary materials), materials used for cleaning purpose (1 for washing with soap and water or with plain water, and 0 for not washing), for taking shower (1 for >2 times /day, 0 for <=2 times/ day). Correct responses for the other questions under practice will attract one (1) point each and the wrong answers will attract no mark. This gave a total score of twelve (12) points for practice and 8 points for knowledge. Respondents that scored 0-4 points under knowledge were declared as having poor knowledge; whereas those that scored 5-8 were declared as having good knowledge. Similarly those students that scored 6-12 points and 0-5 points under practice were declared as having good and poor practices respectively(4).

- **Good practice:-** Respondents who scored 6-12 points from 12 practice questions were declared as having good practices
- **Poor parctice :-** Respondents who scored 0-5 points from 12 practice questions were declared as having poor practices.
- **Good knowledge:** - Respondents who scored 5-8 points under 8 knowledge questions were declared as having good knowledge.
- **Poor knowledge**:-Respondents who scored 0-4 points under 8 knowledge questions were declared as having poor knowledge.

4.11. Data processing and analysis:-

After checking for completeness, data were coded and entered to SPSS version 20 for analysis. Descriptive and analytical statistics were employed. Bivariate analysis was used to examine association between dependent and independent variables. All variables with p<=0.20 in bivariate

analysis were fitted in to the multiple logistic regression model to identify factors associated with menstrual hygienic practice . P value <= 0.05 were considered as a level of significance.

4.12. Ethical consideration

Ethical clearance was obtained from Addis Ababa University institutional review board (IRB). Official letters were received from the department of nursing and midwifery and were submitted to Amhara regional state Education Bureau, the city admin education department and the respective directors of the high schools ((Tana haik, Ghion Bahir Dar Academy and Catholic). The purposes of the study were explained and informed consent was secured from each participant. Confidentiality was maintained throughout the study. Participants' involvement in the study was on voluntary basis.

4.13. Dissemination and utilization of results

After the study is completed, the results will be disseminated to the respective high schools(Tana haik, Ghion ,Bahir Dar Academy and Catholic), Bahir Dar city administration education office , Bahir Dar city administration health office , Amhara Regional state education Bureau , Amhara Regional state health Bureau ,Addis Ababa University .

5. Results

5.1. Socio-Demographic Characteristics of the respondents

Six hundred and forty nine female students were participated in the study and response rate was 95%.Majority, 502(77.3%) and 147(22.7%) were from public and private schools respectively. Nearly half of the respondents, 361(55.1%) had no pocket money.

The mean age of the study participants was 17.29 (±1.43) years. Among the participants 381 (58.7%) of them were in the age group of 16-18 years .Majority, 354(54.5%) of the participants had started their menstruation in the age range of 10-14 years. Most, 629 (96.9%) of them were from the Amhara ethnic group and 593(91.4) were Orthodox Christians .four hundred forty seven (68.9%) of the participants were from urban areas. Mothers of most school girls were educated, 450 (69.3%) and they were housewives, 331 (51. %) and 505 (77.8%) of their fathers were educated and most, 282 (43.5%) were self-employed. Majority, 403(64.7%) of the respondents' families earned 1501ETB and above per month and 26(4.0%) of the respondents didn't want to disclose their families monthly income. Four hundred seven of the respondents (62.7%) were grade11-12 (**Table 1**).

Table 1:-*Sociodemographic characteristic of female high school students in* Bahir Dar city administration, Northwest Ethiopia*, 2016. (n=649)*

Variables	Category	No	%
Age	13-15years	83	12.8
	16-18years	381	58.7
	19-21years	144	22.2
	>21 years	41	6.3
Age at menarche	<10 years	9	1.4
	10-14 years	354	54.5
	15-19 years	286	44.1
Residence	Urban	447	68.9
	Rural	202	31.1
Religion	Orthodox	593	91.4
	Others *	56	8.6
Ethnicity	Amhara	629	96.9
	Others *	20	3.1
Grade level	9-10	242	37.3
	11-12	407	62.7
Father's educational status	Uneducated	144	22.2
	Educated	505	77.8
Mothers' educational status	Uneducated	199	30.7
	Educated	450	69.3
Father's occupation	Government employee	206	31.74
	Private employee	87	13.41
	Self-employee	282	43.45
	Others*	74	11.40
Mother's occupation	Government employee	112	17.3
	Private employee	44	6.8
	Self-employee	150	23.1
	Housewife	331	51.0
	Others*	12	1.8
Family monthly income (n=623)	500-1000ETB	160	25.7
	1001-1500ETB	60	9.6
	>1501ETB	403	64.7
School type	Private	147	22.7
	Public	502	77.3
Permanent pocket money	Yes	288	44.4
	No	361	55.6

***Religion=Muslim, protestant,* *Ethnicity=Tigray, Agew, *Father's occupation =Farmer, *Mother's occupation=NGOs.

5.2. Source of Information about Menstrual Hygiene management

The main sources of information about menstruation were, 295(49.2%), 130 (21.7%), 90(15%), 45(7.5%) and 39(6.5%) from mothers, friends, sisters, all (mothers, friends and sisters) and others respectively (**Fig3**). Two hundred sixty three (40.5%) didn't learn about menstrual hygiene in the school (**fig4**) and 207 (31.9%) didn't discuss about menstrual hygiene with their parents and friends (**Fig5**).

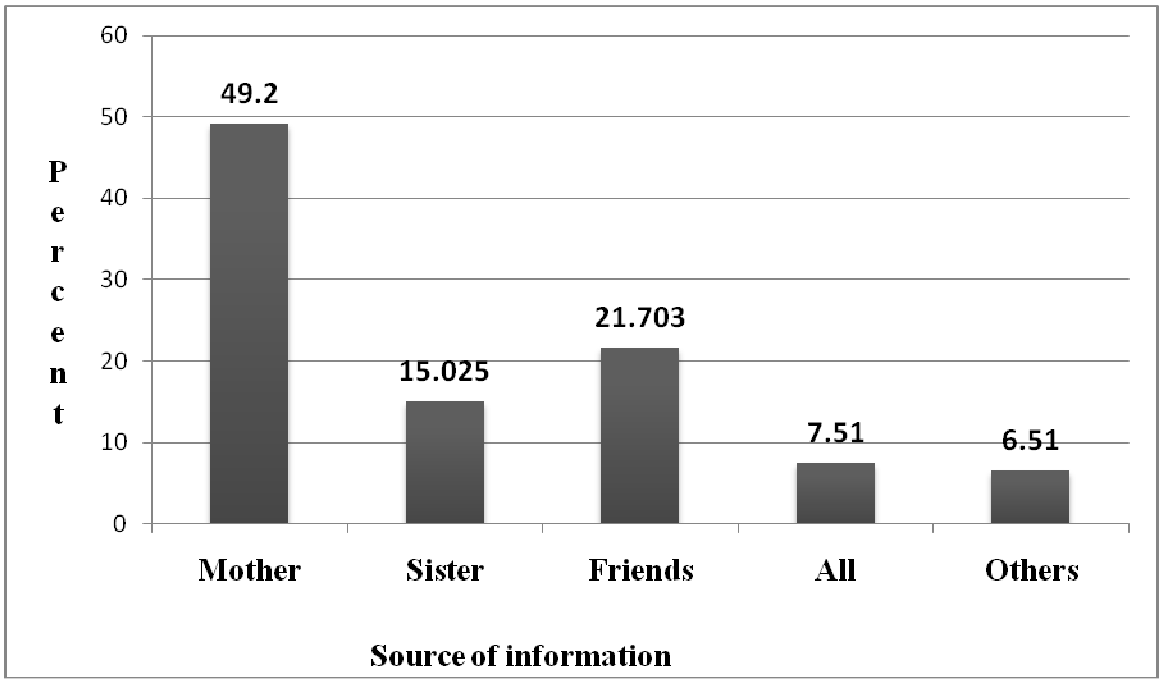

Figure 3:-Bar chart, distribution of source of information regarding menstruation among female high school students in Bahir Dar Ethiopia, 2016. *Others = electronic media; books; peer to peer training; aunt.

