ENSIGN COLLEGE OF PUBLIC HEALTH, KPONG – EASTERN REGION GHANA

ASSESSING THE AWARENESS OF CERVICAL CANCER AMONG FEMALE STUDENTS IN SELECTED SENIOR HIGH SCHOOLS IN LOWER MANYA KROBO MUNICIPALITY OF GHANA

BY

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A Thesis submitted to the Department of Community Health in the Faculty of Public Health in partial fulfilment of the requirements for the degree

MASTER OF PUBLIC HEALTH

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DECLARATION

I do hereby declare that this submission is my own work towards the MPH and that to the best of my knowledge, it contains no material previously published by another person nor material which has been accepted for the award of any other degree of the University, except where due acknowledgement has been made in the text.

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DEDICATION

I dedicate this work to the two most important women in my life at the moment, my lovely and resilient mother, Nana Abena Tiwaa for her immense support and my fiancée, Marti Bowles for being with me every step of the way in this academic journey, such a great motivator and I love her so much.

ACKNOWLEDGEMENT

DEFINITION OF TERMS

Awareness

Having or showing realization or knowledge

Malignancy

According to Merriam-Webster dictionary, it is the state of being malignant, thus tending to

produce death or deterioration.

LIST OF ABREVIATIONS/ACRONYMS

AMEST: Akuse Methodist Senior Technical School

CC: Cervical Cancer

CI: Confidence Interval

GAC: Ghana AIDS Commission

GAVI: Global Alliance for Vaccines and Immunizations

HPV: Human Papillomavirus

IARC: International Agency for Research on Cancer

ICO: Institut Català d'Oncologia

IOM: Institute of Medicine

KINDACOCO: King David's College

KROGISS: Krobo Girls Senior High School

LBC: Liquid Based Cytology

LMKM: Lower Manya Krobo Municipality

MAKROSEC: Manya Krobo Senior High School

MSP: Multiple Sexual Partners

NRC: National Research Council

RRR: Relative Risk Ratio

SDG: Sustainable Development Goals

SHEP: School Health Educational Program

SHS: Senior High School

SRAP: Students Research Award Program

STDs: Sexually Transmitted Infections

UNFPA: United Nations Population Fund (United Nations Fund for Population Activities)

VIA: Visual Inspection with Ascetic Acid

WHO: World Health Organization

ABSTRACT

This study assessed the awareness of cervical cancer among female students in selected senior high schools in the Lower Manya Krobo Municipality. The study sought to find out if the students perceive themselves of being at risk, if they know the risk factors of the disease and available vaccines and screening services.

It was a cross-sectional study where 389 participants were selected from the four (4) Senior High Schools in a stratified sampling approach using a school as a sampling unit. Open and close-ended questionnaire was administered to participants and data obtained was analyzed using descriptive statistics, simple logistic regression and multinomial logistic regression.

The study revealed that although the respondents had heard about cervical cancer, most of them lacked knowledge on the risk factors of the disease. Respondents did not identify HPV as a risk factor. The study also revealed significant association between cervical cancer knowledge and respondents' school (p-value: 0.00), Form (p-value: 0.002) and residential status (p-value: 0.013). A smaller percentage (29.05) believed they were at risk of getting cervical cancer. Most of the respondents (60.67%) preferred to get their information from health workers. Moving from Form 1 to Form 3, a student from Akuse Methodist was 1.02 times more likely to know of the disease compared to the counterpart in Krobo Girls (the base school), adjusting for all other covariates in the multinomial logistic model. Similarly, for switching from a Boarder to Day, a student from Akuse Methodist compared to Krobo Girls stands a high chance (12.28) of getting knowledge on the disease and consequently was 8.35 times more likely to also get information of this disease from teachers and religious leaders adjusting for all predicting variables.

Given the restrictive nature of the boarding school system to access of information, boarders should be target for more educative programs on the risk factors of cervical cancer.

