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MENSTRUAL HYGIENE MANAGEMENT AMONG BASIC SCHOOL GIRLS IN LEGON, ACCRA

BY

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DECLARATION

I, EMMANUEL BLESSING, hereby declare that apart from specific references which have been duly acknowledged, this dissertation is my own work put together under the supervision of Dr. Alfred E. Yawson and that this work has not been presented in part or whole for any other ethical review.

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Signature: …… Date……..

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(Supervisor)

DEDICATION

To God Almighty and my father Emmanuel Ekong and the entire Ekong family.

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LIST OF ABBREVIATIONS

APSR:	Adolescent Program, Sexual and Review
EP:	Education and Project
GHc	Ghana Cedi
JHS:	Junior High School
MDGs:	Millennium Development Goals
MHH:	Menstrual Hygiene and Health
MHM:	Menstrual Hygiene Management
MOE:	Ministry of Education
MOH:	Ministry of Health
Nos.	Numbers
PTA	Parents Teachers Association
RTIs:	Reproductive Tract Infections
SD	Standard Deviation
SDGs:	Sustainable Development Goals
STDs	Sexually Transmitted Diseases
STIs	Sexually Transmitted Infections
SEIP:	Secondary Education Improvement Project
UG:	University of Ghana
UGA:	University of Ghana Administration
UNDP:	United Nations Development Programme
UNESCO:	United Nations Educational, Scientific and Cultural Organization
UNSDG	United Nations Sustainable Development Goals
UNICEF:	United Nation Children's Fund

UTIs:	Urinary Tract Infections
WHO:	World Health Organization

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ABSTRACT

Background: Menstruation is the recurring peeling of the inner part of the uterus or the shedding of the uterine lining on a regular basis in the reproductive-aged females during the monthly menstrual cycles. Menstrual hygiene management (MHM) is an everyday challenge to the adolescent girl child globally, and in developing countries like Ghana. There is great need for the achievement of good hygiene practices among Basic School girls because attitude towards menstrual hygiene acquired from menarche lingers on in most parts of womanhood. Poor MHM can adversely affect the girl child and cause shame, stigmatization, low self-esteem, fear, and this may further lead to absenteeism in school. Positive menstrual hygiene management is important because it helps in preventing several health challenges which may be associated with poor menstrual hygiene management.

Method: A quantitative cross-sectional study was conducted using self-administered questionnaires to collect data, followed by a survey to evaluate the sanitary provisions in the school. Two Basic Schools in the University of Ghana Legon, were identified and random sampling procedure was used to select the respondents. A total of 209 questionnaires were fully completed by the study group and recorded using Microsoft Excel version 13 software. This was further imported onto Stata version 13 software package for analysis.

Analysis: Descriptive statistics was used to describe factors influencing adequate MHM. Results were expressed as percentages and presented using tables, frequency distributions and charts. Significant associations were determined with Chi square test at a 95% confidence level.

Results Findings from this study revealed that the mean age at menarche of the adolescent girls in Basic Schools in Legon was 11.9 ±1.2 years. Menstrual Hygiene

Management was promoted both at home and in schools; Perceptions and practices of the respondents showed that about 68% and 21% of the adolescent girls bathed two and three times daily respectively during menstruation. Fifty percent (50%) of the respondents changed sanitary products three times daily when menstruating, this was followed by about 47% who changed twice daily. More than half of them disposed their used sanitary products by wrapping and putting in the dustbins. Sanitary facilities were seen to be available and in use during the time of survey.

There was a significant difference (p value <0.05), among respondents who bathed at different numbers of times by knowledge level when menstruating, 38.7% and 61.3% of those who take their bath twice daily were seen to have low-medium and high knowledge levels respectively. There were no significant differences in number of times respondents changed their used sanitary products a day by knowledge level (p-value of 0.537), methods of disposal of used sanitary products (p-value of 0.559) and what was used to wash the genitalia during menstruation (p-value of 0.558).

Conclusion: This study found that menstrual hygiene practices among the Basic School girls were good, with socio-economic factors contributing to the use of good disposable menstrual products during menstruation. Sanitary facilities were seen to be available and in use although resources such as running water, soap for hand washing, and sanitary products in the event of an emergency were lacking. There were significant differences in menstrual hygiene practice by hygiene knowledge level in the number of times bath was taken daily by the adolescent girls during menstruation, and their experience of pain during menstruation. However, there were no significant differences in number of times respondents changed their used sanitary products a day by knowledge level, methods of disposal of used sanitary products and what was used to wash the genitalia during menstruation.

CHAPTER 1

1.0 INTRODUCTION

1.1 Background of the study

Those between the ages of 10 and 19 are regarded as adolescent as recorded by the World Health Organization (WHO); they account for about 20% of the world's population with 85% of them resident in developing countries such as Ghana (Abajobir & Seme, 2014). The crucial and indeed one of the most challenging period of a girl child is when nature gives rise to various changes that causes emotional and psychological instability, all occurring at the same time which progressively leads to womanhood (Fernandes, 2010). One of such changes is menstruation. Menstruation refers to the recurring peeling of the inner part of the uterus or the shedding of the uterine lining on a regular basis in the reproductive-aged females during the monthly menstrual cycles (Aniebue, & Nwankwo, 2009). Menstruation, which can be experienced about 3000 times in a woman's life time (Ahmed & Yesmin, 2008), is a physiological condition that is associated with diverse terms. See Table 1 for terms associated with menstruation.

Table 1**: Medical terms associated with menstruation**

Medical term	**Definition or main symptoms**
Menstruation	The shedding of the uterine lining on a regular basis in the reproductive- aged females in monthly menstrual cycles
Pre-menstrual syndrome (PMS)	Consistent and severe pattern of emotional and physical symptoms such as pain, bloating and mood changes that occur in the later part of the menstrual cycle
Irregular cycles	Unpredictable long and short cycles with varying degrees of blood loss. Also known as menstrual irregularities.
Menorrhagia	Excessive, very heavy and prolonged bleeding which can lead to anemia and becomes fatal if not treated.
Polymenorrhea	Frequent periods of short cycles (less than 21 days).
Amenorrhea	No bleeding for three or more months.
Oligo - menorrhea	Light bleeding periods (menstrual cycles of 35-90 days).
Dysmenorrhea	Pain, backaches, abdominal pain or cramps during menstruation.
Spotting/inter-menstrual bleeding	Blood loss between periods.

Source: (House et al., 2012)**.**

What is worthy of note, is that in defining Menstrual Hygiene Management (MHM), due consideration must also be given to the educational and psychological needs of girls undergoing the monthly process of menstruation. Therefore, in an effort to create awareness on menstrual hygiene management, the first global menstrual day was celebrated on 28th of May 2014 (Chin, 2014).

Menstrual Hygiene Management includes the use of water and soap to clean the body as

essential, and also gaining access to sanitary facilities in order to dispose of used sanitary products ("MHM Booklet Final HR," n.d.).

In most traditional settings including African societies the topic of menstruation is largely treated as a taboo, and is rarely discussed publicly (House et al. 2012). This is because of the prevalent misconceptions; one of which is that menstruation is considered impure in some societies (Yagnik, 2015). This often limits the amount of information available to young ladies especially teenagers who are going through the process. The process is often associated with uncleanness, filthiness and dirt. In some traditional settings, menstruating women and girls are exempted from some social activities until they are done menstruating. This often leaves many young girls disillusioned and saddled with a feeling of guilt, shame and 'unworthiness' and many may not know how to maintain optimum hygiene required at such times. According to a UNESCO report, 2014, it has been realized that during menstruation, majority of girls tend to be naïve and as such nervous due to unpreparedness. Despite this, certain cultural expectations from the community and societal norms get in between as burden. This leaves the girl child in confusion either from home or the school. The results of this confusion may inhibit the acquisition of knowledge thereby disrupting the value for which the girl child is in school. The need for widespread approaches to health education curricula with schemes centered on comprehension of health and development focusing on communities, schools, health service sectors, family and religious based organization, with the adolescent girl child especially, should be put into consideration (APSR, 2015).

Furthermore, adolescent girls tend to lose self-esteem due to stigma associated with menstruation which in turn prevents them from socializing and asking questions on menstrual hygiene management, as such the adolescent girl child is predisposed to social

and cultural factors including infection as a result of poor hygiene practices during menstruation (Yoo et al., 2011). These factors may also be as a result of inadequate sanitary use, water source and low income. According to Kirk and Sommer (2006), the level of knowledge on issues bordering on menstruation and puberty is very low especially in Sub-Sahara Africa. In resource-poor settings, access to sanitary materials and appropriate sanitary facilities are limited thus posing a huge challenge to the comfort of menstruating girls.

The situation is not helped by schools. In most public schools, due consideration may not be given to the hygiene needs of menstruating girls with regards to adequate health education and type of sanitary facilities available for students. Some may not have properly secluded restrooms to provide a sense of privacy for students. Availability of water is also another important factor. Girls need to have access to adequate water supplies, soap and sanitary towels/pads to maintain optimum hygiene. Most schools may not have bathrooms for day-students who are not boarders to take a bath when they get stained. There is a need for proper disposal facilities where girls may dispose of their sanitary towels, pads or tampons. Absence of an enabling environment can impact on the school attendance of students as some are left with no other alternative but to stay at home for the duration they are menstruating. This brings to the fore the need for a rethink on the approach to health education.

The aim of this study therefore was to assess menstrual hygiene practices among basic school girls in Legon, Accra, and determine the association of hygiene knowledge and menstrual hygiene practices. Findings from this research will create the basis for planning and policy formulation, as menstrual education is an essential aspect of school health education.

1.2 Statement of Problem

The adolescent stage for the girl child is a demanding time in a woman's developmental life. The girl child is at a stage where she is bombarded by a surplus of hormones and societal norms which affects and influences her physical, mental and emotional development. This period is critical as all aspects of life are fully involved in this development, and as such it is important the family and society pay attention to this stage as it shapes the life of the girl. It is at this period that the girl child commences menstruation.

It is realized that although, about 35% of world population constitutes young people between ages 10 and 24; adolescents health needs are either not reached or barely addressed satisfactorily (Abajobir & Seme, 2014).

Poor MHM maybe as a result of inadequate sanitary facilities and poor hygiene practices.

Menstruation impacts on the girl child in diverse ways: it could be physical, emotional and physiological. As a result of this there is need for structures and support to be put in place to help the girl child cope with this stage of life. This is what the concept of MHM seeks to achieve: aid the girl child in dealing with the associated misconceptions, humiliation, agitation, discomfort and nervousness (Tegegne & Sisay, 2014). The necessity of MHM is mainly because hygiene knowledge among these basic school girls of ages 8 to 15 is limited thereby giving rise to their inability to adequately manage their menstruation (UNESCO, 2014).

The effect of menstruation on school girls is diverse; amongst these is the impact on their education. It has been realized that girls are faced with challenges associated with menstruation making them unable to attend school sessions during this period. The primary reason for this is that majority of the school girls have difficulty managing

menstruation in the public. The importance of adequate sanitary facilities for good hygiene practices during menstrual flow is underscored by the fact that there is the risk of urinary and/or reproductive tract infection if good hygiene practices are not put to use (Omidvar & Begum, 2010; UNESCO, 2014)

1.3 Conceptual Framework Design

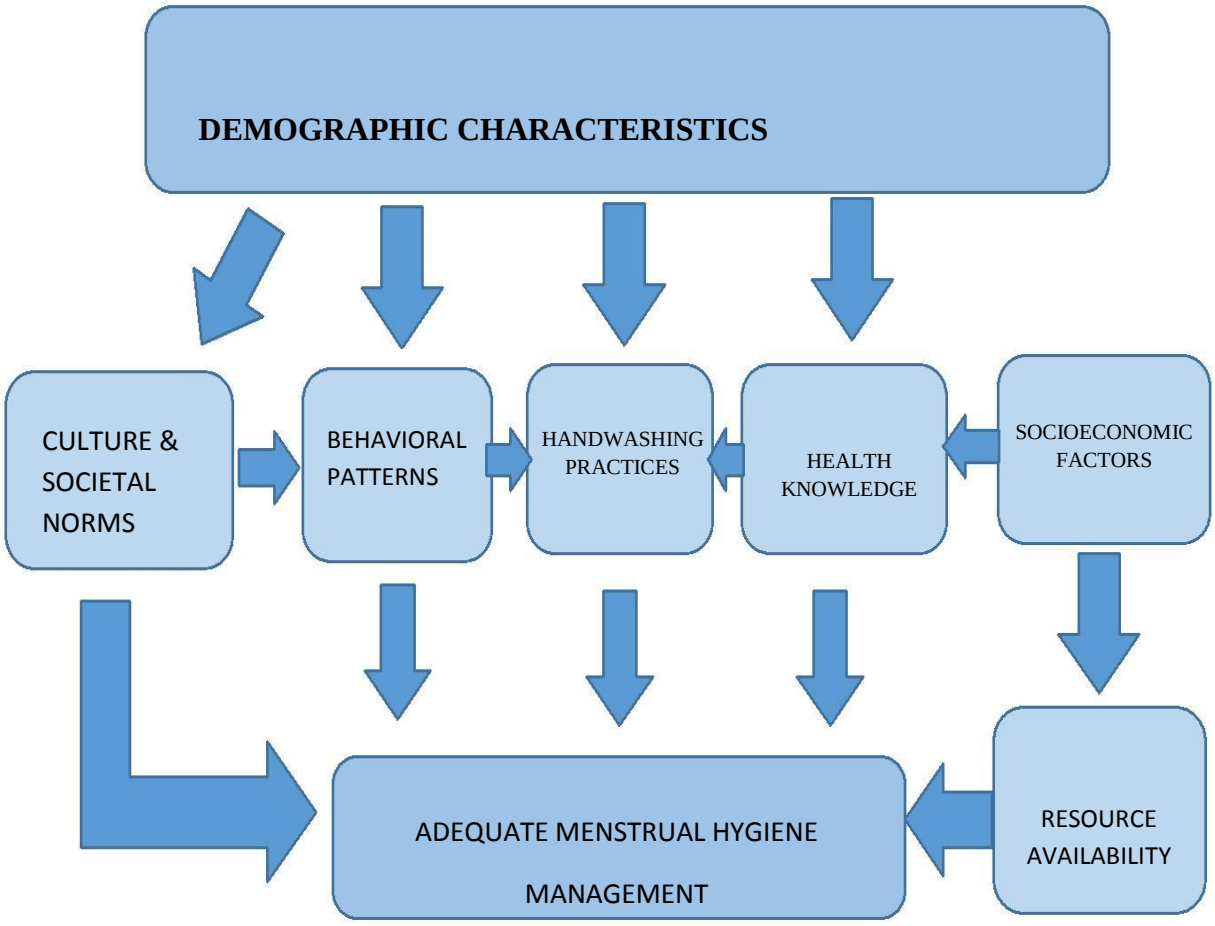

Figure 1: Conceptual Framework Design for the Study

The above figure represents the conceptual framework for the study on menstrual hygiene management among basic school girls in Legon, Accra. It explains the association between the outcome (dependent) variable – adequate menstrual hygiene management and the independent variables (demographic characteristics, socio-economic factors, hand washing practice, behavioral patterns, culture and societal norms, health knowledge and resource availability); which helps to determine the likely backgrounds and explanations for patterned conditions of the problem.