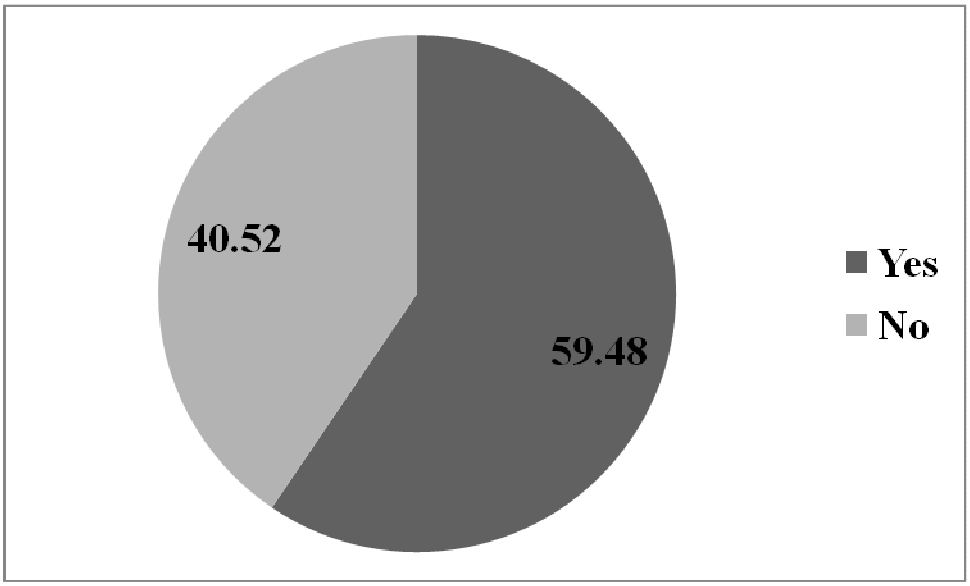

Figure 4:-pie chart, presence of education in the school regarding menstruation among female high school students in Bahir Dar Ethiopia, 2016.

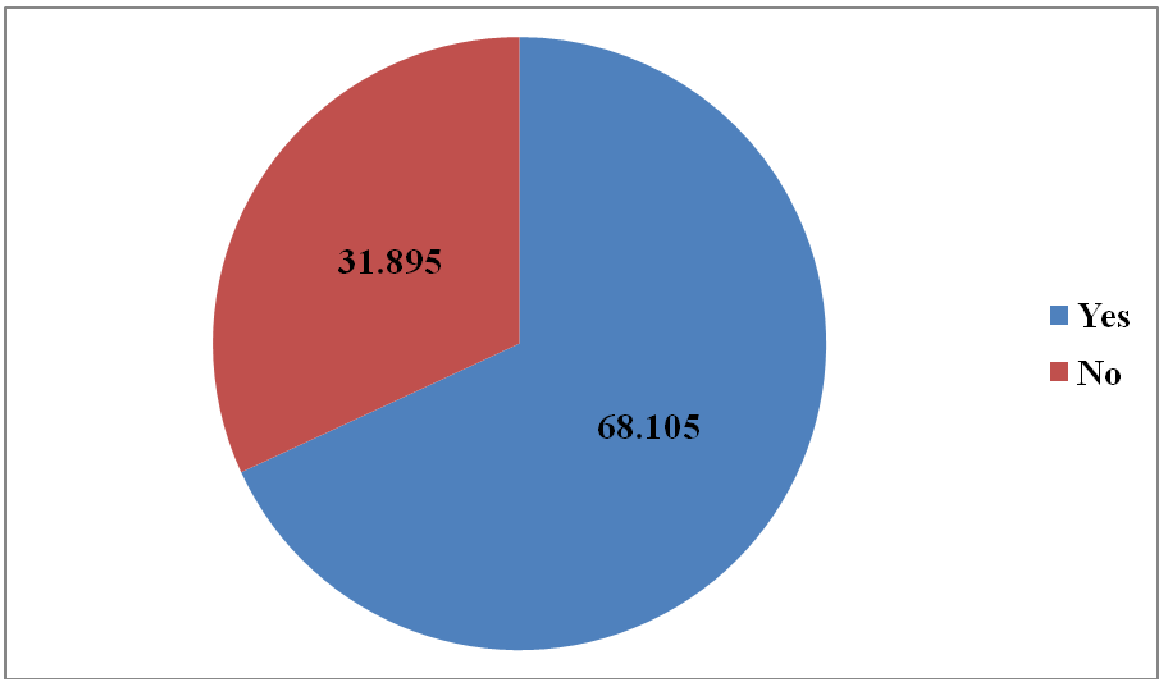

Figure 5:-Pie chart, discussion with parents with regard to menstruation among female high school students in Bahir Dar Ethiopia, 2016.

5.3. Knowledge about Menstrual Hygiene

Five hundred thirty three, (82.1%) knew that the exact duration of a normal menses is 2 to 7 days but only 438(67.5%) of the study participants knew correctly that normal menstrual cycles vary between 20 to 35 days**(Table2)**.

Two hundred nine (32.2%) of the study participants responded that menstruation is a secrete issue of whom, 63 (30.0%) were due to deep rooted culture in the society, 56 (26.8%) were due to believes and customs of the society, 86(41.1%) were both reasons and 4 (2.0%) were due to other reasons. Only 45 (7.0%) of the respondents responded that a girl cannot go to school during menstruation **(Table2)**.

Majority, 593(91.4%) of the respondents knew the exact cause of menstruation, physiological process and 385(59.3%) knew the organ from where menstrual blood comes, uterus. From 649 study participants, majority, 540(84.0%) of them knew the normal age range of menstrual commencement **(Table2)**.

The main sanitary materials known by the respondents were 509 (78.4%), 116 (17.9%) and 24(3.7%) disposable sanitary pads, reusable and washable cloth pads and rag or pieces of cloth respectively (**Table2**).

Thirty one (4.8%) of the participants had poor knowledge about menstrual hygiene management practice and 618(95.2%) participants had good knowledge about menstrual hygiene management practice (**fig6**).

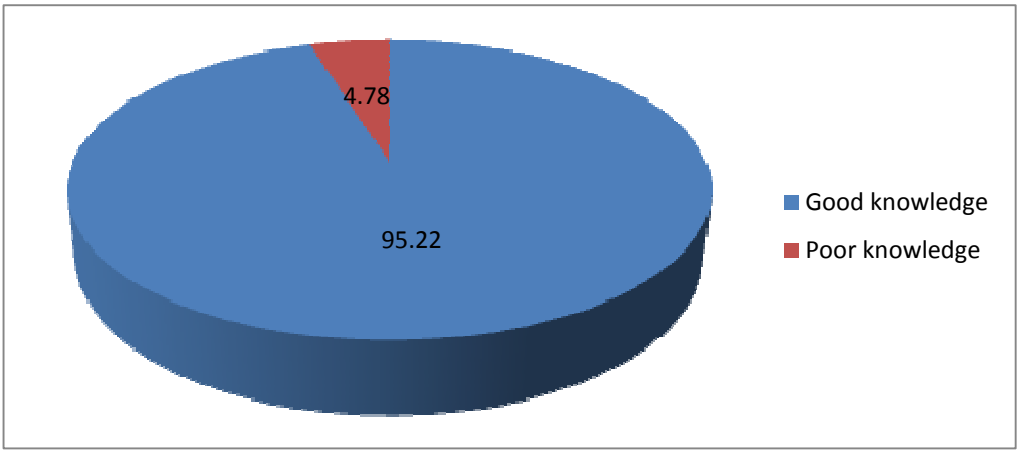

Figure 6:-pie chart, knowledge about menstrual hygiene management among female high school students in Bahir Dar city administration, Northwest, Ethiopia, 2016.