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CHAPTER ONE

1.0.   INTRODUCTION

1.1. BACKGROUND

Cancer, also known as malignancy is simply described as the abnormal growth of cells which tend to proliferate in an uncontrolled manner, and in some cases spread to other parts of the body. It is often named after the part of the body it affects. When cancer starts in the cervix, it is called cervical cancer. It is one of the major public health problems in the world especially in less developed countries. It is mainly caused by sexually acquired infections with certain types of human papilloma virus (HPV)(WHO, 2016). Genital HPVs which are sexually transmitted account for most cervical cancer cases globally. HPV types 16 and 18 are responsible for seven out of ten cervical cancer cases worldwide (Institut Català d'Oncologia (ICO), 2016b). The main risk factors of cervical cancer are increased number of sexual partners or sexual intercourse with a man who has multiple sexual partners, increase regularity of having sexual intercourse and early age of first sexual intercourse(Jastreboff & Cymet, 2002). Other risk factors of cervical cancer includes smoking, incessant use of oral contraceptives, infection with other sexually transmitted diseases and lack of Vitamin C or Beta-carotene (Jastreboff & Cymet, 2002).

Cervical cancer is the fourth most common cancer in women worldwide and the seventh overall, with an estimated 528,000 new cases in 2012 (Globocan, 2012). Cervical cancer is the second most common cancer in women living in less developed regions with an estimated 445 000 new cases in 2012 (WHO, 2016). About 85% of the global burden occurs in the less developed regions where it accounts for 12% of all female cancers. Globally, cervical cancer recorded an estimated death of 266,000 in 2012, accounting for 7.5% of all female cancer deaths. The less developed regions are the hardest hit, recording about 87% (almost nine out of ten) cancer deaths. Mortality varies 18-fold between the

different regions of the world, with rates ranging from less than 2 per 100,000 in Western Asia, Western Europe and Australia/New Zealand to more than 20 per 100,000 in Melanesia (20.6) with Middle and East Africa recording 22.2 and 27.6 respectively (Globocan, 2012).

In low and middle-income countries, cancer levels vary according to the prevailing underlying risks with cervical cancer, liver cancer and stomach cancer all causing a larger proportion of cancer deaths than in high-income countries. According to World Health Organization, cervical cancer remains the leading cause of cancer death among women in sub-Saharan Africa (WHO, 2014). In a study conducted by Okonofua (2007), the highest burden and mortality associated with cervical cancer worldwide is in sub-Saharan Africa where a woman has 21% chance of surviving while a woman in the United States has a 70% chance of surviving. According to Institut Català d'Oncologia, (2016b), West Africa recorded 27,326 new cases with over 50% of deaths annually out of the global estimates of 527,624 new cases and 265,653 deaths.

In Ghana, cervical cancer is the leading cause of gynecological cancers (Institut Català d'Oncologia (ICO), 2016b). Each year, Ghana records 3,052 new cases of cervical cancer of which 1,556 die (Institut Català d'Oncologia (ICO), 2016b). WHO has predicted that by the year 2025, Ghana would be recording 5,000 new cases of cervical cancer and 3,361 cervical cancer deaths annually (WHO & Institut Català d'Oncologia (ICO), 2010).

These estimates are quite alarming and should therefore need a concerted and collaborative effort on the part of all stakeholders to reduce the disease burden. While the WHO estimates the HPV prevalence in the West African sub-regions, including Ghana at 16.5% of women, a study estimating HPV prevalence among a sample of women attending a gynaecological outpatient clinic in Accra Ghana, realized a crude HPV prevalence of 10.7% (Domfeh *et al.,* 2008).

Cervical cancer is strongly associated with HPV which is acquired through sexual intercourse (Bekkers *et al.,* 2006). The peak period for HPV infection is shortly after one has become sexually active. This deadly disease can be mainly prevented through vaccination using the HPV vaccine. If girls and women are vaccinated before they commence sexual activities, it offers a greater prospect in reducing cervical cancer incidence overtime (UNFPA, 2011).

In the light of this, Ghana with the assistance of Global Alliance for Vaccines and Immunization (GAVI) introduced a pilot project in 2013, to vaccinate adolescent girls in Primary 4 and 5 in both public and private schools against cervical cancer in 17 districts in the Greater Accra, Central and Northern regions (Osei, 2013). According to (Yaren *et al.,* 2008), the lack of knowledge concerning cervical cancer may be related to the fact that women are unaware of the causes and potential risk factors that expose a females to the disease and the possible modes of prevention.