Demographic characteristics such as the age, educational level (grade in school), religion and ethnicity of the girl child influence their interpretation of culture and

societal norms which in turn influences their hand washing practices, more so, their adopted behavioral patterns of good MHM.

Socio-economic factors impacts a great deal, the health knowledge acquired by the adolescent girls in general MHM as well as its implementation through proper hand washing practices. The frequency of hand washing during the menstrual cycle is also dependent on the demographic characteristics of these adolescent girls.

Socio-economic factors, have a long way to go in resource availability for the adolescent girls which in turn improves their MHM.

1.4 Justification

The research finds justification in the relationship between menstrual health issues, girl child education and development of the society. Where there is poor MHM, the girl child can be adversely affected; she could be stigmatized and this could further lead to absenteeism in school. Where absenteeism is prolonged, the education of the girl child is adversely affected and so is her development as well as that of the society. Thus there is need for an understanding of the issues and its relationships, if illiteracy is to be curbed and development fostered in the society (House, Mahon, & Cavill, 2013).

In addition, the issue of MHM is multi-dimensional, and a similar multi-dimensional approach is needed to combat it. Thus, the research was to provide data for planning and policy formulation for the Ministries of Health and Education in that regard.

1.5 Research Objectives

1.5.1 General Objective

The general objective of this study was to assess menstrual hygiene practices among Basic School girls in Legon, Accra.

1.5.2 Specific Objectives

1. To determine perceptions and practices on menstrual hygiene among Basic School Girls.
2. To conduct a sanitary survey of facilities in these Basic Schools.
3. To determine association of hygiene knowledge and menstrual hygiene practices.

1.6 Research Questions

1. What are the menstrual hygiene management practices employed by Basic School Girls in Legon?
2. Are there adequate sanitary facilities available to the pupils to enable them maintain menstrual hygiene?
3. Are these pupils exposed to adequate menstrual hygiene knowledge in school?
4. Do they have any pre-menarche training from home?

1.7 Organization of the Study

The research is grouped into five chapters. Chapter one has the background of the research studied, statement of the problem, research questions, also the objectives of the research as well as the justification for conducting the research. Chapter two reviews important literatures associated with the research studied, also the conceptual framework for research. Chapter three outlines the study area, study design, target population, the

sampling procedures, sample size, all research instrument used during the study, data as well as its sources, data processing, its analysis and the ethical issues arising from the research. Chapter four states data analysis, and presentations, while Chapter five explains the results of the study, with Chapter six providing conclusions and recommendations of the study.

CHAPTER 2

2.0 LITERATURE REVIEW

This chapter seeks to review available and significant literatures that impact on this research: that is, research that discuss the importance of MHM, its link with girl child education and it relevance to society at large. The study literature was conducted using PubMed, Science Direct and Hinari search engines.

2.1 The importance of Adequate Menstrual Hygiene Management

Disease outbreaks in a geographical location could be influenced by human attitudes resulting from hygiene practices which can cause various health problems or may even lead to death (Assefa & Kumie, 2014). Absence or poor menstrual hygiene management especially among adolescent girls have significant consequences, with proven association between it and reproductive, urinary tract infections and diseases which can be assessed in terms of way of sanitary protection (Aniebue et al., 2009). This is because for example the use of unclean sanitary cloth to absorb blood flowing from the cervix during menstruation expose the individual to infection (Chin, 2014). The impact of this practice on the society at large is the fact that poor MHM negated efforts targeted at achieving goals 2 and 5 of the erstwhile Millennium Development Goals (MDGs) which were the achievement of universal primary or basic education and the improvement of maternal health respectively before the end of year 2015 (Chin, 2014).

On the strength of the foregoing, it is obvious that if MHM is not put in the front burner of discourse, efforts at achieving goal 3 (ensure healthy lives and promote well-being for all at all ages), goal 4 (ensure inclusive and equitable quality education and promote lifelong learning opportunities for all) and goal 6 (ensure availability and sustainable management of water and sanitation for all) of the newly adopted Sustainable

Development Goals (otherwise known as the Global Goals which builds on the MDGs) (UNDP, 2015), would also be frustrated.

Thus research into Menstrual Hygiene Management among Basic School girls in Legon was very important so as to know and tackle various health issues associated with it. This is because a girl child has a right to education which is an intelligent asset that will yield long term gains for her immediate family, nation and enhance sustainable development for future generation (Boosey, Prestwich, & Deave, 2014).

2.2 Absenteeism from school

Menarche attainment or onset of menstruation, is associated with MHM issues and this could become a barrier to the adolescent girls' education (Ribeiro, Kobayashi, & Beuthe, 2013). This is because they have the fear of staining their school uniform with menstrual blood, abdominal cramps and loss of concentration during school lessons (Chin, 2014). Research has shown that about 95% of Ghanaian girls do not attend school during menstruation, while 53% of girls in Nairobi, Kenya, and 51% of Ethiopian girls absent themselves from school mostly as a result of absence of sanitary resources in schools (Yagnik, 2015). Other research revealed that the fear of stigmatization as a result of complaining of lack or insufficient sanitary material or soiled uniforms also leads to absenteeism from school for the total days of her menstruation (Kirk & Sommer, 2006). This realization, has therefore proved that MHM has a significant effectiveness in improving school attendance (Sommer, 2010). For example, a 9 – 14% improvement in school attendance due to provision of sanitary products has been recorded in Ghana (Chin, 2014). This therefore implies that enhancing MHM was important to the actualization of the MDG goal 3: "Eliminating gender disparity in primary and secondary education, preferably by 2005 and in all levels of education no later than

2015" (Parker et al., 2014), and the attaining of the sustainable development goals (SDG).

2.3 Sustainability of menstrual hygiene management resources

This relates to utilization of resources per time without it jeopardizing the fore ability to make use of the resources. MHM facilitates the achievement of goal 3 (ensure healthy lives and promote wellbeing for all ages), goal 4 (ensure inclusive and equitable quality education and promote lifelong learning opportunities for all), goal 5 (achieve gender equality and empower all women and girls), and goal 6 (ensure availability and sustainable management of water and sanitation for all) of the newly adopted Sustainable Development Goals. Attaining and sustaining these 4 SDG goals have significant correlation with good MHM in the sense that the attainment of good MHM facilitates the attainment of SDG goals 3, 4 and 5 while the attainment of SDG goal 6 support the achievement of good MHM. For example, with the provision of sanitary products, efficient disposal facilities and water, the health and well-being of all the girls are assured (i.e. goal 3). Inclusive, equitable quality education and promotion of lifelong learning opportunities for the girls are made possible (i.e. goal 4). the availability and sustainable sanitation for the girls (i.e. goal 6) promotes good MHM while good MHM in itself facilitates empowerment of women and girls and thus gender equality (goal 5). In a Ghanaian study, adolescent girls complained of fear and anxiety of menstruation beginning during school hours with no sanitary material, water and soap. Although the Ministry Education had a policy of keeping materials including sanitary pads in schools in case a girl child required it urgently, these could not be physically verified (Ribeiro, Kobayashi, & Beuthe, 2013).

2.4 Family support and Menstrual Hygiene Management

The family's communication to the adolescent girl child is of great importance because various activities relating to sexual activeness starts early for these girl children (Ayalew et al., 2014). All forms of love, care and support that make a girl child feel accepted are important factors in the achievement of MHM. Where parents especially mothers do not teach their adolescent girls what to expect and how to go about it at menarche due to varied reasons which include that the culture forbids sex education or that they themselves are inexperienced, the child is put in a disadvantage position, ill-prepared for menstruation and these could bring about psychological instability of the girl child (Kirk & Sommer, 2006). Considering also that peer influence could have a strong bond negatively on a girl child, it is therefore important for parents to know who their children's friends are (AlQuaiz, & Al Muneef, 2013).

2.5 Influential Factors

Several factors influence the achievement of menstrual hygiene management among adolescent girls. Some of these factors include:

2.5.1 Role of Health knowledge

Reviews have shown that reproductive health which includes school health has been of interest recently to the Ministry of Health and Education in most developed and developing countries. For example, in Iran, health education and hygiene practices during menstruation was incorporated into the routine education which was already in progress and subsequent studies acknowledged the fact that health education conducted by teachers and school health, reduces misconceptions and practice about menstruation by the girl child (Fakhri, et al., 2012). This has been seen to be very important as it is

surprising to realize that about 60% of students surveyed in a study had no knowhow of the fact that there is possibility of the transmission of illnesses from human waste including menstrual blood (Vivas et al., 2010). A study conducted in Nepal had 67.5% of adolescents being aware of menstruation before menarche but majority did not know where the menstrual bleeding is coming from (Mahon & Fernandes, 2010). This means that lack of or inappropriate sexual health information could lead to different health risks and social difficulties (AlQuaiz et al., 2013). Therefore, knowledge of how general body maturation processes takes place, knowledge on the risk of unwanted pregnancy and sexually transmitted disease gained from MHM could improve the wellbeing of the girl child and society (Kirk & Sommer, 2006). To combat the health and associated challenges menstruation poses to the girl child, there is need for health education focusing on menstrual hygiene management from home and especially at school (Vivas et al., 2010).

Health education and knowledge of MHM is needed to make adolescent girls see the need to wash their hands. This means that the education on hand washing and factors that could motivate the practice of hand washing should be considered. This is important as there is a connection between the girl child with her clean hands, knowledge of MHM, good grades in school and the development of the society (Vivas et al., 2010).

2.5.2 Role of Culture and societal norms

Various cultural beliefs and norms associated with menstruation influence knowledge of MHM. Most of these cultural practices and societal norms amounts to putting a woman's life style on hold during the period of her menstrual flow, such as preventing her from cooking, bathing or sleeping at home (Chin, 2014). These restrictions though long in existence, still have strong influence on adolescent behavior towards menstrual

practice today (Yagnik, 2015). Studies have also revealed that adolescent girls have difficulty in understanding hygiene knowledge associated with menstruation as a result of the unhealthy and false practices associated with it, some considering it a taboo and secret matter (Fakhri et al., 2012). A study in Lebanon revealed that 89.5% of adolescent girls adopt cultural beliefs of not bathing during first three days of menstruation or even as long as the period last, rather than following prescribed menstrual hygiene practices (Tania, et al., 2013).

2.5.3 Influence of hand washing

There are set guidelines by WHO on hand hygiene so as to increase good hygiene practices in various settings notwithstanding type of resources or background (Allegranzi & Pittet, 2009), and since it is realized that hands have become an essential method for the transmission of illnesses, sanitary facility utilization pattern and hand-washing practice are some of the activities that have received attention of public health practitioners (Assefa & Kumie, 2014).

2.5.4 Availability of Sanitary products

The absence or insufficiency of sanitary products and materials of all types, water and soap, and sanitary facilities influences the achievement of MHM among the adolescent girls. A study conducted by Ribeiro, et al., 2013, showed that only one (1) out of the twenty (20) selected schools had a girls-only private space for changing sanitary products when menstruating and only two had water close by. Ghana is one of the developing countries without adequate water and sanitation. Nearly 15000 under 5 children die yearly from diarrhea resulting from lack of basic sanitation and poor hygiene; and 40% of diarrhea cases could have been prevented assuming hand washing

practice was employed at critical moments (Gyabaah & Awuah, 2009). Worthy menstrual hygiene management depends on clean water supply for cleaning and washing as well as adequate sanitary facilities for changing menstrual products during menstruation especially during school sessions (Parker et al., 2014). The foregoing therefore highlight the linkage between water, sanitation and hygiene; and the MDGs (Chin, 2014).

Supplies of menstrual sanitary materials, availability of private facility for changing and access to soap and water gives better hygienic and healthy well-being, while absence or insufficient access to menstrual resources are part of the reasons why adolescent girls do not wash their hands or adequately manage menstrual hygiene at government owned basic schools (Vivas et al., 2010; Ribeiro et al., 2013). Whereas sometimes these resources appear to be available, there could be deprived access to hygienic and functioning sanitary facilities for adolescent girls leading to poor management of menstrual flow. The reason for this is attributable to the fact that the facilities may either be under lock and key or not providing acceptable pattern of privacy (Chin, 2014).