Table 2:-*Knowledge about menstrual hygiene management practice among female high school students in Bahir Dar city administration, Northwest Ethiopia, 2016.*

Respondents characteristics	**Category**	**Frequency**	**Percent**
Menstruation is a secret issue (n=649)	Yes	209	32.2
	No	440	68.8
Reasons menstruation is a secrete (n=209)	Deep rooted culture in the society	63	30.1%
	Believes and customs of the society	56	26.8%
	Both reasons	86	41.1%
	Others*	4	2.0%
Go to school during menstruation (n=649)	Yes	604	93.1
	No	45	6.9
Normal regular menstrual bleeding duration**(n=649)**	<2days	63	9.7
	2-7days	533	82.1
	>7days	29	4.5
	I Don't know	24	3.7
Normal menstruation cycle(n=649)	<20 days	83	12.8
	20-35days	438	67.5
	>35 days	27	4.2
	I don't know	101	15.6
Sanitary materials (n=649)	Disposable sanitary pads	509	78.4
	Reusable and washable cloth pads	116	17.9
	Rag or pieces of cloth	17	2.6
	Others *	7	1.1
Cause of menstruation(n=649)	Physiological process	593	91.4
	Caused by a sin	21	3.2
	Is a curse of God	31	4.8
	I don't know	4	0.6
Source of bleeding (n=649)	Vagina	120	18.5
	Urinary bladder	23	3.5
	Uterus	385	59.3
	I don't know	121	18.6
Age at menarche (n=649)	<10	109	16.8
	10-19	540	83.2

*Secrete= since it is female only issue,*Knowledge on sanitary materials= tissue paper

5.4. Menstrual Hygiene Practice of Respondents

One hundred two (15.7%) of the respondents practiced poor menstrual hygiene management whereas 547(84.3%) practiced good menstrual hygiene ***(fig7).***

From six hundred and forty nine study participants 541(83.4%) use sanitary pads of whom 493(85.4%) use disposable sanitary materials, 51(8.8%) use reusable sanitary pads ,24(4.2%) use disposable piece of rags and 9(1.5%)use paper/toilet paper/underwear(**Table3**).

Six hundred seventeen participants change their pads during menstruation at school. Five hundred seventy one (92.5%) of participants changed their sanitary pads one to six times per day and only 46(7.5%) changed their pads greater than six times per day ***(Table 3).***

Six hundred twenty six of participants washed their genitalia during menstruation of those, 333(52.6%) used only water and 293(47.4%) used soap and water to wash their genitalia ***(Table3).***

Only 463(71.3%) take more bath during menstruation and the rest 186(28.7%) didn't take more bath during menstruation ***(Table 3).***

Three hundred thirteen (48.2%) of the respondents drop their used sanitary pads in the toilet, 291(44.8 %) wrap in paper and put in the bin, 26(4%) threw in the open field and 19(2.9%) open burnt with other wastes ***(Table3).***

One hundred, (15.4%) of the study participants store their sanitary pads in the bathroom in between use ***(Table3).***

The main reasons why the study participants didn't use sanitary pads were; 49(45.4%) due to high cost, 38(35.2%) due to lack of knowledge, 12(11.1%) due to unavailability of the pads nearby around the schools and 9(7.5%) due to shyness, ***(Fig8).***

Out of 588 study participants who use reusable sanitary pads, only 37(6.3%) put their reusable sanitary pads in the sun outside for drying purpose ***(Fig9).***

Table 3:-Menstrual hygiene management among female high school students in Bahir Dar city administration ,Northwest, Ethiopia, 2016.

Hygienic practices	Category	Frequency	%
Use of sanitary materials during menstruation(n=649)	Yes	541	83.4
	No	108	16.6
Types of sanitary materials used (n=577)	Disposable sanitary pads	493	85.4
	Disposable piece of rags	24	4.2
	Reusable sanitary pads	51	8.8
	Paper/toilet paper/ Underwear	9	1.5
Changing sanitary materials at school(n=649)	Yes	617	95.1
	No	32	4.9
Number of pads per day(n=617)	1 to 6 times	571	92.5
	>=7 times	46	7.5
Practice of genital washing n=649)	Yes	626	96.5
	No	23	3.5
Medium used to wash genitalia (n=626)	Water	333	52.6
	Soap and water	293	47.4
Bath during menstruation (n=649)	Yes	463	71.3
	No	186	28.7
Disposal of sanitary materials after use(n=649)	Open field	26	4.0
	Latrine	313	48.2
	Wrap in paper and put in the bin	291	44.8
	Others*	19	2.9
Storage of sanitary pads between use(n=649)	Drawers	161	24.8
	Dress cabinet	196	30.2
	Bathroom	100	15.4
	Store with routine clothes	109	16.8
	Don't store	60	9.2
	Others **	23	3.5

=burning,=Store between exercise books*

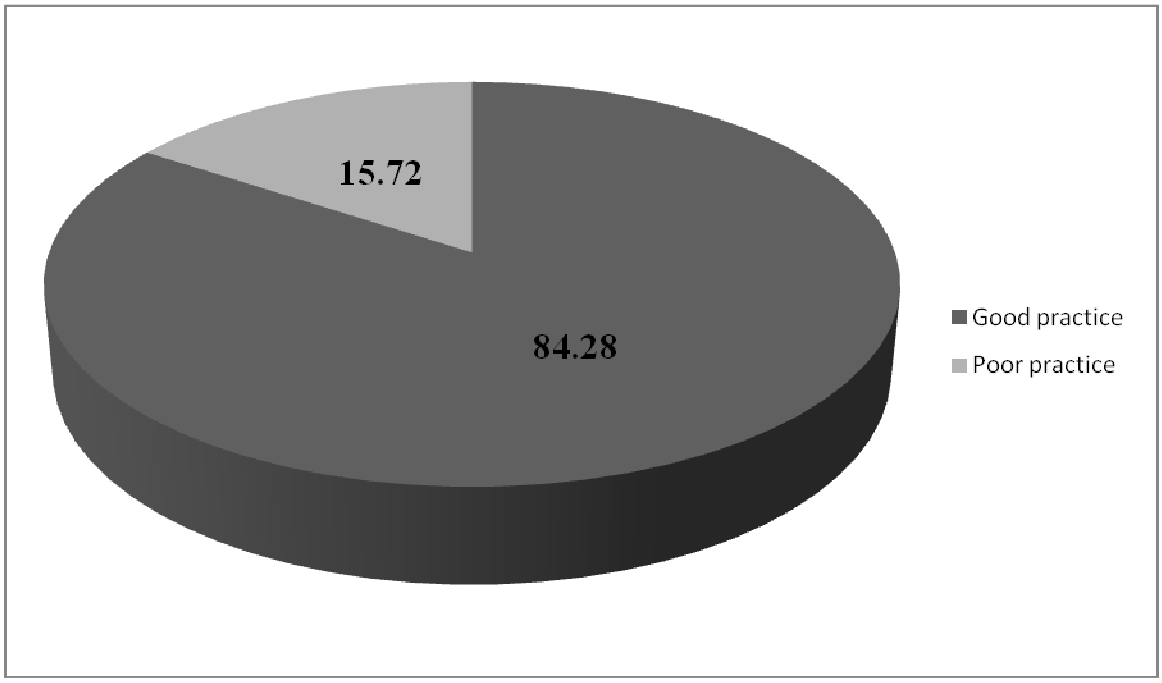

Figure 7:-Pie chart, level of menstrual hygiene management among female high school students in Bahir Dar city administration, Northwest, Ethiopia, 2016.