WHO and other important institutions have reiterated that educating women and communities about the causes and prevention of cervical cancer should be an indispensable element in developing a successful comprehensive strategy on this important public health issue (World Health Organization, 2013, CCA, 2012)

1.2. PROBLEM STATEMENT

The National Research Council (NRC) and Institute of Medicine (IOM), reported in 2005 that, data from the developing countries showed a majority of males and females often begun sexual activities between the ages of 15 and 20 (Lloyd, 2005). In the Western and Central Africa, 21.4%, 59.3% and 76% of females reported having had sexual intercourse by the ages of 15, 18 and 20 respectively. With respect to the males, 11%, 40.3% and 60.6% had reported having had sexual intercourse by ages 15, 18 and 20 respectively. This is a clear indication that a larger number of females begin early sexual

activity than the males counterparts and therefore stand at a higher risk of being infected with human papillomavirus (Dixon-Mueller, 2008). According to the ICO Information Centre on HPV and Cancer, percentage of 15-year old males who have had sexual intercourse is four with a median age range of first sexual intercourse at 17.9–20.2 years while the percentage of same age for females is 7% with a median age range of first sexual intercourse at 17.9 – 18.9 years (Institut Català d'Oncologia (ICO), 2016b).

Ghana has a population of 6.57 million women ages 15 years and older who are at risk of developing cervical cancer (WHO & ICO, 2010). This section of the population is young and sexually active and hence, the occurrence of the human papillomavirus is extremely high. Women get infected with HPV in their teen ages and twenties according to Cronje (2005), however, many of the HPV infections do not show symptoms and as such, these women do not realize that they are infected until they become pre-cancerous (Moscicki, 2005).

Cervical cancer screening is uncommon in Ghana. Noticeably, the Pap smear test which is the most commonly performed test in developed countries is available in just a few healthcare facilities in the country.

The lack of a comprehensive national screening program in Ghana has therefore put a great limitation to the number of women who should be receiving their annual screening services (Adanu, 2002) (Gaffikin *et al.,* 2004). According to ICO (2016a), 2.8% of women between the ages of 25–65years are screened every 3 years. This clearly suggests that female teenagers who happen to be in the senior high schools are left out which is quite alarming to the health of the girl child looking at the age they start engaging in sexual activities, which puts them at a higher risk of HPV infection. Generally, lack of knowledge concerning cervical cancer and its importance in relation to women's health affects their decision and activities relating to early screening and the acceptance of vaccines (Yaren *et al.,* 2008).

A study conducted by (Abotchie & Shokar, 2009) among college students in Ghana revealed low levels of knowledge with regards to the link between HPV and cervical cancer. If this is realized among students in tertiary institutions, how much more our senior high schools?

This study therefore seeks to assess the awareness of cervical cancer among senior high school students in selected senior high schools in the Lower Manya Krobo Municipality in the Eastern Region of Ghana.

1.3. RATIONALE OF THE STUDY

According to a report by ICO (2016) on HPV and Cancer, Ghana records 3,052 new cases of cervical cancer annually with 1,556 mortality. The age standardized rates for incidence and mortality are 35.4 and 18.9 respectively. Ghana has 8.57 million women ages 15 years and above who are at risk of developing cervical cancer (ICO, 2016a). In 2014, the National AIDS Commission report indicated that Eastern Region recorded the highest prevalence of HIV cases (3.7) in the country. The report further indicated that persons involved in casual heterosexual sex with non-regular partners and their regular partners contributed 48.1% of new infections compared to 12.3% in 2008 which signifies that lots of sexual activities are going on in this region, which is a risk factor to contracting the HPV (GAC, 2014).

The goal of WHO in promoting health is to improve equity in health, reduce health risks, promote healthy lifestyles and settings and to respond to the underlying determinants of health. Hence, one of the key principles to reduce cervical cancer morbidity and mortality is to promote early screening test for HPV infection. However, if women do not have adequate information on cervical cancer and its risks, they won't be able to know whether they are at risk or not. Currently, there is little information available on cervical cancer among senior high school students especially in the Lower Manya Krobo Municipality.