The relationship between resources and MHM appears to have been understood by the government of Ghana. This assertion is promised on the recent Secondary Education Improvement Project (SEIP) of the Ministry of Education. Pillar 1 of Component 1 of the SEIP targets improving access and equity in 15 senior secondary schools by the provision of scholarship to girls which also cover the provision of sanitary materials to the beneficiaries (Education & Project, 2014). Worthy too of note is the Indian budget allocation for menstrual sanitary products of targeted girls about the ages 10-19 years and inclusive of girls classified as living below the poverty line leading to a continuous progress of the wellbeing of these women (Yagnik, 2015).

2.5.5 Risk of infection in the menstrual cycle

There are health risks to which adolescent girls are predisposed as a result of improper hygiene practices during menstruation, sometimes even leading to stigmatization because menstrual blood has a bad odor which can spread all through the body when proper hygiene practice is not exhibited by the girl child. These outcomes are commonly due to unhygienic practices such as use of dirty sanitary facility, absence or poor hand washing skills, improper genital washing during menstruation, and cultural practices such as the cutting of the genitalia popularly seen as female circumcision, with pain experienced during menstruation (dysmenorrhea) causing discomfort and increasing susceptibility to acquiring further health related issues (Kirk & Sommer, 2006). The risk of infection seems really high during menstruation because at this time, the mouth of the cervix is open and allows blood to come out into the vaginal and out of the body, (Abajobir & Seme, 2014) and (Kirk & Sommer, 2006). This process creates a passageway for bacteria to travel back into the uterus and pelvic cavity. Poor hygiene practices during menstruation have also been noted to increase female infertility and morbidity due to reproductive tract infections (Ramaswamy, 2011).

Parker et al., 2014 reviewed studies on MHM in developing countries and described links between MHM and vagina or urinary tract infections. For summary of practices and associated health risk, please see table 2.

Table 2**: Menstrual practices and associated health risk**

Practices	**Health risk**
Unclean sanitary materials.	Bacteria may cause local infections to travel up to the vagina and the uterine cavity.
Changing materials infrequently.	Wet sanitary materials can cause skin irritation and breakage which can then get infected.
Insertion of unclean material into vagina.	Bacteria potentially have quicker access to the cervix and uterine cavity.
Using highly absorbent tampons during a time of light blood loss.	Toxic shock syndrome.
Use of tampons when not menstruating to absorb vaginal secretions.	Can irritate the vagina and delay the seeking of medical advice for the cause of unusual vaginal discharge.
Wiping from back to front following urination or defecation.	Enhance the introduction of bacteria from the bowel into the vagina.
Unprotected sex.	Can increase risk of Sexually Transmitted Infections (STIs) or Sexually Transmitted Diseases (STDs) during menstruation.
Unsafe disposal of used sanitary materials or blood.	Risk of infecting others with STIs or STDs.
Frequent douching (forcing liquids into vagina).	Can increase the introduction of bacterial into the uterine cavity.
Lack of hand-washing after changing sanitary material.	Facilitates the spread of infections like Hepatitis B or Thrush.

Source: (House et al., 2012).

2.5.6 Socio-economic factors

Adequate menstrual hygiene management can be linked to the socioeconomic factors underlining the adolescent girl child as this is reflected in her hygiene behavior especially good hand washing practice and prevention of dirt and smell from excretion or menstrual blood (Assefa & Kumie, 2014). Socio-economic factors are the most influential in determining MHM in that when using unsanitary or low standard menstrual absorbent materials, which are common among adolescent girls from poor or low income background, they tend to be at higher risk of infection exposure compared to girls from a middle class or high socio-economic status (Ribeiro et al., 2013). Wearing of torn or blood-stained clothes during menses increases vulnerability and insecurity of the girl child. Poverty and poor financial status therefore play a major role in determining the type of sanitary products a girl child uses. There is therefore need for improved access to menstrual resources including menstrual information before menarche (Omidvar & Begum, 2010). More so, adolescent girls from low socio-economic class have a higher disease burden associated with inadequate MHM which may further increase their vulnerability to HIV, human papillomavirus infection and adverse pregnancy outcomes (Sumpter & Torondel, 2013).

CHAPTER 3

3.0 METHODS

Quantitative methods were employed in the study. This section describes the study area, research design, the variables, study population, sampling method, sample size, data collection techniques and quality control, data processing and analysis as well as ethical considerations.

3.1 Study Design

This research was a cross-sectional descriptive study in which self-administered questionnaires were employed to collect data, followed by an evaluation of sanitary provisions in the school using a survey process.

3.2 Study Area

The study was carried out in Basic Schools within the University of Ghana, Legon. The Campus is about 13 kilometers, north-east of Accra, the capital of Ghana, at an altitude of between 300 and 400 feet from the main University gate on the Dodowa Road. The University Avenue extends to Commonwealth hall on Legon hill. Along the University Avenue are groups of other halls of residence, schools, departmental lecture rooms and laboratories. Midway from the Avenue is the University square, with an ornamental pool overlooked by the Balm library which was named after the first principal of the school, David Mowbray Balme. Across the University square are sport fields and halls of residences. On the southern part of the school are residential accommodation for staff, halls of residence, the University of Ghana Basic School and the Noguchi Memorial Institute for Medical Research. To the left hand side is the School of Public Health with various departments, lecture halls and laboratories. The University Staff Village Basic

School is located adjacent to the main university of Ghana, Legon gate, opposite the University of Ghana school clinic.

3.3 Variables

3.3.1 Dependent Variable

Menstrual Hygiene Management

3.3.2 Independent Variables

These included the following:

i. Demographic characteristics
ii. Health/ hygiene knowledge
iii. Behavioral patterns
iv. Culture and societal norms
v. Hand washing practice
vi. Resource availability
vii. Socio economic factors

3.4 Study Population

Participants in this study comprised all adolescent school girls from the University of Ghana (UG) Legon Basic School, a private Basic school which comprised of students of high socio economic characteristics; Legon Staff Village Basic School with low socio economic characteristics and who all had attained menarche. UG Legon Basic School had about 60% population of girls, with nearly 40% constituting Boys' population.

Legon Staff Village Basic School however, had nearly equivalent statistics of her schools' population for Boys (48.7%) and (51.3%) Girls.

3.5 Sample Size determination

For the purpose of this study, a 95% confidence level was used with a margin of error of 6.76% or $\varepsilon = 0.0676$ and population (estimated percentages of adolescent girls with good MHM) proportion of 0.5 or 50%.

Considering,

$$n = \frac{z_{\alpha/2}{}^2 pq}{\varepsilon^2}$$

Where,

n Represents the sample size (selected adolescent girls in Universities of Ghana Basic School and Legon Staff Village Basic School).

$Z_{\alpha/2}$ Denote the critical value and α representing significance level

p Represents the estimated percentages of adolescent girls with good MHM

With $q = 1 - p$

ε Represents the tolerable error or margin of error

Now,

For $\alpha = 0.05$, $p = 0.5$, $q = 1 - p = 0.5$, $\varepsilon = 0.0568$ and $Z_{0.025} = 1.645$

Implies $n = \frac{1.96^2 \times 0.5 \times 0.5}{0.0676^2} = 210.16 \approx 210$ female students.

However, to account for non-response and attrition bias, the desired sample size was increased by 5%, given a total of 221 female students.

Hence, 221 females from University of Ghana Basic School and Legon Staff Village Basic School were administered questionnaires on the underlying topic. This sample

size was representative and sufficient enough to make inferences or generalizations on adolescent girls with good MHM in Legon, Accra.

3.6 Inclusion and Exclusion Criteria

3.6.1 Inclusion Criteria

Only adolescent girls who had attained menarche were included in the study.

3.6.2 Exclusion criteria.

Adolescent girls in the two basic schools who had not attained menarche.

3.7 Data Collection Tools, Techniques/ Methods

3.7.1 Data collection tools

The tools that were used for data collection included a checklist, self- administered questionnaire which was completed by all students. It consisted of open-ended and closed ended questions with sections for demographic data of students and questions on menstrual hygiene management practices.

3.7.2 Data Techniques/ Methods

The data collection techniques that were used were sanitary evaluation/ inventory and the use of questionnaires.

3.7.3 Use of questionnaires

The questionnaire was one of the means used for collecting information. Prior to the data collection period, the Basic Schools were visited to inform them of the selection criteria that participants would have to meet. An empty class room was selected during break

session for data collection to prevent participants from staying out of school lessons. Students from class 5 to JHS 3 from the University of Ghana Basic School and Staff village Cluster Basic School who had started menstruating participated in the study through random selection under strict monitoring so as not to influence each other's answers when conversing among themselves. The following procedures were employed to ensure that questionnaires were properly administered.

3.7.3.1 Staff Village Cluster Basic School

Step no. 1: A sampling frame was drawn, that is a complete list of all the sampling units of girls who had attained menarche from primary 5 to JHS 3 and the sample size for each school was proportionally allocated to each stratum. Sampling size for each stratum was determined by:

$$n = \frac{\text{Total number of sample size for the school}}{\text{Total number of school stratum}}$$

Where n = Total number of students eligible for participation from each stratum

Thus the total sample size for Staff village cluster Basic School was 107, the total numbers of students to participate from each stratum was:

107/5 = 21.4

A total number of 21 students were eligible to participate in each stratum.

Step no. 2: Students' register containing their names was collected and checked to ascertain for completeness of participants names.

Step no. 3: Systematic method of sampling was used to determine participating students for the study from the total student numbers of each stratum. This was selected by:

$$K = \frac{\text{Total numbers of students from each stratum}}{\text{Total number of students eligible for participation from the stratum}}$$

Where K is the sampling interval.

K = Number of girls in the stratum/ 21

Hence K for Primary 5 was = 48/21 = 2.3; Primary 6: 46/21 = 2.2; JHS1 46/21 = 2.2; JHS 2: 54/21 = 2.6 and JHS3: 49/21= 2.3

Therefore Ks for the stratums were 2, 2, 2, 3, and 2 respectively.

Step 4: The first girls (participants) were a number chosen from 1 to k by simple random sampling (balloting). Afterwards, every Kth girl on the class register was selected and administered questionnaire until the sample size was obtained. When the end of the register was reached, a return to the top of the list was made so as to continue selection of the sampling of the girls.

3.7.3.2 University of Ghana Basic School

Step no. 1: A sampling frame was drawn, that is a complete list of all the sampling units of girls who had attained menarche from primary 5 to JHS 3 and the sample size for each school was proportionally allocated to each stratum. Sampling size for each stratum was determined by:

$$n = \frac{\text{Total number of sample size for the school}}{\text{Total number of school stratum}}$$

Where n = Total number of students eligible for participation from each stratum

Thus the total sample size for University of Ghana Basic School was 102, the total numbers of students to participate from each stratum was:

102/5 = 20.4

A total number of 20 students were eligible to participate in each stratum.

Step no. 2: Students' register containing their names was collected and checked to ascertain for completeness of participants names.

Step no. 3: Systematic method of sampling was used to determine participating students

for the study from the total student numbers of each stratum. This was selected by:

$$K = \frac{\text{Total numbers of students from each stratum}}{\text{Total number of students eligible for participation from the stratum}}$$

Where K is the sampling interval.

K = Number of girls in the stratum/ 20

Hence K for Primary 5 was = 77/20 = 3.85; Primary 6: 61/20 = 3.05; JHS1 83/20 = 4.15; JHS 2: 69/20 = 3.45 and JHS3: 84/20= 4.2

Therefore Ks for the stratums were 4, 3, 4, 3, and 4 respectively.

Step 4: The first girls (participants) were a number chosen from 1 to k by simple random sampling (balloting). Afterwards, every Kth girl on the class register was selected and administered questionnaire until the sample size is obtained. When the end of the register was reached, a return to the top of the list was made so as to continue sampling the girls.

Considering the sensitive nature of the research topic, only female teachers were enlightened on the aims and essence of the survey so as to help with distributing the questionnaires and further explaining the subject matter to students on how the questionnaire was to be rightly answered.

3.7.4 Knowledge Scoring

In determining knowledge categories of the adolescents, the section of the questionnaire consisting questions asked on knowledge were of 12 multiple choice questions which determine the adolescent girls' health/hygiene knowledge regarding: (1) Girls should take their bath frequently when menstruating, (2) Menstrual blood is unhygienic, (3) Menstruation is as a result of hormonal changes, (4) Menstrual blood comes from where,

(5) Menstruation comes every month, (6) Girls may get pimples (acne) during period, (7) Boys get period, (8) Starting menstruation means ready to get married, (9) Starting menstruation means ready to get pregnant, (10) Menstruation is a disease, (11) Menstruation blood contains harmful substances and (12) Girls should not be allowed to cook when menstruating.

Health knowledge of the respondents were scored using a system adopted from previous studies (Haque, Rahman, Itsuko, Mutahara, & Sakisaka, 2014). Each correct response was given 1 point, while incorrect or 'don't know responses had no marks. This gave rise to a total of twelve points of possible scores.

3.7.5 Sanitary Evaluation

After the questionnaire was thoroughly filled by each participant, permission was obtained for detailed sanitary facility evaluation. Total numbers of adolescent girls who responded to the survey questions in Staff Village Basic School were 382 and in UG Basic School 374.

The sanitary survey was carried out with a school teacher as allowed by the Head teachers and the following concerns were examined:

i. Availability of sanitary facilities within the school premises
ii. The number of sanitary facilities that were functional
iii. The ratio of students to one sanitary facility
iv. The source of water used in its maintenance
v. Availability of provisional points for hand washing after use of sanitary facility
vi. Presence or absence of soap and napkin for use after hand washing as well as sanitary products in case of emergency.
vii. Availability of waste bins for sanitary waste disposal.

3.7.6 Inventory

Reports seen and answers based on questions asked were enumerated and the checklist filled as appropriate.