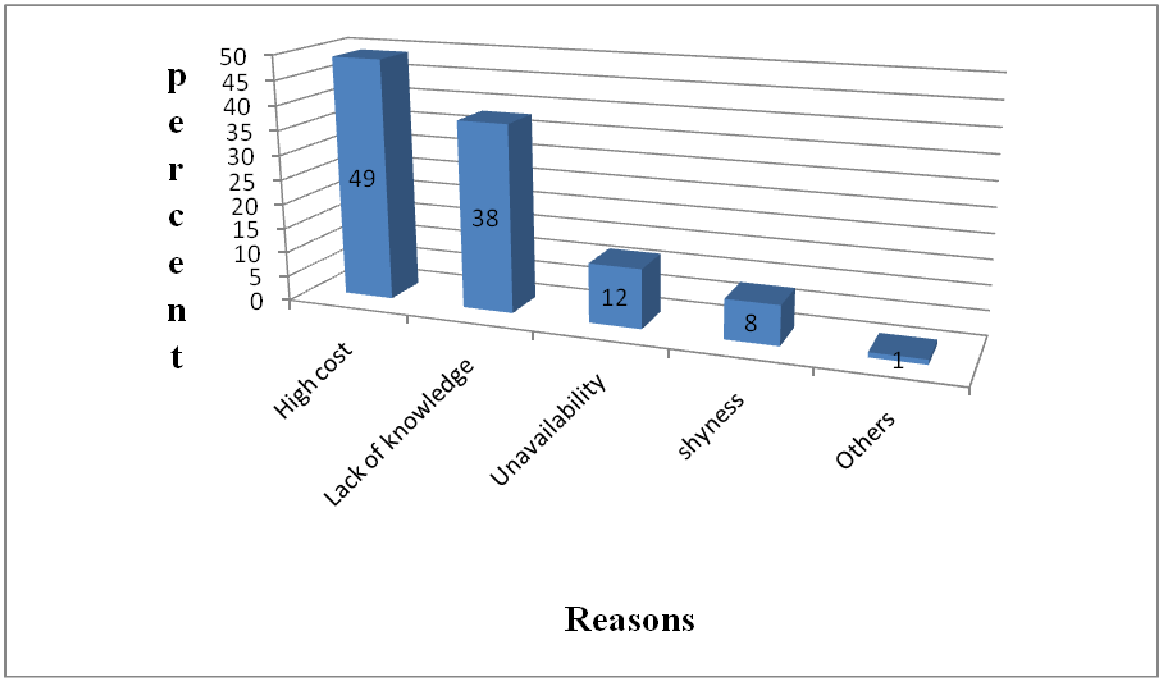

Figure 8:-Bar chart , reasons why female students didn't use menstrual sanitary materials among female high school students in Bahir Dar city administration Northwest, Ethiopia, 2016.Others=Not bleeding highly.

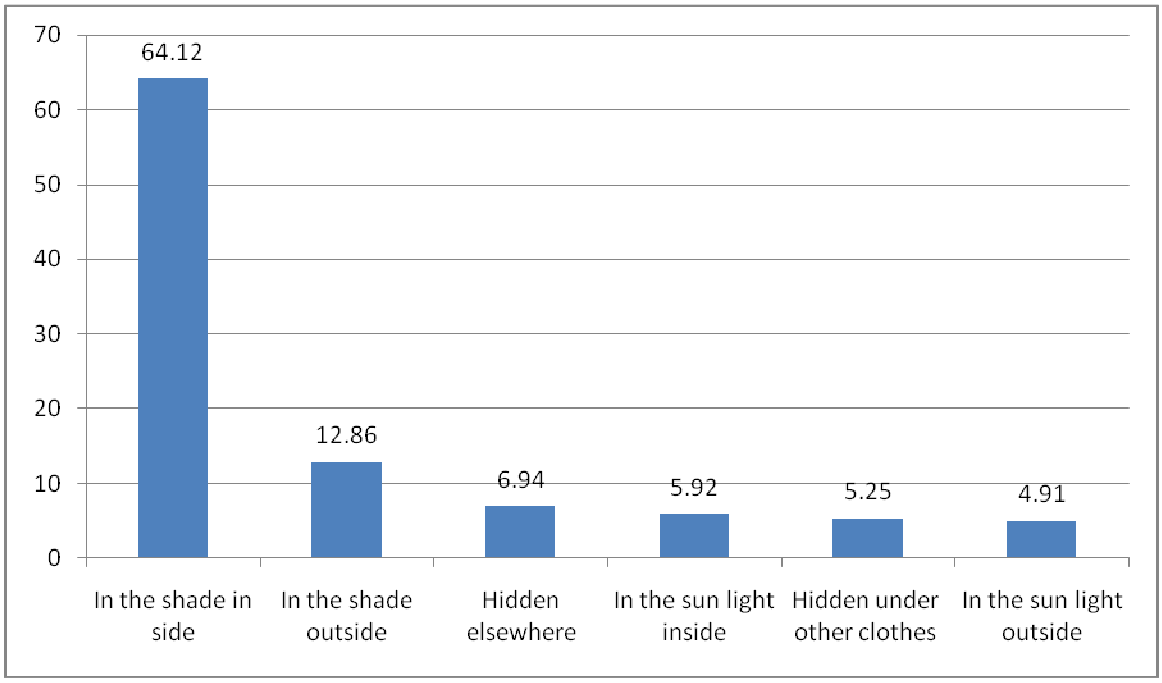

Figure 9:-Bar chart, practice on drying place of reusable menstrual sanitary materials among female high school students in Bahir Dar city administration Northwest, Ethiopia, 2016.

5.5. Factors Affecting the Practice of Menstrual Hygiene

An attempt was tried to assess the factors that are affecting the practice of menstrual hygiene management practice. All the socio demographic and menstruation related variables were fitted in binary logistic regression. After bivariate analysis, variables that were <=.20 were fitted in to the multivariate model **(Table4)**.

It showed that the practice of good menstrual hygiene was more among students who live in the urban (AOR 2.708:95% CI, 1.712, 4.285) than students who live in the rural area, students who have access for water (AOR 1.553:95% CI, 0.309, 0.989) than students who have no access for water, students from private schools (AOR 4.425:95% CI, 1.793, 10.924) than who are in the public schools and students who had heard about sanitary materials(AOR 2.493:95% CI, 1.478, 4.207) than who had not heard(**Table4**).

Table 4:-Bivariate and multivariate logistic regression analysis for factors affecting the practice of menstrual hygiene among female high school students in Bahir Dar city administration ,Northwest Ethiopia, 2016.