The findings of this study will generate a preliminary information for planning effective educational programs on cervical cancer among female senior high school students not only in the municipality but the country at large and also create more awareness on the risk of cervical cancer. This will go a long way to help in achieving Sustainable Development Goals (SDG) 3 and 4 which is focus on good health and well-being, and quality education respectively.

1.4. CONCEPTUAL FRAMEWORK

Fig. 1. Conceptual Framework

DEMOGRAPHIC CHARACTERISTICS.
1. Age
2. Religion
3. Education (Form/level)

KNOWLEDGE LEVEL
1. Causes
2. Risk Factors
3. Prevention

CERVICAL CANCER AWARENESS

SOURCES OF INFORMATION
1. Mass Media
2. School
3. Health Professionals
4. Family members
5. Church
6. Friends

PREVENTIVE MEASURES
1. Screening
2. Vaccination
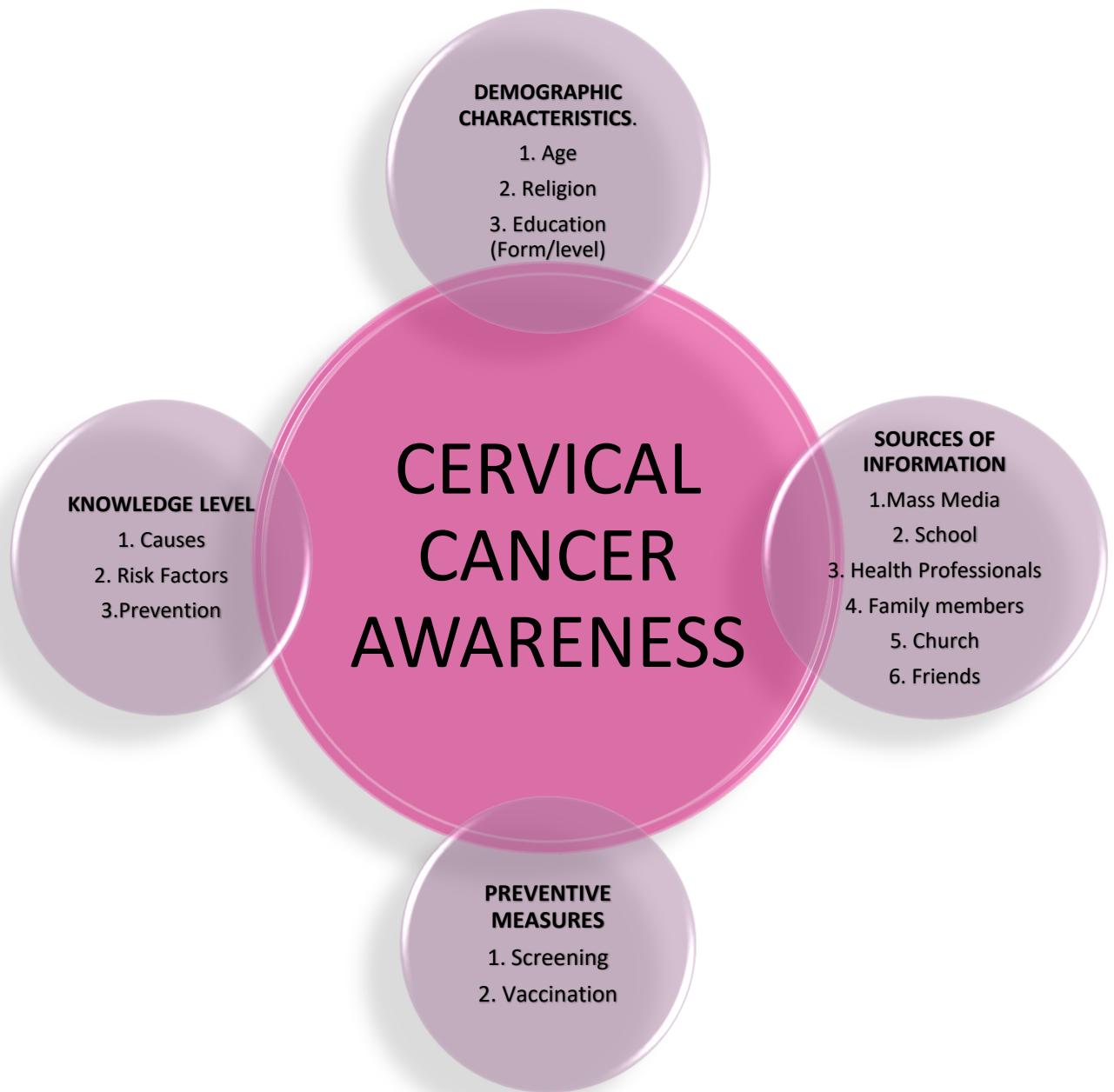
Source: Author's own construct.