3.8 Quality Control

To ensure good quality of the study and uniformity, the data was standardized during collection.

Only research assistants with dependable experience were trained for the purpose of this study so as to guarantee they had skills and knowhow in the objectives and methodology of the study.

Collected data was thoroughly checked to prevent error in information gathered.

For all detected errors during data collection process, essential amendments were made after critical review with the research assistants.

Questionnaires were confirmed for correctness and completeness before they were acknowledged. Numbering of questionnaires were made when entering data so as to prevent double entering of such questionnaire. Nevertheless, two persons were allowed to enter data to ensure appropriate and adequate data entry.

3.9 Data Processing and Analysis

Each completed coded questionnaire was checked manually on hard copy to ensure no information was missed. Background features of the survey respondents were obtained and entered into the Excel 2013 version. This was imported into Stata version 13 software package and analyzed using descriptive as well as inferential statistics.

Association between the variable Menstrual Hygiene Practices and Health/ Hygiene Knowledge was calculated using chi-square. Results were expressed as percentages and

presented using tables, frequency distributions and graph.

The outcome (dependent) variable was Menstrual Hygiene Management while the independent variables were Health/ Hygiene knowledge, Behavioral patterns, Culture and societal norms, Hand washing practices, Resource availability and socio-economic factors.

3.10 Pretesting of Instrument

The instrument was pre-tested in Immanuel Presbyterian School, Madina. This was done by randomly administering draft copies of the questionnaire to Basic School pupils of similar characteristics as the study population thus enabling the researcher to modify the questionnaire for an efficient research study. All necessary corrections were made on the questionnaires before collecting data for the study. The pretesting enabled the research team to ascertain adequacy of the research questions, time estimate for each questionnaire as well as make better preparations for the actual data collection in the study.

3.11 Ethical Consideration

3.11.1 Permission and Consenting Process

The ethical clearance to conduct this research was sought from the Ghana Health Service Ethical Review Board. In addition, permission and clearance was also obtained from the Director, Metro Educations Board and selected Basic School's headmasters/mistresses.

Permission to send written informed consent forms to parents/ guardians of pupils was also obtained from authorities of the schools and thereafter issued to the pupils to be signed by their parents/ guardians while assent forms were signed by the participants

before administration of questionnaires.

3.11.2 Privacy/ Confidentiality

All respondents were assured of confidentiality and anonymity. The researcher ensured privacy for the respondents during interviews and data collection.

3.11.3 Potential Risks/ Benefits

All respondents were fully informed that the research poses minimal or no physical or mental risks and had no immediate benefit to respondents.

3.11.4 Voluntary withdrawal

Participants were free to withdraw at any time during the research. Participation was completely voluntary.

3.11.5 Compensation

There was no compensation given to respondents**.**

3.11.6 Data Storage and Usage

Completed questionnaires were stored in a locked file cabinet while the electronic data file was password protected and restricted to only the principal investigator.

3.11.7 Declaration of Conflict of Interest

The principal investigator had no conflict of interest in this research.

3.12 Challenges or limitations of the study

The main challenge encountered during the field work of the study was the unwillingness of the school head teachers to allow some of the younger primary school adolescent girls to participate in the study even though they were eligible (had attained menarche). This was because they believed that girls attain menarche these days at an early age, and they still might not be knowledgeable enough to understand most questions that would be asked regarding their Menstrual Hygiene Management practices, and as such should not be respondents.

Since questionnaires were administered during school sessions, it was difficult to get good time for the proposed numbers of respondents to be sampled daily due to time constraints, conflict with school schedules and unwillingness of most participants to let go of their break time to complete the questionnaire. A longer period of time (several weeks) was used to administer questionnaires to obtain required sample size.

An important limitation to this study is that the findings in this study were based on self-reported results which may therefore differ from real behavioral practices. Adolescents may have exaggerated their use of good menstrual hygiene in order to satisfy the interviewer.

CHAPTER 4

4.0 RESULTS

This chapter presents the results of the study and the analysis of MHM among Basis School girls in Legon. It highlights various factors such as the socio demographic characteristics, socio economic factors, health/ hygiene knowledge, culture and societal norms, menstrual hygiene practices, menstrual resources availability, hand washing practices, absenteeism as well as self-esteem. A total of 235 questionnaires were administered in the two schools and 209 (94.6%) completely filled questionnaires were recovered and analyzed.

4.1 Socio-demographic characteristics of respondents

Table 3 represents the sociodemographic characteristics of the respondents. It shows that majority, (89.0%) of the respondents were between the ages 12-15 years, with a mean age of 13.4 years and standard deviation (SD) of 1.3. Among the respondents, 209 (100%) had attained menarche.

About 68 (32.5%) of the respondents were in JHS 2; 52 (24.9%) in JHS 1; 33 (15.8%) in JHS 3; 29 (13.9%) in Class 6 while 27 (12.9) were in Class 5. At least 45% of the respondents attained menarche at age 12, and 35% at age 13. The mean age of girls at menarche was 11.9 years with a SD of 1.2. Almost all (96.2%) identified themselves as Christians, and 3.8% as Muslims. There were no Traditional or other forms of worshipers. The respondents were from various ethnic groups including Akan, 43.5%, which was the predominant ethnic group. This was followed by Ewe 31.6%; Ga 13.4%, and Northern 8.6%. Other ethnic groups constituted 2.9% of the respondent population. This is due to the fact that the selected Basic Schools are situated in the Greater Accra

Region in the capital of the country Ghana, with different settlers therein. Among the 209 respondents, 69.9% of them were surprised at the onset of their first menses; 12.9% were happy; 10.5% were sad and 6.7% indicated preparedness.

Table 3**: Socio-demographic Characteristics of the Adolescent Girls in the Basic Schools in Legon**.

Characteristics	Numbers (N)	%
Age (years)		
Mean ± SD	13.4 ± 1.3	
Age of first menses (years)		
Mean ± SD	11.9 ± 1.2	
Grade in school		
Class 5	27	12.9
Class 6	29	13.9
JHS 1	52	24.9
JHS 2	68	32.5
JHS 3	33	15.8
Religion		
Christianity	201	96.2
Islam	8	3.8
Ethnicity		
Akan	91	43.5
Ewe	66	31.6
Northern	18	8.6
Ga	28	13.4
Other	6	2.9
Feeling at the onset of first period		
Prepared	14	6.7
Happy	27	12.9
Sad	22	10.5
Surprised	146	69.9
Total	209	100.0

4.2 Socio economic factors of respondents

Table 4 presents the socio-economic status of the respondents. Considering the number of family members that the respondents live with, 68.9% live with 5 or more family members while 31.1% with less than 5. It was found that 97.6% of the respondents indicated they always had enough food to eat, while 99.0% of respondents and their families always had clean water at home as shown in the result table 4.

Asked if respondent and family ever needed medical treatment but couldn't afford it, only 17.7% of the respondents indicated in the affirmative. Results also showed that 80.9% of respondents' families always had means of paying for school expenses, 73.7% of the adolescent girls had bought sanitary products from a shop within the last six months, and majority (98.1%) of the girls admitted being given money to school. This amounted to 49.3% of the respondents being given an average of above 6Ghc a week, 27.8% (2-4Ghc), 17.7%% (2-4Ghc) and 5.3% (0-2Ghc) per week. Regarding ever wanting to buy disposable sanitary pads from the shop but being unable to, 70.8% of the adolescent girls responded "No", and 29.2% "Yes". Ninety-eight percent of respondents who indicated yes identified the reason as not having enough money to buy while 21.3% indicated their reason as no disposable pads for purchase.

Table 4**: Socio-economic Factors among Adolescent Girls in the Basic Schools in Legon.**

Socio-economic factors	N	%
Nos. of family lived in		
Less than 5	65	31.1
Five (5) or more	146	68.9
Always had enough food to eat		
Yes	204	97.6
No	5	2.4
Always had clean water for use		
Yes	207	99.0
No	2	1.0
Needed medical treatment but couldn't afford		
Yes	37	17.7
No	172	82.3
Always had means to pay school expenses		
Yes	169	80.9
No	40	19.1
Bought sanitary products from shop in last six month		
Yes	154	73.7
No	55	26.3
Given money to school		
Yes	205	98.1
No	4	1.9
Average money given a week		
0-2	11	5.3
2-4	37	17.7
4-6	58	27.8
Above 6	103	49.3
Unable to buy sanitary products		
Yes	61	29.2
No	148	70.8
Total	209	100

4.3 Health/ Hygiene knowledge of the respondents

Table 5 shows level of health, hygiene and menstrual information from home, as well as sources from which menstrual information was obtained before menarche. At least 98.4% of the respondents affirmed that it was necessary that girls take their bath frequently during menstruation.

As to whether menstrual blood was unhygienic, more than half (58.85%) of respondents indicated yes, and 83.3% knew that menstruation was a result of hormonal changes in the body.

Although 33.0% of the respondents did not know where menstrual blood comes from, 31.1% indicated the womb as the source, 26.3%, the abdomen and 9.6% the bladder. The majority (88.5%) of the respondents knew that menstruation comes every month after a girl reached menarche and 70.3% of respondents indicated that girls may get pimples during menstruation. At least 92.8% of the respondents knew that boys did not get menstruation however 5.7% were not sure.

As to whether menstruation means a girl was ready to get married, 85.7% of the adolescent girls responded in the negative while 10.1% responded in the affirmative and nearly half (49.3%) of the respondents indicated that starting menstruation meant that the girl was ready to get pregnant.

About 70.8% of the adolescent girls admitted being taught from home about menses and mothers were predominantly found to be the first source of menstrual information, with about 84.0% of the respondents indicating their mothers as the first to talk to them about menses followed by sisters (10.0%) and friend (6.0%).

Other sources of menstrual information indicated by respondents included aunt, grandmother and teacher. Almost all of the respondents (98.6%) in this study identified being taught health and hygiene practices in one of the subjects of study in school.

Table 5**: Health/ Hygiene Knowledge of the Adolescent Girls in the Basic Schools in Legon**

Knowledge	N	%
Girls should take bath frequently		
Yes	206	98.6
No	2	1.0
Don't know	1	0.5
Menstrual blood is unhygienic		
Yes	123	58.9
No	64	30.6
Don't know	22	10.5
Menstruation results from hormonal changes		
Yes	174	83.3
No	6	2.9
Don't know	29	13.9
Menstrual blood is from		
Womb	65	31.1
Abdomen	55	26.3
Bladder	20	9.6
Don't know	69	33.0
Menstruation comes every month		
Yes	185	88.5
No	7	3.4
Don't know	17	8.1
Girls may get pimples (acne)		
Yes	147	70.3
No	29	13.9
Don't know	33	15.8
Boys get period		
Yes	3	1.4
No	194	92.8
Don't know	12	5.7
Menstruation means ready to get married		
Yes	21	10.1
No	179	85.7
Don't know	9	4.31
Menstruation means ready to get pregnant		
Yes	103	49.3
No	95	45.5
Don't know	11	5.3
Taught from home about menstruation		
Yes	148	70.8
No	61	29.2
First to talk to about menstruation		
Mother	168	80.1
Sister	20	9.6
Friend	12	5.7
Other	9	4.3
Learn health/hygiene in school		
Yes	206	98.6
No	3	1.4
Total	209	100.0

4.4 Culture and societal norms

Different cultural and societal norms were highlighted by the respondents in this study. Majority of the respondents (93.8%) indicated that menstruation is not a disease, and as to whether menstrual blood contained harmful substances, 34.0% responded wrongly that menstrual blood contains harmful substances. Menstruation talk wasn't a taboo in most (85.7%) of the respondents' culture, while in answering whether adolescent girls should not cook during menses, 83.3% of respondents indicated they should.

4.5 Menstrual Hygiene Practices

Table 6 shows the menstrual behaviors and practices of the respondents. A little above half of the respondents (51.7%) had a menstrual flow duration of 1-4 days, 39.2% (5-7 days) and 9.1% (Above 7 days). Virtually all (99.0%) respondents identified to regularly taking their bath when menstruating. Responding to frequency of taking bath daily when menstruating, 68.0% of the respondents took their bath twice daily, 20.6% three time or more), 10.1% once, 1.0% did not remember and only 0.5% of the respondents did not take bath daily during menstruation.

As to the number of times the adolescent girls changed their sanitary products daily when menstruating, about half of the respondents (50.2%) indicated three times or more, 47.4% twice, and 2.0% once. In responding to the method of disposal of sanitary products after use, 60.77% of the 209 respondents wrapped and put them in a dustbin, 33.01% burnt them, 17.7% buried them, 2.0% washed, and about 2.0% flushed them in the toilet. At least 74.6% of the respondents were found to change sanitary products while in school, of which 76.1 indicated getting a private place to change during school hours when menstruating, and 23.9% did not.

In specifying level of pain (dysmenorrhea) experienced during menstruation among the respondents, 16.8% of them had no pain, 11.0% had mild pain, 39.2% of the adolescent girls had a painful menstruation, 20.6% had very painful, while 12.4% had extremely painful menstruation. Among the respondents who had dysmenorrhea, 13.9% resulted into absenteeism from school during the menstruation days.