Respondents characteristics		Menstrual hygiene practice		COR(95% C.I)	AOR(95% C.I)
		Good (%)	Poor (%)		
Residence	Urban	396(72.4%)	51(50.0%)	2.623(1.704, 4.036)*	2.708(1.712,4.285)**
	Rural	151(27.6%)	51(50.0%)	1	1
Water access	Yes	423(77.3%)	86(84.3%)	1.779 (1.034, 3.061)*	1.553(0.309,0.989)**
	No	124(22.7%)	16(15.7%)	1	1
Grade level	9-10	213(38.9%)	29(28.4%)	1	
	11-12	334(61.1%)	73(71.6%)	0.623 (0.392, 0.990)	
School type	Private	141(25.8%)	6(5.9%)	5.557(2.383,12.958)*	4.425(1.793,10.924)**
	Public	406(74.2%)	96(94.1%)	1	1
Religion	Orthodox	497(90.9%)	96(94.1%)	0.621(.259,1.490)	
	Others	50(9.1%)	6(5.9%)	1	
Father education	Uneducated	97(17.7%)	47(46.1%)	1	
	Educated	450(82.3%)	55(53.9%)	3.964(2.536,6.198)*	
Mother education	Uneducated	149(27.2%)	50(49.0%)	1	
	Educated	398(72.8%)	52(51.0%)	2.568(1.668,3.954)*	
Family monthly income	<=1000	524(95.8%)	99(97.1%)	1	
	>=1001	23(4.2%)	3(2.9%)	1.448(0.427,4.917)	
Permanent pocket money	Yes	245(44.8%)	43(42.2%)	1.113(0.726,1.707)	
	No	302(55.2%)	59(57.8%)	1	
Awareness before menarche	Yes	455(83.2%)	85(83.3%)	0.989(0.561,1.744)	
	No	92(16.8)	17(16.7%)	1	
School education	Yes	341(62.3%)	57(55.9%)	1.307(0.852,2.004)	
	No	206(37.7%)	45(44.1%)	1	
Heard about sanitary pads	Yes	470(85.9%)	67(65.7%)	3.189(1.984,5.125)*	2.493(1.478,4.207)**
	No	77(14.1%)	35(34.3%)	1	1
Discussion with parents about menstruation	Yes	383(70.0%)	59(57.8%)	1.702(1.103,2.626)	
	No	164(30.0%)	43(42.2%)	1	

**=p-value<=0.2; **=p-value<=0.05(significant); 1=reference.*

6. Discussion

In this study it was found that 83.2% of the participants had prior knowledge about menstruation before menarche .A similar study conducted in India, Kolkata found that only 42.1% girls had prior knowledge about menstruation before menarche (21) .This difference might be due to mothers of Indian school girls don't communicate with their girl children on menstruation and menstrual hygiene practices.

Respondents awaerness with respect to residency in this study 363 (67.2%) and 177 (32.8%) of the urban and rural participants respectively had awareness about menstruation prior to menarche. This finding is higher than a study done in Udupi Taluk ,India 83 (33.27%) and 197 (35.82%) of the urban and rural participants had awareness about menstruation prior to menarche respectively (12).This difference might be due to socio cultural factors like talking about menstruation might be taboo in Indian mothers so the girls might not have awareness.

In the current study the main source of knowledge about menstruation were mothers 47.3% which is consistent with the study done in India (45%) (21).

In this study regarding knowledge about menstruation; 618(95.2%) of the respondents knew correctly that menstruation is a physiologic process. This finding is different from the study done in Northeast Ethiopia 319 (57.89%) of them knew correctly that menstruation is a physiologic process (19).This difference might be due to the methodological difference (qualitative and quantitative method for the previous study).

In the current study 59.3% of the adolescent girls knew that uterus was the source of blood in menstruation and majority 75.9% of the girls use only disposable sanitary pads as their menstrual absorbent. The findings are different from the study done in India 17.9% of the adolescent girls knew that uterus was the source of blood in menstruation (20).This difference might be due to mothers of Indian school girls didn't bother discussing about menstruation with their girl child .

In this study it was found that only 15.5% of the study participants dried their reusable pads in the sun light outside which is less than the finding in India 52.5% of the participants dried in the sun light (21).This difference might be due to different in the socio cultural factors .

In the present study, 493(85.4%) of participants use disposable sanitary pads during menses while,24(4.2%) use disposable piece of rags/cloths .In a similar study done in India 342 (91.2%)

girls use only napkin (readymade sanitary pads) during menses while, 05 (1.3%) girls use only cloths(21).This may be due to differences in socio economic differences.

In the present study regarding hygienic practices during menstruation 374 (80.4%) had bath twice a day. A similar study done in India indicated that 364 (97.1%) had daily bath (21). The difference might be due to socio cultural and economic factors.

Cleaning of external genital with soap and water was present only in 294(47.4%) whereas in a study done in India it was 78.4 %(21).This difference might be due to socio economic factors.

In this study, 618 (95.2%) had high level of knowledge about menstrual hygiene. This finding is similar with the studies done in northwest Nigeria (91.5%) and Mehalmeda (90.7%) (4, 18).The finding is also higher than the results of the studies done in Nepal (40.6%) (9). This difference might be due to different socio cultural reasons e.g that mothers in Nepal were not interested to express their views and to educate their daughters about menstrual hygiene because of the taboo of discussing about menstruation.

In this study 547(84.3 %) of the participants had good practice of menstrual hygiene which is similar with the study done in north western Nigeria (88.7%) and Mehalmeda (90.9%) (4, 18).
This finding is also higher than the study done in Nepal which indicated that only 12.9% of the study participants practice good menstrual hygiene (9). This deference could be related to poor Knowledge of Nepal's girls about menstrual hygiene which affects their level of practice.

A significant association was observed between residence and level of practice. This finding is similar with the study done in Kano Northwestern Nigeria (4). It was observed that girls who live in the urban had good practice (AOR=2.708 of menstrual hygiene than who live in the rural area. There was significant association observed between the accessibility of water and practice of menstrual hygiene (AOR=1.553). Those participants who had access for water were practicing good menstrual hygiene. This finding is similar with the study done in India which indicated that access for water was strong factor of good practice of menstrual hygiene (12). A significant association was also observed between type of school and level of practice (AOR= 4.425) which was also not significant in another study done in Northwestern Nigeria(4).

7. Conclusion

The majority of the participants had high level of menstrual hygiene knowledge. The practice of menstrual hygiene was high among the study participants and different factors affect the level of practice such as access of water, residence, school type and having heard about sanitary pads before.

8. Recommendation

- The government should give special emphasis on making the accessibility of water in the school.
- It is very important that the mothers should have the correct and appropriate information on menstrual hygiene to give their knowledge to their girl children since they are the main source of information about menstruation.
- It is essential for the Ministry of education to incorporate menstrual hygiene management education in the curriculum to improve their knowledge and practice.
- Health professionals should educate the community about menstruation to avoid restrictions during menstruation and to educate the girl child about good management of menstrual hygiene.
- Health professionals should have much more efforts to curb the misbelieves and taboos among the adolescent school girls
- Researchers have to do large scale study on menstrual hygiene by employing both qualitative and quantitative methods.

9. Strength and Limitation

9.1. Strength

The study can be considered as base for further similar and large scale studies in study area.

9.2. Limitation

The study was institution based quantitative cross sectional study only.

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Annex 1:- Information sheet

Introduction
Good morning /good afternoon.

My name is Balew Zeleke. I am conducting research as part of my degree in Master of Science in Maternity and Reproductive Health Nursing at Addis Ababa University. My Research project is entitled: *Assessment of menstrual hygiene management practices and Associated Factors among secondary and preparatory school girls:-a Case of Bahir Dar City Administration North West, Ethiopia.*

Dear participants:

The aim of this study is to assess menstrual hygiene management practices and associated factors among secondary and preparatory school girls. And you are selected to participate in this study by chance. The benefits of this study is to generate information about menstrual hygiene management practices and associated factors among secondary and preparatory school girls in Bahir Dar city administration northwest, Ethiopia ;which may help policy makers, responsible persons in the high schools , stakeholders and significant others to take actions based on the findings. There is no any financial benefit for you in participating in the research. However, in order to effectively attain the objective of the research, I am kindly requesting your participation.