A conceptual framework is described as a set of broad ideas and principles taken from relevant fields of enquiry and used to structure a subsequent presentation (Reichel & Ramey, 1987). When clearly articulated, a conceptual framework has potential usefulness as a tool to scaffold research and therefore, to assist a researcher to make meaning of subsequent findings. Such a framework should be intended

as a starting point for reflection about the research and its context. The framework is a research tool intended to assist a researcher to develop awareness and understanding of the situation under scrutiny and to communicate it effectively and efficiently. Hence, the conceptual framework above shows how demographic characteristics, sources of information, knowledge level and preventive measures influences cervical cancer awareness among the study population.

1.5. RESEARCH QUESTIONS

- What is the knowledge level concerning cervical cancer among female SHS students?
- Do the students perceive themselves as being at risk?
- Do they know the risk factors of this disease?
- Are students aware of available vaccinations for the prevention of this disease?

1.6. MAIN OBJECTIVE

The primary objective of this studies is to assess the awareness of cervical cancer among female students in some selected senior high schools in the Lower Manya Krobo Municipality.

1.7. SPECIFIC OBJECTIVES

- To estimate the awareness level of cervical cancer among students.
- To assess the knowledge about the risk factors of cervical cancer.
- To identify respondents' sources of information on cervical cancer

1.8. PROFILE OF STUDY AREA

The study took place in the Lower Manya Krobo and it involved four (4) senior high schools. Krobo Girls Senior High School was the only single sex school. Three of these schools were government schools and the other was a private school.

1.9. SCOPE OF THE STUDY

The study is restricted to only female senior high school students in the Lower Manya Krobo Municipal. The data used is a primary data collected by the researcher through self-administered questionnaire to elicit information like year of first sexual debut and number of sexual partners.

Although there are Seven (7) senior high schools in the municipal, only four were involved in the study due to time constraints. The data collection begun in January and the researcher submitted the final thesis in April 2017. The research was sponsored in part by the Students Research Award Program (SRAP) of Ensign College of Public Health. Irrespective of the SRAP, the researcher still had some financial constraints, limiting the number of schools involved in the study and research assistants to help in the data collection.

1.10. ORGANIZATION OF REPORT

The study is organized into Six (6) different chapters. The first chapter talks about the background of the study, the problem statement, the rationale and the conceptual framework of the study. It also outlines the research questions together with the objectives of the study. It also gives an account of the profile of the study area, the scope of the study and how the study is organized.

The second chapter consists of reviewed literature that is related to the field of study, mainly comparing and contrasting the works done in this field. The third chapter outlines the methodology that was employed in the study, sample size calculation, data collection tools and tools for analysis. The fourth chapter presents the findings from the data collected while the next chapter (5) will discuss the results obtained with emphasis to the research questions, objectives and the literature review presented in chapter two (2). The final chapter will infer on the results and discussion and make recommendations to key stakeholders.

CHAPTER TWO

2.0. LITERATURE REVIEW

2.1 INTRODUCTION

According to WHO (2016), cervical cancer is the fourth most frequent cancer in women with an estimated 530,000 new cases representing 7.5% of all female cancer deaths in 2012. Out of the estimated 530,000 new cases, more than 270, 000 deaths occur due to cervical cancer every year with more than 85% or these deaths occurring in less developed regions (World Health Organization, 2016)

Cervical cancer is the second most common cancer in women living in less developed regions with an estimated 445, 000 new cases representing about 84% of the new cases worldwide in 2012 (World Health Organization, 2016)

In sub-Saharan Africa, 34.8 new cases of cervical cancer are diagnosed per 100,000 women annually and 22.5 per 100,000 women die from the disease making the disease the most notable in lower-resource countries of sub-Saharan Africa (IARC, 2012)