Table 6**: Menstrual Hygiene Practices for Adolescent Girls in Basic School Girls in Legon**

Hygiene Practices	N	%
Days bled in a month		
1-4	108	51.7
5-7	82	39.2
Above 7	19	9.1
Take bath when menstruating		
Yes	207	99.0
No	2	1.0.
No. of times bath taken daily		
None	1	0.5
Once	21	10.1
Twice	142	67.9
Three times or more	43	20.6
Don't remember	2	1.0
No. of times sanitary products changed daily		
None	1	0.5
Once	4	1.9
Twice	99	47.4
Three times or more	105	50.2
Methods of disposing used sanitary products*		
Bury	37	17.9
Burn	69	33.3
Wash	4	1.9
Wrap in a dustbin	127	61.4
Flush	4	1.9
Change sanitary products in school		
Yes	156	74.5
No	53	25.4
Private place to change in school		
Yes	159	23.9
No	50	76.1
Pain experienced specified		
None	35	16.8
Mild	23	11.0
Painful	82	39.2
Very painful	43	20.6
Extremely painful	26	12.4
Total	209	100.0

* Multiple responses allowed

4.6 Availability of Menstrual Resources

Table 7 represents the availability of resources such as water, soap and sanitary products among the Basic School girls in Legon when menstruating. Regarding availability of water to wash and change, 77.5% of respondents always had water to wash and change

during menstruation. This was followed by those who most times (13.88%) change, and others at few times (6.2%).

The study showed that 97.6% adolescent girls washed their genitals when menstruating. Regarding what was used to wash their genitalia, 61.2% of the respondents used water only, while 38.4% used both soap and water. It was found that 63.6% of the girls had access to soap for use during menses at all times, 13.4% at most times, 10.1% a few times and 12.9% not at all.

Regarding the type of sanitary products used during menses, almost all respondents (98.6%) identified using disposable sanitary pads, this was followed by toilet paper (16.3%), piece of cloth (6.2%), tampon (2.4%), Cotton wool (1.0%), mattress foam (0.5%), and menstrual cup (0.5%).

Table 7**: Menstrual Resources Available for Adolescent Girls in Basic Schools in Legon**

Menstrual Resources	N	%
Have water to wash when menstruating		
Not at all	5	2.4
Few times	13	6.2
Most times	29	13.9
Always	162	77.5
Wash genital when menstruating		
Yes	204	97.6
No	4	1.9
Don't know	1	0.5
What is used to wash genitals		
Water only	128	61.2
Soap and water	80	38.3
Nothing	1	0.5
Access to soap at all times		
Not at all	27	12.9
Few times	21	10.1
Most times	28	13.4
Always	133	63.6
Sanitary Material used		
Toilet paper	34	16.3
Cotton wool	2	1.0
Mattress foam	1	0.5
Disposable sanitary pad	206	98.6
Piece of cloth	13	6.2
Tampon	5	2.4
Menstrual cup	1	0.5
Total	209	100.0

4.7 Hand washing practices

The majority (98.1%) of the respondents had been taught about hand washing practice and 97.6% washed their hands before eating and after toilet use or change of sanitary materials.

4.8 Influence of Menstruation on School Attendance

Table 8 represents school absenteeism generally and particularly as a result of pain (dysmenorrhea) during menstruation. Regarding number of days in a month that the respondents missed school, 72.3% indicated they did not miss school in a month, 12.0%

did not remember, 11.0% missed for 1-2 days, 1.4% missed for 3-4 days, and 3.4% missed for more than 4 days. As to the number of days in a month in which they missed school because of menstruation, 86.1% of the respondents indicated not missing school because of menstruation, 8.61% had missed school for 1-2 days, 1.4% had missed for 3-4 days while 2.9% had missed for more than 4 days while 5.3% did not know.

Furthermore, this study found that 28.2% missed house work because of menstruation while 71.8% did not. Also 3.8% of the respondents missed school for 1-2 days because of house work, 1.9% missed for 3-4 days, 2.4% missed for more than 4 days while 86.6% never missed school because of house work and 5.3% did not remember. Almost half (48.8%) of the respondents missed sport or play because of menstruation, while 45.5% affirmed to menstruation preventing them from walking far.

For those respondents who missed school because of menstruation, 44.8% attributed it to the fear of staining their clothes, 93.1% because of dysmenorrhea, 58.6% because of menstrual discomfort while 10.3% were afraid of other pupils making fun of them. Absence of a private place for changing sanitary products was the reason among 31.0% of those who missed school because of menstruation while lack of sanitary products was the reason in 13.8%. Other reasons given for missing school included sickness, lack of money, rainy days and travel.

Table 8**: Influence of Menstruation on School Attendance among Adolescent Girls in Basic Schools in Legon**

Absenteeism	N	%
Days missed school a month		
None	151	72.3
1-2	23	11.0
3-4	3	1.4
Above 4	7	3.4
Don't remember	25	12.0
Ever missed school because of menstruation		
Yes	29	13.9
No	180	86.1
Days a month missed school because of menstruation		
None	171	81.8
1-2	18	8.6
3-4	3	1.4
Above 4	6	2.9
Don't remember	11	5.3
Miss housework because of menstruation		
Yes	59	28.2
No	150	71.8
Days a month missed school because of house work		
None	181	86.6
1-2	8	3.8
3-4	4	1.9
Above 4	5	2.4
Don't remember	11	5.3
Miss sport or play because of menstruation		
Yes	102	48.8
No	106	50.7
Don't know	1	0.5
Can't walk far because of menstruation		
Yes	91	43.5
No	118	56.5
Other reasons for missing school		
No Money	2	3.3
Rain	2	3.3
Sick	55	90.2
Travel	2	3.3
Total	209	100.0

4.9 Reasons for missing school because of menstruation

Figure 1 illustrates what respondents reported as reasons for missing school during menstruation. The most frequent reason given was dysmenorrhea 27 (93.1%), followed

by menstrual discomfort 17 (58.6%), fear of staining clothes 13 (44.8%), no private place to change 9 (31.0%).

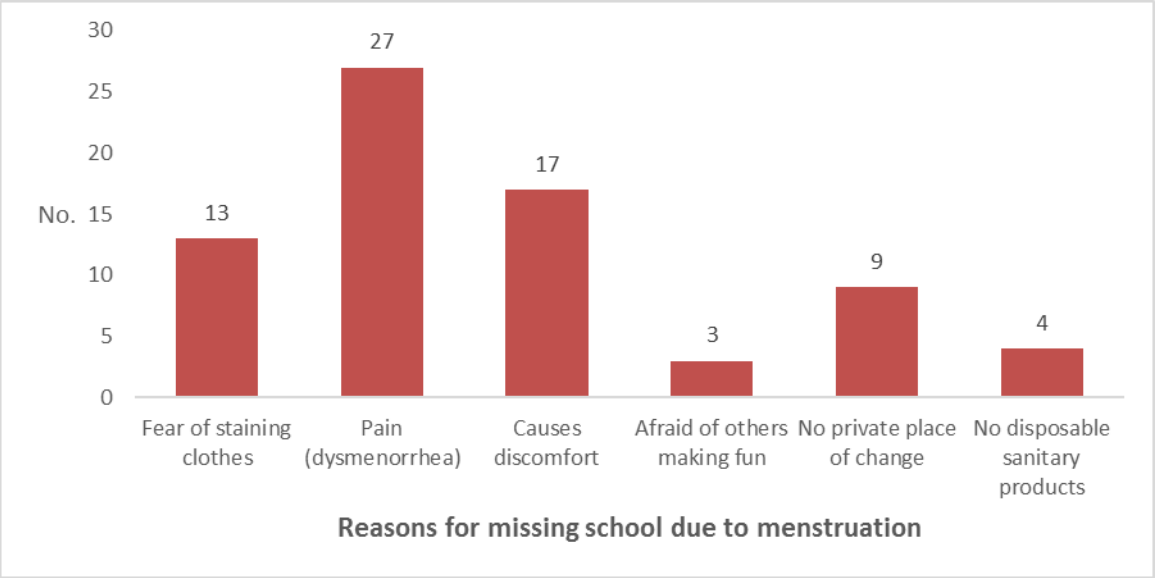

Figure 2: Bar Graph of Reasons for Missing School due to Menstruation among Adolescent Girls in Legon

4.10 Self-esteem

Regarding self-esteem of the respondents during the period of menstruation, 65.1% were satisfied with themselves, 77.5% felt they had a number of good qualities, 70.8% were able to do things others can do, 36.4% felt useless at times, 30.6% had no reason to be proud of themselves, 17.7% felt they were not respected by others while 43.1% felt less confident compared to when not menstruating, As shown in Table 9.

Table 9**: Influence of Menstruation on Self-esteem among the Adolescent Girls in Basic Schools in Legon**

Self-esteem	N	%
Satisfied with self		
True	136	65.1
False	73	34.9
I am no good		
True	68	32.5
False	140	70.0
Have good qualities		
True	162	77.5
False	47	22.5
Able to do things others do		
True	148	70.8
False	60	28.7
Feeling useless at times		
True	76	36.4
False	133	63.6
No reasons to be proud of self		
True	64	30.6
False	144	68.9
Not respected by others		
True	37	17.7
False	171	81.8
Feeling less confident compared to when not menstruating		
True	90	43.1
False	119	56.9
Total	209	100

4.11 Survey of Sanitary Facilities in Basic Schools

Table 10 represents the results of survey of sanitary facilities in the two basic schools studied. The survey, done from March 2nd to April 29th 2016, basically looked at the provision, availability and functionality of some indicators such as the school's committee and clubs, menstrual hygiene resources, menstrual hygiene practices, disposal of used sanitary products and operational maintenance as well as schools' sanitation system.

The survey found school committees like students' clubs and Parents Teachers Associations (PTA) available and functional in the Basic Schools in Legon, and as such, MHM had been promoted in the schools.

Although both Staff Village and University of Ghana Basic Schools had sanitary facilities for the adolescent girls, menstrual hygiene resources such as running water point wasn't regularly flowing. More so, soap for hand washing, sanitary products for the girls were not available as at the time of surveys.

With regards to menstrual hygiene practices of the adolescent girls in Basic Schools in Legon, this survey found that menstrual hygiene was taught in some of the class subjects for about twice a week in the case of Staff Village Basic School, and 3 times a week for University of Ghana Basic School. This supports the earlier reported findings that 98.6% of the adolescent girls were taught menstrual hygiene practices in some subjects of study.

Furthermore, the survey found waste bins were available for the disposal of used sanitary products, with methods of final waste disposal as dumping and burning in incinerator for Staff Village Basic School, while University of Ghana Basic School emptied her waste into a bigger waste drum. This was then disposed of in a waste truck that came regularly to collect waste. Use of an incinerator for sanitary waste disposal, therefore, wasn't applicable for University of Ghana Basic School as seen in Table 10.

The use of an improved pit type of toilet facility as well as an open defecation was seen in use in Staff Village Basic School during the survey. As such, the surroundings and inside of the sanitary facility wasn't clean. The facility had bad smell and although the girls had no alternative but to use it, the facility ideally was not fit for use by the adolescent girls while in school. This was in comparison to the University of Ghana

Basic School which had a flush to sewage septic tank type of sanitary facility, with some of its vault cover slabs still in place and only slight smell within and around the surroundings of the sanitary facility thus making the sanitary facility user-friendly for the adolescent girls.

Table 10: **Completed Checklist for Basic Schools' Menstrual Hygiene Management Survey and Evaluation of Sanitary Facilities**

	Indicators	**School A**	**School B**
1.	Province	Greater Accra	Greater Accra
2.	District	Ayawaso-West	Ayawaso-West
3.	School name	Staff Village Basic School	UG Basic School
4.	Reporting period	March 2016	April 2016
5.	School's infrastructure	Bungalows	Bungalows
6.	Number of Female students respondents in the school	382	374

	School committee and Clubs	**Staff Village Basic School**	**University of Ghana Basic School**
1	Are there students' club in school? If yes, What main activities are the club engaged in?	Yes	Yes
2	Is there a functional PTA in school?	Yes	Yes
3	Is MHM promoted properly in the School?	Yes	Yes
4	Are sanitary products and waste disposal system in place and functioning?	Yes	Yes

Resources Availability	**Staff Village Basic School**	**University of Ghana Basic School**
1. Type of water point: (a). Piped water, (b). Bore hole, (c) Other…..	Piped water	Piped water
2. Is the water point functional?	Not regular	Not regular
3. Is there water available at the time of survey	No	Yes
4. Is the sink water point functional?	None seen	No
5. Is the sink drainage operating well	None seen	Yes
6. Are the designed sanitary facilities clean and usable by the adolescent girls?	No	Yes
7. Are their good ventilation system?	No	Yes
8. Is there any functioning upkeep system in place?	Yes	Yes
9. Is there soap available as at when Surveying	No	No
10. Is there a soap case with its cover?	No	No
11. Is the soap regularly used for hand washing?	No	No

	Menstrual hygiene Practices	Staff Village Basic School	University of Ghana Basic School
1.	Is menstrual hygiene taught in any of the school's subjects?	Yes	Yes
2.	How many times a week are lessons on MHH taught?	2	3
3.	Does the boys share same latrines as the females?	No	No
4.	Are all school teachers oriented on MHH education?	Yes	Yes
5.	Is there MHM material available in school?	Yes	Yes

	Waste sanitary disposal & Operational maintenance	Staff Village Basic School	University of Ghana Basic School
1	Are there waste bins available in the facilities for disposal of used sanitary products?	Yes	Yes
2	Does the waste bin get emptied regularly by a waste collector or into the incinerator?	Yes	Yes
3	Is there any operational maintenance for the sanitary facilities?	Yes	Yes
4	Are the girls aware of proper method of sanitary product disposal?	Yes	Yes
5	Are there care takers for the sanitary facilities?	Yes	Yes
6	Does the school or gov't pay for the cleaning?	Yes	Yes
7	Does the school or gov't pay for repairs?	Yes	Yes
8	Is there any incinerator located in school premises?	Yes	No
9	Is the incinerator located in a good position?	Yes	NA
10	Is the incinerator operational at all times?	Yes	NA

	School Sanitation	Staff Village Basic School	University of Ghana Basic School
1	Type of sanitary facilities: (a) Flush to sewerage/septic tank (b) Improved pit, (c) Open defecation	Improved pit, Open defecation	Flush to sewerage/septic tank
2	Is there smell inside the sanitary facility?	Yes	Slightly
3	Are the doors intact?	Yes	Yes
4	Are the vault cover slabs in place?	Not applicable	Some
5	Is the facility surroundings clean?	No	Yes

4.12 Association of Socio-demographic Characteristics of the Respondents on Health/ Hygiene Knowledge

The respondents had a general mean age and standard deviation (SD) of 13.6 (1.2) and mean age at menarche and (SD) of 12.0 (1.1), as compared to the categories of girls with low-medium health/hygiene knowledge who were seen to have a mean age of 13.2 with a SD of 1.2 and mean of age at first menses of 11.8 SD 1.3 (Table 11).