There are questions related to menstrual hygiene management practices and associated factors among secondary and preparatory school girls for you to fill completely and there is no need to put your name on the questionnaire. Your responses will be completely confidential. It is your full right to refuse in responding any question or all of the questions. If you don't want to participate you can leave the questionnaire empty even you can stop filling the questionnaire in between. However, your honest answers to these questions will help me in better understanding of menstrual hygiene management practices and associated factors. It will take a maximum of 10 minutes to answer these questions.

Name of Principal Investigator:-Balew Zeleke

Name of Advisors: - Yosief Tsige (BSc, MSc, Lecturer)

Name of the Sponsor: Addis Ababa University

Name of Organization: Addis Ababa University College of Health Sciences School of Allied Health Sciences Department of Nursing and Midwifery.

Annex 2:-Informed consent

Dear study participants!

You are invited to participate in a research project about Menstrual hygiene management practices and associated factors among secondary and preparatory school girls:-A Case of Bahir Dar City Administration Northwest, Ethiopia.

This self administered questionnaire should take about 10 to15 minutes to complete. Participation is voluntary, and responses will be kept anonymous.

You have the option to not respond to any questions that you choose. Participation or nonparticipation will not impact your relationship with the teacher or any other members of the school. If you have any questions about the research, please contact the Principal Investigator, Balew Zeleke, via phone number 251912165644

Please put your Signature----------

ቅጽል 3:-የመጠይቅ ፈቃድ ቅፅ

ዉድ የጥናቱ ተሳታፊዎች ፤

እናንተ በጥናቱ አንድትሳተፉ ተጋብዛችሓል.፡፡ጥናቱ በ ሁለተኛ ደረጃ እና የከፍተኛ ትምህርት መሰናዶ ትምህርት ቤቶች በሚማሩ ሴት ተማሪወች በወር አበባ ጊዜ የሚያደርጉትን የንፅህና አጠባበቅ እና ተያያዥ ችገሮች ለማጥናት ነዉ፡፡ መጠይቁን ለመሙላት ከ10-15 ደቂቃ ሊወስድ ይችላል ፡፡ ሁሉም የሚሰጡት መረጃ ምስጢሩ በደንብ የተጠበቀ ነዉ፡፡በመጠይቁ መሳተፍ አለመሳተፍ በፈቃደኝነት ላይ የተመሰረተ ነዉ፡፡ነዉ፡፡በመጠይቁ አለመሳተፍ ከመምህረዎ፤ወይም ከሌሎች የትምህርት ቤቱ ማህበረሰቦች ጋር ያለዎትን ግንኙነት በፍፁም አያሻክርም ፡፡ማነኛዉም አይነት ጥያቄ ካለዎት በስልክ ቁጥር251912165644ገኙኛል ፡፡

እባክዎ በክፍት ቦታዉ ይፈርሙ፤ ፊርማ ----------

Annex 4: English Questionnaire

Addis Ababa University College of Health Sciences School of Allied Health Sciences Department of nursing and midwifery Graduate studies program; Questionnaires for assessment of menstrual hygiene management practices and associated factors among secondary and preparatory school girls.

Instruction

Are you voluntary to participate in the assessment please?

A. No ;thank you (Stop here)

B. Yes Signature ----------

Part 1:-Socio-demographic related questions			
Sno	Questions	Possible answer	Code
101	Have you started your menses?	1. Yes 2. No (Thank you. Please return the questionnaire before proceeding to the next questions.)	
102	How old are you now?	I am _____years	
103	School type?	Public Private	
104	Grade level?	9th, 10th, 11th, 12th	
105	How old were you at your menarche?	I was ----------years old.	
106	Residence?	1. Urban 2. Rural	
107	Religion?	1. Orthodox 2. Muslim 3. Protestant 4. Others; specify	
108	Ethnicity?	1. Amhara 2. Oromo 3. Tigre	

		4. Other; specify---	
109	What is your fathers' educational status?	1. Can't read and write 2. Primary 3. High school 4. Secondary and preparatory 5. College diploma 6. University degree	
110	What is your mother's educational status?	1. Can't read and write 2. Primary 3. High school 4. Secondary and preparatory 5. College diploma 6. University degree	
111	What is the occupation al status of your father?	1. Government Employee 2. Private Employee 3. Self-Employee 4. Others; specify----------	
112	What is the occupational status of your mother?	1. Government Employee 2. Private Employee 3. Self-Employee 4. House wife 5. Other; specify--------	
113	How much does your family earn per month on average?	My family earns – ETB on average	
114	Do your parents provide permanent pocket money regularly?	1. Yes 2. No	
Part 2:- Knowledge and awareness regarding menstruation.			
201	At what age a girl does commence her menarche?	At ----------years old	
202	What is the cause of menstruation?	1. Physiological process. 2. Is caused by a sin. 3. Is curse of God. 4. Is caused by a disease. 5. I don't know.	
203	From which organ does the menstrual blood come?	1. Vagina 2. Urinary bladder 3. Uterus 4. I don't know	
204	What absorbent should be ideally used during menstruation?	1. Disposable sanitary pad 2. Reusable and washable cloth pads. 3. Rag or pieces of cloth 4. Other, specify----------	

205	How long is the normal menstrual bleeding duration?	1. <2 Days. 2. 2-7 Days 3. >7 Days 4. Don't know	
206	What is the normal duration of menstrual cycle?	1. <20 Days 2. 20-35 Days 3. >35 Days 4. Don't know	
207	Can a girl go to school during menstruation?	1. Yes 2. No	
208	Is menstruation a secret issue?	1. Yes 2. No	
209	If your answer is yes for question no 209, why?	1. Deep rooted culture of the society. 2. Believes and customs of the society 3. Both 4. Others; specify----------	
Part 3:-Menstrual hygiene management practice related questions.			
301	Do you use sanitary material(s) during menstruation?	1. Yes 2. No	
302	If your answer is *Yes* for Q no 301, what sanitary material do you use during menstruation?	1. Disposable sanitary pads. 2. Disposable piece of rags. 3. Reusable sanitary pads 4. Paper/toilet paper. 5. Underwear. 6. Others; specify--------	
303	If your answer is *No* for Q no 301, why?	1. Lack of knowledge 2. High cost 3. Unavailability 4. Shyness 5. Others ; specify-----	
304	Do you wash your genitalia during menstruation?	1. Yes 2. No	
305	If your answer for question no 304 is *yes* what medium do you use for your genital cleaning purpose?	1. Only Water. 2. Soap and water. 3. Others; specify--------	
306	If your answer for question no 304 is *yes* how often do you wash your genitalia per day?	1. Twice 2. Thrice 3. >=Four times.	
307	Do you take bath during menstruation (exceptional from the usual)?	1. Yes 2. No	

308	If your answer for question no 307 is *yes* how often do you take bath during menstruation per day?	1. <= Two times in a day. 2. > Two times in a day.	
309	Do you change your sanitary material(s) during menstruation at school?	1. Yes 2. No	
310	If your answer for question no 309 is *yes* how often do you change your sanitary material (s) during menstruation per day?	1. 1 to 6 times 2. 7 times	
311	How do you dispose of menstrual materials after use	1. Open field 2. Latrine 3. Wrap in paper and put in the bin 4. Others; specify ----------	
312	Where do you store your new and/or reusable absorbent(s)?	1. Drawers 2. Dress cabinet 3. Bathrooms. 4. Store with routine cloth. 5. Don't store 6. Others ; specify--	
313	Where do you put/keep your reusable sanitary pads after washing for drying?	1. In the shade outside 2. In the shade inside 3. In the sunlight inside 4. In the sunlight outside 5. Hidden under other clothes 6. Hidden elsewhere 7. Other; specify----	
Part4:-Menstrual hygiene management practice associated factors related questions			
401	Have you heard about menstruation before menarche?	1. Yes 2. No	
402	If your answer is 'Yes' for question no **401**, where did you get the information about menstruation before menarche?	1. Mother. 2. Teacher. 3. Health personnel. 4. TV. 5. others; specify----------	
403	Do you freely discuss about menstruation issues with your parents?	1. Yes 2. No	
404	If your answer for question no **403** is "Yes", in what topics/issues why?	1. About menstrual hygiene management. 2. About methods how to use sanitary pads. 3. All	