2.2 OVERVIEW OF CERVICAL CANCER

Cervical cancer is caused by the sexually transmitted HPV, which is the most common viral infection of the reproductive tract (WHO, 2013). Almost all sexually active individuals will be infected with HPV at some point in their lives and some may be repeatedly infected. The peak time for infection is shortly after becoming sexual active. The majority of HPV infections resolve spontaneously and do not cause symptoms or disease. However, persistent infection with specific types of HPV (most frequently, types 16 and 18) may lead to precancerous lesions. If untreated, these lesions may progress to cervical cancer (WHO, 2013).

Cervical cancer is usually asymptomatic on the onset. Symptoms tend to appear only after the cancer has reached an advanced stage and may include: irregular, intermenstrual or abnormal vaginal bleeding after sexual intercourse; back, leg or pelvic pain; fatigue, weight loss or loss of appetite; vaginal discomfort or odourous discharge and a single swollen leg (WHO, 2016)

2.2.1 Primary Prevention

Primary prevention basically refers to practices that prevents the onset of a particular disease. With reference to cervical cancer, (Muñoz *et al.,* 2002) suggested that possible primary prevention methods include abstinence, keeping one sexual partner and use of condoms since the primary method for the transmission of genital HPV is mostly through sexual intercourse. On the other hand, the introduction of the prophylactic vaccine for cervical cancer has become a major primary prevention tool. HPV vaccination is targeted at girls 9 – 13 years of age since the vaccine works best if administered before the exposure to HPV (World Health Organization, 2013)

2.2.2 Secondary Prevention

Cervical cancer screening is the testing for pre-cancer and cancer of women at risk, most of whom will be without symptoms. At a minimum, screening is recommended for every woman 30 – 49 years of age at least once in a life time (World Health Organization, 2013).

Globally, in 2012, there were nearly a billion women between 30 and 49 years old, most of whom have never been screened even once in their life (WHO, 2013). In Ghana, 2.8% of women between the ages 25 – 65 years are screen every 3 years (Institut Català d'Oncologia, 2016a). Early detection and treatment of precancerous lesions can prevent majority of cervical cancers. Three different types of tests are currently available; conventional (Pap) and liquid based cytology (LBC), Visual inspection with Acetic Acid (VIA) and HPV testing for high risk HPV types(16 and 18) (World Health Organization, 2013).

2.2.3 Tertiary Prevention

In advanced stages, invasive cervical cancer is treated by surgery and or radiotherapy. Chemotherapy can complement the treatment regime at late stages. In many countries, there is insufficient capacity to provide these services or the existing services are not accessible and affordable to the majority of the affected women (World Health Organization, 2013).

2.3   RELATED WORKS

This section presents findings of related studies conducted on the subject of cervical cancer, knowledge and sources of information on the topic and its prevention among adolescent girls.

There have been several studies conducted on cervical cancer with particular emphasis on the adolescent girl. Cervical cancer development usually begins at this stage, so adolescent's knowledge on this topic is crucial to their survival. Most adolescents are sexually active hence, most studies conducted usually sought to determine the sexual activities of respondents and what they knew about the link between their sexual activities and their risk of contracting this dreadful disease.

In Alaska, (Kemberling *et al.,* 2011) sought to determine the native adolescents views, knowledge and perception on cervical cancer, the human papillomavirus (HPV), genital warts and the quadrivalent HPV vaccine. In Kuala Lumpur, Malaysia, (Rashwan *et al.,* 2013) assessed the knowledge levels and views of secondary school students on cervical cancer and its prevention in three different races, Chinese, Malay and Indian.