Greater frequency of Respondents in JHS 2 (42) were noticed to have a better health knowledge of about 69% among the five (5) stratum of adolescent girls surveyed, this is followed by JHS 3 (66.7%), and JHS 2 (61.8%) and these differences were significant ($p<0.05$) as seen in table 11.

About 115 of those who identified as the predominant religion of the respondents (Christianity), were realized to have 57.2% high health/hygiene knowledge as compared to the Islamic respondents with 62% low-medium health/hygiene knowledge on menstruation. This has no significant differences (p-value = 0.299).

Regarding ethnicity of the respondents, there were no significant differences (p-value 0.164) in ethnicity by knowledge found among the respondents who identified as being Akan, Ewe, Northern and Ga ethnic groups. Adolescent girls having lowest frequencies 11 (61.1%), of the high hygiene knowledge were those of the northern region. In considering feeling at the onset of menses, it was realized that both the respondents that indicated the feeling of sadness and surprise by knowledge had no significant differences. It was found that about half of them have both low-medium as well as high health knowledge gain (p-value 0.668) as seen in Table 11.

Table 11**: Association of Socio-demographic Characteristics on Menstrual Hygiene knowledge among Adolescent Girls in Basic Schools in Legon.**

Characteristics	Total No.	Knowledge, N (%)		p-value
		Low-Mid	High	
Age (years)				
Mean ± SD	209	13.2 ± 1.2	13.6 ± 1.3	
Age of first menses (years)				
Mean ± SD	209	11.8 ± 1.3	12.0 ± 1.1	
Grade in school				
Class 5	27	15 (55.6)	12 (44.4)	
Class 6	29	9 (31.0)	20 (69.0)	**0.043**
JHS 1	52	30 (57.7)	22 (42.3)	
JHS 2	68	26 (38.2)	42 (61.8)	
JHS 3	33	11 (33.3)	22 (66.7)	
Religion				
Christianity	201	86 (42.8)	115 (57.2)	0.299
Islam	8	5 (62.5)	3 (37.5)	
Ethnicity				
Akan	91	44 (48.4)	47 (51.7)	
Ewe	66	30 (45.5)	36 (54.6)	0.164
Northern	18	7 (38.9)	11 (61.1)	
Ga	28	10 (35.7)	18 (64.29)	
Other	6	0 (0.00)	6 (100.0)	
Feeling at the onset of first period				
Prepared	14	8 (57.1)	6 (42.9)	
Happy	27	10 (37.0)	17 (63)	0.668
Sad	22	10 (45.5)	12 (54.6)	
Surprised	146	63 (43.2)	83 (56.9)	
Total	209	91 (43.5)	118 (56.5)	

4.13 Association of Hygiene Knowledge on Menstrual Hygiene Practices

Table 12 shows the association of hygiene knowledge on menstrual Hygiene practices. Students who were older and with adequate menstrual hygiene knowledge had better menstrual hygiene practices. In relation to days bled in a month, about half of the total correspondents that had an average monthly bleeding of 1-4 days were considered to have a considerably higher health knowledge level (54.6%) with no significant differences (p-value 0.533). P-value of 0.189 was recorded among majority (207) of the adolescent girls who participated in the survey, with about 89 (43.0%) of them having low-medium knowledge and 57% high knowledge level. There exist a significant differences (p value <0.05), among those respondents who bath at different numbers of times when menstruating, 142 (38.7% and 61.3%) of those who take their bath twice daily were seen to have low-medium as well as high knowledge level respectively.

About half of the total number of respondents (105) who changed their sanitary products three times or more when menstruating when compared to those who changed twice daily (99), were realized to have percentages of high knowledge level difference of 3.4% and a p-value of 0.732.

Associating health/hygiene knowledge level with methods of disposing used sanitary products by the adolescent girls, it was seen that one (1) adolescent respondents who had a low- medium knowledge level and three (3) high health/hygiene knowledge level with a p-value 0.559, disposed their used sanitary products by flushing.

Regarding the total number of 209 respondents who were asked if they change sanitary products in school, about 156 of them who indicated yes had a high health/hygiene knowledge level of a little above 50% (p-value 0.537).

There was a significant difference in knowledge (p-value of 0.005) in pain during menstruation (dysmenorrhea) as specified by the adolescent girls among those who experienced an extreme pain (26), 6 of whom had a low-medium health/knowledge level and 20 of whom had a higher health knowledge; and their counterparts with no pain experienced during menstruation. (Table 12).

Out of those who washed their genitals using soap and water, total of 80 respondents had low-medium knowledge level of 41.3% and high knowledge level of about 58% with a p-value of 0.558.

Table 12**: Association of Hygiene Knowledge on Menstrual Hygiene Practices among Adolescent Girls in Basic Schools in Legon.**

Behavioral practices	Total No.	Knowledge, N (%) Low-Mid	High	p-value
Days bled in a month				
1-4	108	49 (45.4)	59 (54.6)	0.533
5-7	82	36 (43.9)	46 (56.1)	
Above 7	19	6 (31.6)	13 (68.4)	
Take bath when menstruating				
Yes	207	89 (43.0)	118 (57.0)	0.189
No	2	2 (100)	0 (0.0)	
No. of times bath taken daily				
None	1	1 (100.0)	0 (0.0)	**0.014**
Once	21	15 (71.4)	6 (28.6)	
Twice	142	55 (38.7)	87 (61.3)	
Three times or more	43	20 (46.5)	23 (53.5)	
Don't remember	2	0 (0.0)	2 (100.0)	
No. of times sanitary products changed daily				
None	1	1 (100.0)	0 (0.0)	0.732
Once	4	2 (50.0)	2 (50.0)	
Twice	99	41 (41.4)	58 (58.6)	
Three times or more	105	47 (44.8)	58 (55.2)	
Methods of disposing used sanitary products*				
Bury	37	13 (35.1)	24 (64.9)	0.559
Burn	69	29 (42.0)	41 (58.6)	
Wash	4	2 (50.0)	2 (50.0)	
Wrap in a dustbin	127	58 (45.7)	69 (54.3)	
Flush	4	1 (25.0)	3 (75.0)	
Change sanitary products in school				
Yes	156	66 (42.3)	90 (57.7)	0.537
No	25	25 (47.2)	28 (52.8)	
Private place to change in school				
Yes	159	73 (45.9)	86 (54.1)	0.218
No	50	18 (36.0)	32 (64.0)	
Pain experienced specified				
None	35	17 (48.6)	18 (51.4)	**0.005**
Mild	23	15 (65.2)	8 (34.8)	
Painful	82	41 (50.0)	41 (50.0)	
Very painful	43	12 (27.9)	31 (72.1)	
Extremely painful	26	6 (23.1)	20 (76.9)	
Used to wash genitals				
Water only	128	57 (44.5)	71 (55.5)	**0.558**
Soap and water	80	33 (41.3)	47 (58.6)	
Nothing	1	1 (100.0)	0 (0.00)	
Total	209	91 (43.5)	118 (56.5)	

* Multiple responses allowed

CHAPTER 5

5.0 DISCUSSION

The general objective of this study was to assess Menstrual Hygiene Management Practices among Basic School girls in Legon, Accra. by specifically determining menstrual hygiene perceptions and practices among the adolescent girls and conducting sanitary survey of facilities in these Basic Schools as well as to determine association between hygiene knowledge and menstrual hygiene practices.

Basically, variables used in the study such as demographic characteristics, behavioral patterns, culture and societal norms, hand washing practice, resource availability and socio economic factors as well as health/ hygiene knowledge were found to influence menstrual hygiene management practices of the adolescent girls in Basic Schools in Legon.

5.1 Perceptions and Practices on Menstrual Hygiene

Findings from this study revealed that all the respondents were between the ages of 10-17 years, with a mean age at menarche of 11.9 ± 1.2 years, which was less than a year (0.6 years) earlier than the mean age at menarche of 12.5 ±1.28 years found in a similar study of Ghanaian school girls four years ago (Gumanga, S K; KWAME-ARYEE, 2012). This slight decrease in age at menarche can be attributed to environmental conditions such as urbanization, nutrition type as well as general wellbeing of the adolescent girls. The study also revealed that about two thirds of the adolescent girls were surprised at the onset of their first menstrual period.

Improved hygiene practice during menstruation is an important factor that reduces predisposition to urinary tract infections and foul smell in the vaginal area during menstruation. To achieve improved menstrual hygiene practice, menstrual resources

such as water, soap, sanitary products must be readily available. Regarding the availability of menstrual resources among Basic School girls in Legon, it was found that disposable sanitary pads were commonly used. This contrasts with findings from studies in Uganda and India were the majority of the respondents used traditional materials like cloth because of the poor socio-economic status of the adolescent girls studied (UNESCO, 2014), (House, Mahon, & Cavill, 2012) and (Fernandes, 2010).

Most of the girls had access to water, and above three quarters had access to soap, which enabled the majority to do well to wash their genitals frequently when menstruating. More than half of the adolescent girls used water only to wash their genitals. This practice may be due to knowledge of menstrual hygiene gained from home as indicated by a little above two thirds of the adolescent girls, or at school since almost all respondents acknowledged having been taught health or hygiene in relation to menstruation in at least one school subject.

Normal monthly cycle for menstruation is between 21 to 35 days (Haque et al., 2014). During each cycle, menstrual flow could last for about 4 to 7 days on the average depending on every females' physiological changes. Findings of this study revealed that slightly above half of the respondents had a menstrual flow of 1-4 days a month, followed by 5-7 days flow for about a quarter of the respondents.

Taking bath during menstruation was a common finding, with nearly two thirds of the respondents taking bath twice daily and about a fifth taking bath three times or more. This bath frequency was similar to that seen in a study conducted in Mali (Trinies, et.al., 2015). Although bathing during school hours were not explored using the questionnaire, provision for them were not found upon evaluation of sanitary facilities in the schools, which could be challenging for adolescent girls who may begin menstruation while school is in session.

The most common sanitary material used for collection of menstrual blood among the school girls was disposable sanitary pads. This could be a realistic finding given that school girls studied lived with a family of 5 or less and virtually all respondents indicated that they were given money to school, always had food to eat and clean water for use, and above three quarter also could afford medical treatment and had means of paying school expenses, thus suggesting good socio-economic status of most of the respondent school girls.

The findings of this study, though conducted in an urban school setting, compares favorably with those done in rural schools with low infrastructural amenities and income levels of families living therein (UNESCO, 2012), (Fernandes, 2010), (House, Mahon, & Cavill, 2012). Averagely, a quarter of the respondents changed their sanitary products twice daily and about half of the respondents change three times or more daily.

The practice of regarding menstruation talks as taboo may greatly influenced adolescent girls' hygiene practices during menstruation as well as ways and methods in which used sanitary products are disposed of (Fernandes, 2010). Other studies by Crofts et. al., 2012, found a third of adolescent girls did not dispose of their used sanitary products into pit latrines, with reason being that it was the safest for them. However, in this study, slightly above two thirds of the school girls studied disposed of their waste sanitary pads by wrapping and throwing in a dustbin. This was followed by a little above one third burning and burying. This was similar to the findings of a study conducted in Mansoura, Egypt where the greatest percentage of the adolescent girls disposed of their used sanitary products with domestic waste (El-Gilany, Badawi, & El-Fedawy, 2005).

Water, Sanitation and Hygiene, as well as good sanitary facilities within the school premises when promoted improved menstrual hygiene among adolescent girls especially while in school. This study found that although three quarters of the total respondents

changed sanitary products in school, most of them did not have a private place to change their sanitary materials. As such menstruation during school sessions was a challenge and embarrassing part of the adolescent child's life.

Dysmenorrhea was found to be common among the respondents. Menstruation also caused inability to walk far in a quarter of the respondents, and prevented about a third of the respondents from attending to recreational activities such as sports or even play with friends. Those found to miss school because of menstruation were not the majority, while respondents who were found to skip house chores as a result of menstruation were about a third. Similarities in this was found in a study conducted in Nigeria where the commonest medical problem associated with menstruating adolescent girls was abdominal pain and discomfort (Adinma & Adinma, 2008). Hence this study showed that menstruation did not cause a significant drop in school attendance among the respondents. An exploratory study of menstrual hygiene management among Ugandan school girls reported a significant percentage of nearly two thirds missing school during menstruation (UNESCO, 2012). However, this study has shown a drop in the proportion of adolescent girls missing school in Ghana compared to the findings of a similar study conducted in 2013 where 20.2% of peri-urban girls were said to miss school during menstruation. Nonetheless, this study has revealed that of the respondents who missed school due to menstruation, nearly all cited menstrual pain as the main reason while 64% cited menstrual discomfort from bloating and tiredness and more than half attributed it to the fear of staining clothes. Other reasons cited were that they were afraid of others making fun of them, had no private place for changing sanitary products and did not have sanitary products.

5.2 Sanitary Surveys of Facilities in Basic Schools in Legon

A checklist was used for data collection for evaluation of sanitary facilities in School A (Staff Village Basic School Legon) and School B (University of Ghana Basic School Legon), both situated in Ayawaso-West constituency of Greater Accra Region, Ghana.