405	If your answer for question no 403 is "No", why?	1. Because of shamefulness 2. Not habitual. 3. Privacy. 4. All	
406	Do you know sanitary pads in the market?	1. Yes 2. No	
407	Does the school have water source?	1 Yes 3. No	
408	Does the school have toilet facility?	1.Yes 2.No	
409	Are females and males toilets in the opposite directions?	1. Yes 2. No	
410	Are females' toilets kept locked inside?	1. Yes 2. No	

Thank you very much for your patience

Data collector's name----------signature---------- Date ----------

ቅፅል 6:- የአማርኛ ቃለመጠይቅ

በአዲስ አባባ ዩኒቨርሲቲ የጤና ሳይንስ ኮሌጅ አላይድ ጤና ሳይንስ ትምህርት ቤት የነርሲንግ እና ሚድዋይፍሪ ትምህርት ክፍል ድህረ ምረቃ ጥናት መርኃ-ግብር በእናቶች እና ስነተዋልዶ ጤና ነርሲንግ የሁለተኛ ዲግሪ ጥናት በሁለተኛ ደረጃ ትምህርት ቤቶች ባሉ ሴት ተማሪዎች በወር አበባ ጊዜ የሚያደርጉትን የንፅህና አጠባበቅ እና ተያያዥ ችገሮች ለማጥናት የተዘጋጀ ቃለ መጠይቅ

<u>ትእዛዝ</u>

ዉድ ተማሪዎች ፤የሚከተሉትን ጥያቄወች እንዲመልሱልኝ በትህትና እጠይቀወታለሁ፡፡ የጥናቱ አላማ በሁለተኛ ደረጃ ትምህርት ቤቶች ባሉ ሴት ተማሪወች በወር አበባ ጊዜ የሚያደርጉትን የንፅህና አጠባበቅ እና ተያያዥ ችገሮች ለማጥናት ነዉ፡፡ ሁሉም የሚሰጡት መረጃ ምስጢሩ በደንብ የተጠበቀ ነዉ፡፡ ስለሆነም ስምዎን መፃፍ አያስፈልግም ፡፡ መጠይቁን ለመመላት መሳተፍ በፈቃደኝነት ላይ የተመሰረተ ነዉ ፡፡ መጠይቁን ለመመላት ፈቃደኛ ነዎት?

1. አይደለሁም አመሰግናለሁ (መጠይቁን መመላት ያቁሙ)
2. አዎ ፊርማ ----------

ክፍል 1፤ማህበራዊ እና ስነ ህዝባዊ መረጃዎችን በተመለከተ			
ተ.ቁ	ጥያቄ	አማራጭ መልሶች	መለ ቁጥ
101	የወር አበባ ማየት ጀምረዋል ?	1. አዎ 2. የለም (አመሰግናሉ እዚህ ላይ ያቁም እና መጠይቁን ሳይሞሉ ይመለሱልኝ)	
102	የትምህርት ቤትአይነት	1. የግል 2. የመንግስት	
103	የክፍል ደረጃ	$9^{ኛ}$,$10^{ኛ}$,$11^{ኛ}$,$12^{ኛ}$	
104	የመጀመሪያ የወር አበባዎን ሴያዩ እድሜዎ ስንት ነበር?(በዓመት)	----------ዓመት ነበር	
105	አሁን እደሜዎ ስንት ነዉ?(በዓመት)	----------ዓመት ነዉ	
106	የመኖሪያ ቦታ	1. ከተማ 2. ገጠር	
107	ሀይማኖት	1. ኦርቶዶክስ 2. እስልምና 3. ፕሮቴስታንት 4. ሌላ፡ይግለፁ-------	
108	ብሔር	1. አማራ 2. ኦሮሞ 3. ትግሬ 4. ሌላ ፡ ይግለፁ-----	

109	ያአባት የትምህርት ደረጃ	1. ማንበብ እና መፃፍ ማይችል 2. አንደኛ ደረጃ 3. ሁለተኛ ደረጃ 4. የኮሌጅ ዲፕሎማ 5. የዩኒቨርሲቲ ዲግሪ	
110	የእናት የትምህርት ደረጃ	1. ማንበብ እና መፃፍ ማትችል 2. አንደኛ ደረጃ 3. ሁለተኛ ደረጃ 4. የኮሌጅ ዲፕሎማ 5. የዩኒቨርሲቲ ዲግሪ	
111	ያአባት የስራ ሁኔታ ?	1. የመንግስት ተቀጣሪ 2. የግል ተቀጣሪ 3. የግል ስራ 4. ሌላ ፡ ይግለፁ-----	
112	ያእናት የስራ ሁኔታ ?	1. የመንግስት ተቀጣሪ 2. የግል ተቀጣሪ 3. የግል ስራ 4. የቤት እመቤት 5. ሌላ ፡ ይግለፁ-----	
113	የቤተሰብዎ አማካይ የወር ገቢ ስንት ነዉ?	ባማካይ የወር ገቢ----ብር ነዉ.	
114	ቋሚ የኪስ ገንዘብ ከቤተሰብዎ ያገኛሉ	1. አዎ 2. የለም	
ክፍል ፤2 የወር አበባ እዉቀት እና ግንዛቤን የሚመለከቱ ጥያቄዎች			
201	አንዲት ልጃገረድ የመጀመሪያ የወር አበባ ማየት የምትጀምረዉ በስንት አመቷ(እድሜዋ) ነዉ ?	በ-----እድሜዋ ነዉ	
202	የወር አበባ መንስኤዉ ምንድን ነዉ ብለዉ ያስባሉ	1. ተፈጥሮአዊ ነዉ 2. በሃጢያት የሚመጣ ነዉ 3. የፈጣሪ ቁጣ ነዉ 4. በበሽታ የሚመጣ ነዉ 5. አላዉቅም	
203	የወር አበባ የሚመጣዉ ከየትኛዉ የሰዉነት ክፍል ነዉ	1. ከብልት 2. ከሽንት ፊኛ 3. ከማህፀን 4. አላዉቅም	
204	በወር አበባ ጊዜ ምን አይነት ተስማሚ የወር አበባ የንፅህና መጠበቂያ መጠቀም አለበት ብለዉ ያስባሉ?	1. ላንዴ ብቻ የሚያገለግሉ 2. እየታጠቡ ለብዙ ጊዜ የሚያገለግሉ 3. ቁርጥራጭ ጨርቅ 4. ሌላ ፤ ይግለፁ----------	
205	መደበኛ እና ጤነኛ የወር አበባ አንዱ ከመጣ ለምን ያህል ጊዜ (ለስንት ቀን) ይቆያል	1. ከሁልት ቀናት ያነሰ 2. ከሁለት እስከ ሰባት ቀናት 3. ከሰባት ቀናት በላይ 4. አላዉቅም	
206	አንዲት ጤነኛ ልጃገረድ መደበኛ የወር አበባ በየስንት ቀኑ ታያለች	1. ከ20 ቀናት ያነሰ 2. ከ20 እስከ 35 ቀናት 3. ከ35ቀናት በላይ 4. አላዉቅም	

207	አንዲት ልጃገረድ በወር አበባ ጊዜ ትምህርት ቤት መሄድ ትችላለች	1. አዎ 2. አትችልም	
208	የወር አበባ ጉዳይ ምስጢራዊ ነዉ	1. አዎ 2. አይደለም	
209	ለጥያቄ ቁጥር 208 መልስዎ አዎ ከሆነ የምስጢራዊነቱ ምክንያት ምንድን ነዉ	1. በማህበረሰቡ ዉስጥ ስር የሰደደ ባህል 2. በማህበረሰቡ ዉስጥ ያለ እምነትእና ልማድ 3. ሁለቱም 4. ሌላ ይግለፁ----------	
ክፍል 3፤ የወር አበባ ንፅህና አጠባበቅ ትግበራን የሚመለከቱ ጥያቄዎች			
301	በወር አበባ ጊዜ ተስማሚ የሆነ የወር አበባ የንፅህና መጠበቂያ (ሞዴስ) ይጠቀማሉ	1. አዎ 2. አልጠቀምም	
302	ለጥያቄ ቁጥር 301 መልስዎ *አዎ* ከሆነ ምን አይነት ተስማሚ የወር አበባ የንፅህና መጠበቂያ (ሞዴስ) ይጠቀማሉ	1. ላንድጊዜ ብቻ የሚያገለግሉ የወር አበባ መጠበቂያ(ሞዴስ) 2. ላንድ ጊዜ ብቻ የሚያገለግሉ ቁርጥራጭ ልብሶች 3. ለብዙጊዜ የሚያገለግሉየወር አበባ መጠበቂያ ቁሳቁሶች 4. የዉስጥ ልብስ 5. ሌላ ፤ ይግለፁ----	
303	ለጥያቄ ቁጥር 301 መልስዎ *አልጠቀምም* ከሆነ ለምን	1. ስለማላዉቅ 2. መግዛት ስለማለችል 3. በቅርብ ስለማይገኙ 4. ስለማፍር 5. ሌላ ; ይግለፁ----	
304	በወር አበባ ጊዜ አባላዘርዎን (ብልትዎን) ይታጠባሉ	1. አዎ 2. አልታጠብም	
305	ለጥያቄ ቁጥር 304 መልስዎ *አዎ ከሆነ*ምን ይጠቀማሉ	1. ዉሃ ብቻ 2. ዉሀ እና ሳሙና 3. ሌላ ይግለፁ----------	
306	በወር አበባ ጊዜ ሰዉነትዎን (ገላዎን) ከሁልጊዜዉ በተለየ መልኩ (አብዝተዉ) ይታጠባሉ	1. አዎ 2. አልታጠብም	
307	ለጥያቄ ቁጥር 306 መልስዎ አዎ ከሆነ በቀን ስንት ጊዜ ይታጠባሉ	1. በቀን ሁለት ጊዜ 2. በቀን ከሁለት ጊዜ በላይ	
308	የወር አበባ ንፅህና መጠበቂያዎን ይቀይራሉ	1. አዎ 2. አልቀይርም	
309	ለጥያቄ ቁጥር 308 መልስዎ አዎ ከሆነ ተስማሚ የወር አበባ ንፅህና መጠበቂያዎን በቀን ስንት ጊዜ ይቀየራሉ	1. ካንድ እስከ ስድስት ጊዜ 2. ሰባት እና ከዚያ በላይ	
310	የወር አበባ ንፅህና መጠበቂያዎን ከተጠቀሙ በኋላ እንዴት ያስወግዳሉ	1. ባገኘሁት ቦታ 2. ሽንት ቤት ዉስጥ በመጣል 3. ቆሻሻ ቅርጫት ዉስጥ በመጣል 4. ሌላ ፤ይግለፁ----------	

311	ወደፊት የሚጠቀሙባቸዉንም ሆነ መልሰዉ የሚጠቀሙባቸዉን የወር አበባ ንፅህና መጠበቂያዎን ምን ዉስጥ ያስቀምጣሉ	1. መሳቢያዉስጥ 2. የልብስ ካቢኔት ዉስጥ 3. መታጠቢያ ክፍል 4. ከዘመተር ልብሶች ጋር 5. አላስቀምጥም 6. ሌላ ፤ይግለፁ---------	
312	መልሰዉ የሚጠቀሙባቸዉን የወር አበባ ንፅህና መጠበቂያዎን ካጠቡ በኋላ የት ያሰጧቸዋል	1. ከቤት ዉጭ ጥላ ዉስጥ 2. ከቤት ዉስጥ ጥላ ዉስጥ 3. ፀሃይ ላይ ቤት ዉስጥ 4. ፀሃይ ላይ 5. ከቤት ዉጭ በሌሎች ልብሶች ጋርጀ 6. ሌላ ስዉር ቦታ 7. ሌላ ይግለፁ--------	
ክፍል 4፤ከወርአበባ ንፅህና አጠባበቅጋር ተያያዥየሆኑ ችግሮች			
401	የወር አበባ ከመጀመርዎ በፊት ስለየወር አበባ ሰምተዉ ያዉቃሉ	1. አዎ 2. የለም	
402	ለጥያቄ ቁጥር401 መልስዎ አዎ ከሆነ መረጃዉን ከማን አገኙት	1. ከእናቴ 2. ከእህቴ 3. ከጓደኞች 4. ከሌላ ይግለፁ----------	
403	በትምህርት ቤት ዉስጥ ስለየወር አበባ እና የወር አበባ ንፅህና አጠባበቅ ተምረዉ ያዉቃሉ	1. አዎ 2. የለም	
404	በገባያ ላይ ያሉ ተስማሚ የወር አበባ ንፅህና መጠበቂያዎችን ያዉቃሉ	1. አዎ 2. አላዉቅም	
405	ከቤተሰብዎ ጋር ስለየወርአበባ ጉዳይ በግልፅ ያወራሉ	1. አዎ 2. አላወራም	
406	ለጥያቄ 405 መልስዎ **አዎ** ከሆነ በምን ርእሶች/ጉዳዮች	1. ስለየወር አበባ ንፅህና አጠባበቅ 2. ስለ የወር አበባ መጠበቂያ ዘዴዎችአጠቃቀም 3. ሁሉም	
407	ለጥያቄ 405 መልስዎ **አላወራም** ከሆነ ለምን	1. አሳፋሪ ስለሆነ 2. ስለምፈራ 3. የተለመደ ስላልሆነ. 4. ምስጢራዊ ስለሆነ 5. ሁሉም 6. ሌላ፤ ይግለፁ------	
408	የትምህርት ቤቱ የዉሃ አቅርቦት	1. አለዉ 2. የለዉም	
409	የወንዶች እና የሴቶች መፀዳጃ ቤት የተሰራዉ በተለያየ አቅጣጫ ነዉ	1. አዎ 2. አይደለም	
410	የልጃገረዶች መፀዳጃ ቤቶች ክፍሎች ከዉስጥ የሚቆለፉ ናቸዉ	1. አዎ 2. አይደሉም	

መጠይቁን በመሙላት ስላደረጉልኝ ትብብር በጣም አመሰግናለሁ

መረጃዉን የሰበሰበዉ ስም ----------ፊርማ ---------- ቀን ----------

Annex5:-Assurance of the principal investigator

I the undersigned agree to accept responsibility for the scientific, ethical and technical conduct of the research project and provision of the required progress as per the terms and conditions of the research and secondary and preparatory schools .I provided timely progress report to my Advisor and seek the necessary advice and communicated timely with my advisor

Name of the investigator: Balew Zeleke (BSc)

Signature: - ----------date: ----------

Advisor: Mr Yosief Tsgie (BSc,MSc,Lecturer)

Signature ---------- date----------