Both Basic Schools were found to have a strong School Teachers and Students committee with a functional Parents Teachers Association that met to discuss the needs, challenges and well-being of the students as required. There were also students' clubs in both schools that engaged in religious, educational and intellectual activities which occupied the students during their academic free period as well as broadened their horizons.

Water and sanitation at school, in workplaces and at home need to be well thought about and provided to reduce the need for unhygienic practices and reproductive tract infections in line with the United Nations Sustainable Development Goals 3 and 6. This study found that menstrual hygiene management was promoted in both schools and that sanitary and waste disposal systems were also in place and functional.

Piped water supply points were seen in both Schools. Although at the time of the survey there was running water only in the University of Ghana Basic School, the survey team was informed that the functionality of the water points were not regular. More so, there was no sink water point as seen in the Staff Village Basic School. That of UG Basic was with no runny water and as such, both weren't in use.

Sanitary facilities are designed to meet the needs of adolescent girls especially during menstruation, but when kept unclean, they become unusable and therefore defeating the aim of their construction. This was the case of the sanitary facility in the Staff Village Basic School, Legon. Neither of the sanitary facilities in both Schools had soap for hand

washing or sanitary products such as tissue paper or disposable sanitary pads for use by the adolescent girls in the event of onset of menstruation while in school.

Improved hygiene practices, such as the use of clean sanitary products and also adequate washing of the genitalia with soap and water during menstruation cannot be overemphasized. Hence there is need for adolescent girls to have access to clean and soft absorbent disposable sanitary pads, which gives them optimal protection. This study found that subjects covering menstrual health and hygiene were taught about 2- 3 times weekly in the schools using some menstrual hygiene management materials for illustration and better understanding of the subject matter (Menstruation).

There were waste bins situated in the sanitary facilities of both Basic Schools surveyed. The waste bins were placed in strategic positions in the facilities where the girls could easily see and dispose of used sanitary products. The waste bins were emptied by government paid care takers of the sanitary facilities and disposed of by burning in the school's incinerator as in the case of Staff Village Basic School, or collected by a waste collector van on a regular basis as in the case of University of Ghana Basic School.

Operational maintenance of the Basic Schools' surroundings and sanitary facilities were done mainly by recruited cleaners, but occasionally during the schools' clean up exercise day, students were made to tidy up and keep clean the entire school surroundings.

5.3 Association of Health/ Hygiene Knowledge and Menstrual hygiene practices

In this study, 2.9% of the adolescent girls affirmed that menstruation was a disease while more than half believed wrongly that menstrual blood was unhygienic. A study in Uganda also reported misconception among adolescent girls that menstruation was a disease (UNESCO, 2012).

Although, no significant differences were found in the number of times respondents

changed their used sanitary products in a day by level of health and hygiene knowledge, nearly two thirds of the girls who changed their sanitary products twice or more in a day had higher menstrual knowledge.

Notwithstanding, this study found significant differences in bath taking among adolescent girls by level of knowledge. The proportion of those who bathed twice or more daily during menstruation was found to be higher among those having high menstrual health/ hygiene knowledge. This supports similar studies that found improvement in menstrual hygiene management practices with menstrual health and hygiene knowledge gain.

The study also revealed that a quarter of the respondents knew that menstrual blood flowed from the womb and the majority of the respondents knew that menstrual blood was as a result of hormonal changes in the body. Adolescents' knowledge that menstruation was as a result of physiological changes, increases their level of preparedness before the onset and during menstruation.

Adolescents' menstrual hygiene practice in relation to methods of disposal of used sanitary products in this study indicated that wrapping and disposing of used sanitary materials in a waste bin occurred with higher frequency among adolescent girls with higher knowledge, but with no significant difference from those who disposed of their used sanitary materials by burning and burying.

As to whether menstrual blood contained harmful substances, almost one third of the respondents answered wrongly in the affirmative. A similar study conducted in Uganda (UNESCO, 2012) found more than half of the girls incorrectly responding that menstrual blood contained harmful substances. Yet another study from South-eastern Nigeria reported that adolescent girls believed that menstruation was 'bad blood' being eliminated from the body system (Adinma & Adinma, 2008).

In this study, about half of the total adolescent girls surveyed believed that the start of menstruation meant a girl was ready to get pregnant. Furthermore, the study also revealed that some respondents could face self-esteem challenges during menstruation given that a quarter of them did not think well of themselves; about a fifth had thoughts of having no good qualities and not being able to do what others could do; one third had feelings of being useless at times and having no reasons to be proud of self, and a quarter being less confident compared to when not menstruating.

Regarding dysmenorrhea, the study indicated that health knowledge on menstrual hygiene practice showed significant variations in reported pain severity by level of health and hygiene knowledge.

Changing sanitary products in school, getting a private place for convenient change of sanitary products, what was used to wash the genitals during menstruation did not show significant differences by knowledge acquired at home or in school.

CHAPTER 6

6.0 CONCLUSION AND RECOMMENDATIONS

6.1: Conclusion

This study found that perceptions and practices of menstrual hygiene management among Basic School girls in Legon was good. Socio-economic status of the adolescent girls influenced menstrual hygiene practice, and as such most of the girls used clean disposable sanitary pads as the means of absorbing menstrual blood.

It was found that the knowledge of menstruation among the adolescent girls was average. Further research therefore needs to be done to ascertain why it was so. It may well be that that health and hygiene knowledge regarding menstruation was not adequate.

In as much as the study found that menstruation was not a major influence on school attendance, greater efforts still need to be put in place to ensure no girl is out of school because of menstruation-related issues such as dysmenorrhea, lack of sanitary products, low self-esteem or no private place for convenient change of sanitary products in school during the period of her menstruation as was found in the study.

Sanitary survey conducted as part of the specific objectives of the study indicated that there were sanitary facilities in use and waste disposal systems in the Basic Schools in Legon. However, in terms of maintenance and in safe guarding the health of the adolescent girls, resources such as running water, soap for hand washing, were not available at the time of the survey.

Regarding the association between health and hygiene knowledge and menstrual hygiene practices among the adolescent girls in the Basic Schools in Legon, this study found that there were no significant differences between numbers of times respondents changed their sanitary products daily by knowledge on menstrual hygiene. However,

there are significant differences between baths taking among adolescent girls, pain experienced by knowledge on menstrual hygiene as specified by the respondents.

In addition, there were no significant differences between adolescent's methods of used sanitary products disposal by knowledge on menstrual hygiene.

6.2: Recommendations

6.2.1 Recommendation 1

Best menstrual hygiene management as documented by WHO & UNICEF is referred to and should be adopted for used by Basic Schools to improve menstrual hygiene practices among these adolescent girls.

6.2.2 Recommendation 2

- This study found that there were still some misconceptions regarding knowledge on menstruation even though virtually all students were taught in some school's subjects on matters relating to menstruation. Therefore, it is essential to put into consideration the policy by Ministry of Education (MOE) to establish a comprehensive school health hygiene education programme which has a firm input that will help in familiarization of instruction in Menstrual Hygienic Practices relating to menstruation.
- Teacher training should also include skills to be able to pass on accurate information to students. Girls should be educated about the selection of sanitary menstrual pads and their proper disposal, how to look after their menstrual needs when at school or away from home.
- There were no disposable sanitary products seen during sanitary survey to be used by the adolescents in school's sanitary facilities. As such, there is need for Menstrual Sanitary products donation programme to be launched for keeps within

the school's facility during Parents-Teachers' Association meeting. Parents should also be urged to make donations at intervals. This will help adolescent girls in the case of an emergency or onset of menstruation during school hours.

- In a bid to giving due consideration to greater number of girl child education, care also need to be taken so as to put into implementation, systems and interventions by MOE and Basic Schools which strive for better involvement and understanding of matters regarding menstruation especially among adolescent Girls in School, as well as tackling challenges faced by them in school during menstruation.
- Evaluations into the stop of provision of Menstrual Hygiene products to adolescent girls should be looked into by MOE and adolescent organization bodies, and this provision if possible, be revived.
- Sustainability, efficiency and cultural acceptability of these products can be a barrier to Menstrual Hygiene Management products, as such, research need to be consistently made to bridge this gap and prevent wastage of resources that are initially limited.
- Water is a necessity in the adequate management of Menstrual Hygiene among Basic School Girls. This therefore should be made readily available by Basic Schools at all times most especially during school session. This is because unless water is made sufficient at all times for girls, they cannot wash themselves and be clean.

REFERENCES

Abajobir, A., & Seme, A. (2014). Reproductive health knowledge and services utilization among rural adolescents in east Gojjam zone, Ethiopia: a community-based cross-sectional study. *BMC Health Services Research*, *14*(1), 138. http://doi.org/10.1186/1472-6963-14-138

Adolescent, C., Programs, H., Sexual, I., & Review, S. (2015). Comprehensive Adolescent Health That Include Sexual and Reproductive Health Services: A Systematic Review, *104*(12). http://doi.org/10.2105/AJPH.2014.302246.COMPREHENSIVE

Adinma, E. D., & Adinma, J. I. . (2008). Perceptions and Practices on Menstruation. *African Journal of Reproductive Health*, *12*(1), 74–83.

Ahmed, R., & Yesmin, K. (2008). Menstrual hygiene□ : Breaking the silence WaterAid Bangladesh initiative, 1–5.

Ajah, L. O., Onubogu, E. S., & Lawani, L. O. (2015). Adolescent reproductive health challenges among schoolgirls in southeast Nigeria□ : role of knowledge of menstrual pattern and contraceptive adherence, 1219–1224.

Allegranzi, B., & Pittet, D. (2009). Role of hand hygiene in healthcare-associated infection prevention. *Journal of Hospital Infection*, *73*(4), 305–315. http://doi.org/10.1016/j.jhin.2009.04.019

AlQuaiz, A. M., Kazi, A., & Al Muneef, M. (2013). Determinants of sexual health knowledge in adolescent girls in schools of Riyadh-Saudi Arabia: a cross sectional study. *BMC Women's Health*, *13*, 19. http://doi.org/10.1186/1472-6874-13-19

Aniebue, U. U., Aniebue, P. N., & Nwankwo, T. O. (2009). The impact of pre-menarcheal training on menstrual practices and hygiene of Nigerian school girls. *The Pan African Medical Journal*, *2*, 9. http://doi.org/10.4314/pamj.v2i1.51708

Assefa, M., & Kumie, A. (2014). Assessment of factors influencing hygiene behavior among school children in Mereb-Leke District, Northern Ethiopia: a cross-sectional study. *BMC Public Health*, *14*(1), 1000. http://doi.org/10.1186/1471-2458-14-1000

Ayalew, M., Mengistie, B., & Semahegn, A. (2014). Adolescent-parent communication on sexual and reproductive health issues among high school students in Dire Dawa, Eastern Ethiopia: a cross sectional study. *Reproductive Health*, *11*(1), 77. http://doi.org/10.1186/1742-4755-11-77

Boosey, R., Prestwich, G., & Deave, T. (2014). Menstrual hygiene management amongst schoolgirls in the Rukungiri district of Uganda and the impact on their education: a cross-sectional study. *Pan African Medical Journal*, *19*, 1–13. http://doi.org/10.11604/pamj.2014.19.253.5313

Chin, L. (2014). Period of shame: The effects of menstrual hygiene management on rural women and girl's quality of life in Savannakhet, Laos., (May).

Education, S., & Project, I. (2014). Republic of Ghana ministry of education secondary education improvement project.

El-Gilany, A. H., Badawi, K., & El-Fedawy, S. (2005). Menstrual hygiene among adolescent schoolgirls in Mansoura, Egypt. *Reproductive Health Matters*, *13*(26), 147–152. http://doi.org/10.1016/S0968-8080(05)26191-8

Fakhri, M., Hamzehgardeshi, Z., Hajikhani Golchin, N., & Komili, A. (2012).

Promoting menstrual health among Persian adolescent girls from low socioeconomic backgrounds: a quasi-experimental study. *BMC Public Health*, *12*(1), 193. http://doi.org/10.1186/1471-2458-12-193

Therese. M. & Fernandes, M. (2010). Menstrual hygiene in South Asia, a neglected Issue for WASH (water, sanitation and hygiene) programmes.

Gumanga, S K; & Kwame-Aryee, R. A. (2012). Menstrual Characteristics in Some Adolescent Girls in. *Ghana Medical Journal*, *46*(1), 3–7.

Gyabaah, D., & Awuah, E. (2009). Sanitation in Basic Schools- A Case Study in Tano South District, (November), 10–12.

Haque, S. E., Rahman, M., Itsuko, K., Mutahara, M., & Sakisaka, K. (2014). The effect of a school-based educational intervention on menstrual health: an intervention study among adolescent girls in Bangladesh. *BMJ Open*, *4*(7), e004607. http://doi.org/10.1136/bmjopen-2013-004607

House, S., Mahon, T., & Cavill, S. (2012). A resource for improving menstrual hygiene around the world.

House, S., Mahon, T. & Cavill, S. (2013). Bookshelf: Menstrual Hygiene Matters: a resource for improving menstrual hygiene around the world. *Reproductive Health Matters*, *21*(41), 257–259. http://doi.org/10.1016/S0968-8080(13)41712-3

Ingber, M. S., Vasavada, S. P., Firoozi, F., & Goldman, H. B. (2010). Incidence of perioperative urinary tract infection after single-dose antibiotic therapy for midurethal slings. *Urology*, *76*(4), 830–4. http://doi.org/10.1016/j.urology.2010.05.038

Kirk, J., & Sommer, M. (2006). Menstruation and body awareness: linking girls' health with girls' education. ... *Tropical Institute (KIT), Special on Gender and Health*, 1– 22. Retrieved from http://www.wsscc.org/sites/default/files/publications/kirk-2006-menstruation-kit_paper.pdf

Mahon, T., & Fernandes, M. (2010). Menstrual Hygiene in South Asia: a Neglected Issue for WASH (Water, Sanitation and Hygiene) Programmes. *Gender & Development*, *18*(1), 99–113. http://doi.org/10.1080/13552071003600083

Nyirjesy, P., & Sobel, J. D. (2013). Genital mycotic infections in patients with diabetes. *Postgraduate Medicine*, *125*(3), 33–46. http://doi.org/10.3810/pgm.2013.05.2650

Omidvar, S., & Begum, K. (2010). Factors influencing hygienic practices during menses among girls from south India- A cross sectional study Factors influencing hygienic practices during menses among girls from south India- A cross sectional study, *2*(12), 411–423.

Parker, A. H., Smith, J. A., Verdemato, T., Cooke, J., Webster, J., & Carter, R. C. (2014). Menstrual Management: a Neglected Aspect of Hygiene Interventions. *Disaster Prevention and Management*, *23*(4), 437–454. http://doi.org/10.1108/DPM-04-2013-0070

Ramaswamy, D. (2011). Indian institute of biotechnology in collaboration with soothe healthcare "relation between poor menstrual practices and cervical cancer"

Ribeiro, S. K., Kobayashi, S., & Beuthe, M. (2013). Transport and its infrastructure.

Climate Change 2007: Mitigation. Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, *657*(April 2013), 324–386. http://doi.org/10.1002/jid

Sommer, M. (2010). Putting menstrual hygiene management on to the school water and sanitation agenda. *Waterlines*, *29*(4), 268–278. http://doi.org/10.3362/1756-3488.2010.030

Sumpter, C., & Torondel, B. (2013). A Systematic Review of the Health and Social Effects of Menstrual Hygiene Management, *8*(4). http://doi.org/10.1371/journal.pone.0062004

Tania, S., Nancy, W., Ziade, F. M., & Nehme, M. (2013). Assessment of Beliefs and Practices Relating to Menstrual Hygiene of Adolescent Girls in Lebanon, *3*(December 2013), 75–88.

Tegegne, T. K., & Sisay, M. M. (2014). Menstrual hygiene management and school absenteeism among female adolescent students in Northeast Ethiopia. *BMC Public Health*, *14*(1), 1118. http://doi.org/10.1186/1471-2458-14-1118

Trinies, V., Caruso, B. A., Sogor, A., Toubkiss, J., & Freeman, M. C. (2015). Uncovering the challenges to menstrual hygiene management in schools in Mali. *Waterlines*, *34*(1), 31–40. http://doi.org/10.3362/1756-3488.2015.004.

UNESCO. (2012). An exploratory study into Menstrual Hygiene Management among rural

Primary schoolgirls in Uganda : what implications does menstrual related absenteeism have for future interventions ?

UNESCO. (2014). Good policy and practice in health education: Puberty Education & Menstrual Hygiene *Management*. http://doi.org/10.1007/SpringerReference_69942.

UNICEF. (2013). MHM Booklet Final WASH in Schools Empowers Girls' Education Proceedings of the Menstrual Hygiene Management in Schools Virtual Conference 2013.

Vivas, a. P., Gelaye, B., Aboset, N., Kumie, a., Berhane, Y., & Williams, M. a. (2010). Knowledge, attitudes and practices (KAP) of hygiene among school children in Angolela, Ethiopia. *Journal of Preventive Medicine and Hygiene*, *51*(2), 73–79.

Watson, C. J., Grando, D., Garland, S. M., Myers, S., Fairley, C. K., & Pirotta, M. (2015). Premenstrual vaginal colonization of Candida and symptoms of vaginitis, (2012), 1580–1583. http://doi.org/10.1099/jmm.0.044578

Yagnik, A. S. (2015). Knowledge (K), Attitude (A), and Practice (P) of Women and Men about Menstruation and Menstrual Practices in Ahmedabad, India: Implications for Health Communication Campaigns and Interventions, (August).

Yoo, J. H., Kim, H. O., Cha, S. W., Park, C. W., Yang, K. M., Song, I. O, Kang, I. S. (2011). Age specific serum anti-Müllerian hormone levels in 1,298 Korean women with regular menstruation. *Clinical and Experimental Reproductive Medicine*, *38*(2), 93. http://doi.org/10.5653/cerm.2011.38.2.93

APPENDIX 1QUESTIONNAIRE FOR BASIC SCHOOL MENSTRUAL HYGIENE MANAGEMENT SURVEY

QUESTIONNAIRE NUMBER:

Nobody apart from the research team will know what you write in the questionnaire as your response will be kept confidential.

You are expected to complete the questionnaire but if you decide otherwise, be assured that it would not affect you relationship with anyone in the school.

Please tick the response you consider true in the space provided.

Demographic characteristics

1. How old were you on your last birthday? **……..**
2. Have you started your period? **(1) Yes (2) No**
3. Age of first menses …**…….**
4. Grade in school (1**) Class 5 (2) Class 6 ((3) JHS1 (4) JHS2 (5) JHS3**
5. Religion **(1) Christianity (2) Islamic (3) Traditional (4) Other ……..**
6. Ethnicity **(1) Akan (2) Ewe (3) Twi (4) Hausa (5) Asante (6) Fanti (7) Ga (8) Other ……**
7. How did you feel at the onset of your first period?

(1) Prepared (2) Happy (3) Sad (4) Surprised

Health/Hygiene knowledge

8. Should girls take their bath frequently when menstruating? **(1) Yes (2) No (3) Don't know.**
9. Menstrual blood is unhygienic? **(1) Yes (2) No (3) Don't know**
10. Menstruation is as a result of Hormonal changes? **(1) Yes (2) No (3) Don't**

know

11. Menstrual blood comes from? **(1)The womb (2) Abdomen (3) Bladder (4) Don't know**

12. Menstruation comes every month after a girl starts her period? **(1) Yes (2) No (3) Don't know**

13. Girls may get pimple (acne) during their period? **(1) Yes (2) No (3) Don't know**

14. Do boys get periods? **(1) Yes (2) No (3) Don't know**

15a. Starting menstruation means you are ready to get married?

(1)Yes (2) No (3) Don't know

15b. Starting menstruation means you are ready to get pregnant? **(1) Yes (2) No (3) Don't know**

16. Were you taught from home about menstruation before the onset of your first experience?

(1) Yes (2) No

17. Who was the first to talk to you about menstruation?

(1) Mother (2) Sister (3) Father (4) Brother (5) Friend

(6) Other ……..

18. Do you learn health/hygiene practices in school in any of your study subjects?

(1) Yes (2) No

Culture and societal norms

19. Please indicate which statement you consider true or false below:

1 2 3

	True	False	Don't know
Menstruation is a disease			
Menstruation blood contains harmful substances			
Menstruation talk is a taboo in my culture			
You should not be allowed to cook when menstruating			

Menstrual Behavioral Patterns

20. How many days do you bleed in a month? **(1) 1 – 4 (2) 5 – 7 (3) Above 7 days**

21. Do you take your bath when menstruating? **(1) Yes (2) No**

22. How many times do you take your bath daily when you are menstruating?

(1) None (2) Once (3) Twice (4) Three times or more (5) Don't remember

22. How many times do you change your sanitary products daily when menstruating?

(1) None (2) Once (3) Twice (4) Three times or more

23. Where do you dispose the used pads? **(1) Bury (2) Burn (3) Wash**

(4) Wrap and put in a dustbin (5) Flush (6) Others ……

24. Do you change your sanitary products when in school? **(1) Yes (2) No**

25. Do you get a private place to change your sanitary products if in school? (1) **Yes**

(2) No

26. Specify the pain you have experienced **(1) None (2) Mild (3) Painful**

(4) Very painful (5) Extremely painful

Menstrual Resource Availability

27. Do you have water to wash when menstruating?

(1) Not at all (2) Few times (3) Most times (4) Always

28. Do you wash your genitals when menstruating? **(1) Yes (2) No**

29. What do you use to wash your genitals during menstruation?

(1) Water only (2) Soap and Water (3) Nothing

30. Do you have access to soap at all times? **(1) Not at all (2) Few times**

(3) Most times (4) Always

31. Please tick the appropriate in the circumstances

Material	**Using it** **Yes**	**No**
Cloth		
Toilet paper		
Cotton wool		
Mattress foam		
Natural materials (e.g. Mud, leaves)		
Disposal sanitary pad		
Piece of clothe		
Tampon		
Menstrual cup		

Socio-economic Factors

1. What is the number of the family you live? **(1) Less than 5 (2) 5 or more**

2. Have you or your family always had enough food to eat? (1) **Yes (2) No**

3. Have you or your family always had clean water for use at home? (1) **Yes** **(2) No**

4. Have you or your family ever needed medicine or medical treatment but couldn't afford it? (1) Yes (2) No

5. Have you or your family always had the means to paying for school expenses?

(1) Yes **(2) No**

6. Have you bought disposal sanitary pads from a shop in the last six months?

(1) Yes **(2) No**

7. Have you bought disposal sanitary pads from a shop in the last six months?

(1) Yes **(2) No**

8. Are you given money to school? (1) **Yes** **(2) No**

9. How much averagely are you given in a week? (Ghana cedi) **(1) 0-2** **(2) 2-4**

(3) **4-6** **(5) above 6**

10. Have you ever wanted to buy disposal sanitary pad from a shop before but was unable to?

(1)**Yes** **(2) No**

Please mark whether these statements are **True** or **False** for you

	True	**False**	**Do not know**
I do not have enough money to buy disposal sanitary pads			
There are no disposable sanitary pads for purchase in the shops			

Hand washing practice

11. Have you been taught on hand washing practice? (1) **Yes** **(2) No**

12. Do you wash your hands before and after use of toilet? **(1) Yes** **(2) No**

Absenteeism

13. How many days in a month do you miss school?

(1) None (2) 1 -2 (3) 3 -4 (4) Above 4 (5) Don't remember

14. Have you ever missed school because of menstruation? (1) **Yes (2) No**

15. How many days in a month do you miss school because of menstruation?

(1) None (2) 1 -2 (3) 3 -4 (4) Above 4 (5) Don't remember

16. Does menstruation make you miss household work? **(1) Yes (2) No**

17. How many days in a month do you miss school because of household work? **(1) None**

(2) 1 -2 (3) 3 -4 (4) Above 4 (5) Don't remember

18. Does menstruation make you miss sport or play with your friends? (1) **Yes (2) No**

19. Does menstruation stop you from walking far? (1) **Yes (2) No**

20. Are there any other reason why you miss school? (Please write them)

……..……

1. Please indicate the appropriate option as it relates to you.

I miss school during menstruation because:

	True	False
) I fear staining my clothes		
) Menstruation can cause pain		
) Menstruation can cause discomfort from bloating or tiredness		
) I am afraid of others making fun of me		
) There is no private place for hand washing or change at school		
) I do not have disposal sanitary pads		

Self esteem

1. With regard to how you feel during period, please mark the appropriate of each question as it to you:

	True	False
) I am satisfied with myself		
) At times I think am no good		
) I think I have a number of good qualities		
) I am able to do things others can do		
) I feel useless at times		
) I do not have reason to be proud of myself		
) I am not respected by others		
) I feel less confident compared to when I am not on my period		

APPENDIX 2 CHECKLIST FOR EVALUATION OF SANITARY FACILITIES IN BASIC SCHOOLS

Source: Adapted from (House, et al., 2012).

This tool was used for collection of data of each Basic School by survey and establish a baseline of the Schools.

	Indicators	School A	School B
7.	Province		
8.	District		
9.	School name		
10.	Reporting period		
11.	School's infrastructure		
12.	Number of Female students respondents in the school?		

	School committee and Clubs	Staff Basic School	Village UG Basic School
1	Are there students' club in school? If yes, What main activities are the club engaged in?		
2	Is there a functional PTA in school?		
3	Is MHM promoted properly in the School?		
4	Are sanitary products and waste disposal system in place and functioning?		

Resources Availability	Staff Village Basic School	University of Ghana Basic School
1. Type of water point: (a). Piped water, (b). Bore hole, (c) Other…..		
2. Is the water point functional?		
3. Is there water available at the time of survey		
4. Is the sink water point functional?		
5. Is the sink drainage operating well		
6. Are the designed sanitary facilities clean and usable by the adolescent girls?		
7. Are their good ventilation system?		
8. Is there any functioning upkeep system in place?		
9. Is there soap available as at when Surveying		
10. Is there a soap case with its cover?		
11. Is the soap regularly used for hand washing?		

Menstrual hygiene Practices	Staff Village Basic School	University of Ghana Basic School
1. Is menstrual hygiene taught in any of the school's subjects?		
2. How many times a week are lessons on MHH taught?		
3. Does the boys share same latrines as the females?		
4. Are all school teachers oriented on MHH education?		
5. Is there MHM material available in school?		

	Waste sanitary disposal & maintenance	Operational	Staff School	Village Basic	University of Ghana Basic School
1	Are there waste bins available in the facilities for disposal of used sanitary products?				
2	Does the waste bin get emptied regularly by a waste collector or into the incinerator?				
3	Is there any operational maintenance for the sanitary facilities?				
4	Are the girls aware of proper method of sanitary product disposal?				
5	Are there care takers for the sanitary facilities?				
6	Does the school or gov't pay for the cleaning?				
7	Does the school or gov't pay for repairs?				
8	Is there any incinerator located in school premises?				
9	Is the incinerator located in a good position?				
10	Is the incinerator operational at all times?				

	School Sanitation	Staff School	Village Basic	University of Ghana Basic School
1	Type of sanitary facilities: (a) Flush to sewerage/septic tank (b) Improved pit, (c) Open defecation			
2	Is there smell inside the sanitary facility?			
3	Are the doors intact?			
4	Are the vault cover slabs in place?			
5	Is the facility surroundings clean?			