Similarly in Japan, (Ghotbi & Anai, 2012) also assessed the knowledge and attitude of female college students towards cervical cancer prevention, examined the age of sexual debut and other related attributes that might have influenced the risk of cervical cancer. (Saha *et al.,* 2010) also sought to

determine the knowledge levels of female college students about cervical cancer, its risk factors, HPV etiologic agents and screening practices in Kolkata, India. (Rashid *et al.,* 2016) also conducted a similar study in India. They determined the knowledge, awareness and attitude on HPV, its vaccine and cervical cancer among college students. They included both sexes in this study. Furthermore in Italy, (Di Giuseppe *et al.,* 2008) assessed the knowledge, attitudes and behavioral intentions towards cervical cancer. (Bucholc & Trojnar, 2015) also sought to answer the question of what knowledge an adolescent or a high-school pupil should have concerning cervical cancer and also the factors that determines it. In the United States of America, Beavis and Levinson in their bid to prevent cervical cancer, identified the barriers and resolutions for HPV vaccination among preadolescents and adolescents(Beavis & Levinson, 2016). Kamzol *et al.,* (2012) however assessed knowledge about cervical cancer among female high school and university students in Poland with particular emphasis on their sources of information about the disease. Hoglund *et al.,*(2008) investigated the knowledge of and attitudes to sexually transmitted infection and prevention with special focus on HPV among 16 year old high school students in Sweden (Hoglund *et al.,* 2008)

There have been similar studies conducted in Africa as well. In Northwest Ethiopia, Getahun *et al.,* (2013), assessed the knowledge of women about cervical cancer and factors associated with it. In another study, Hoque (2010) assessed the awareness about cervical cancer and preventive behaviour of female students in a university in South Africa. In Lagos Nigeria, Makwe *et al.,* (2012) sought to determine the knowledge and attitudes towards HPV infection and HPV vaccines among female undergraduate students. Abotchie and Shokar sought to describe the knowledge and belief of female university students in Ghana on cervical cancer and cervical cancer screening (Abotchie & Shokar, 2009).

Most of these studies used the survey method in gathering data in order to enable generalizations and also describe quantitatively, the knowledge of respondents on cervical cancer as well as draw

comparisons. Teenagers and young adults from the ages of 14 to 29 were mainly the targeted population for these studies, with sample sizes often ranging between 150 to 1,348 respondents.

However (Kemberling *et al.,* 2011) used the qualitative research method. They conducted 79 in-depth interviews with adolescent girls aged 11 to 18 in four communities in Alaska. Sixty-five percent, 25% and 10% of the participants were from hub communities, a village and an urban area, respectively. The respondents were made to answer knowledge questions concerning cervical cancer, HPV and genital warts after which they were given a short educational session on each topic and asked further questions.

2.4   FINDINGS FROM RELATED STUDIES

Onset of sexual activity and sexual activities of adolescent girls

Sexual activity is a main factor in HPV infection which accounts for most cervical cases. It is therefore necessary to draw the link between respondents' knowledge of cervical cancer and their sexual activities.

Giuseppe *et al.*, (2008) in their study in Italy, found that the average age at which most of the respondents (45.4%) reported current or previous sexual activity was 17 years. Of the respondents who were sexually experienced, 21.1% stated that they have consistently used condom during sexual intercourse in the last year (Di Giuseppe *et al.,* 2008).

In the study conducted in Japan, (Ghotbi & Anai, 2012) revealed that the earliest age at which two of the respondents started engaging in sexual intercourse was 13 years while most of the respondents had their first sexual intercourse at the age of 18 years. Fifty-nine percent of sexually active students had one or two sex partners. Other sexually active students, 22% and 14%, stated that they had three and

four or five sexual partners respectively while 14% had more than five partners. Out of these students, 42% used condoms consistently while 56% represented those who did not use condoms consistently.

Makwe *et al.*, discovered in the study in Nigeria, that almost half (56 %) of the respondents were not sexually active. However, those who were sexually active had commenced having sexual intercourse as early as eight years (Makwe *et al.,* 2012). Hoque in the study in South Africa did not determine the age of first sexual intercourse among the respondents but discovered that 40% of them were sexually active. Out of this number, 28 % said that they had two or more sex partners (Hoque, 2010).

Knowledge of Cervical cancer and its risk factors

Knowledge of cervical cancer was generally low among the respondents in most of the studies. Kemberling *et al.*, found that respondents were equally divided between either stating that they did not know anything about cancer or gave medically accurate answers. Many of the respondents gave more accurate answers related to lung cancer, which showed that they had heard more about lung cancer than cervical cancer. While some of the respondents did not know about the causes of cancer, others cited drugs, alcohol, and tobacco. Some common responses for the causes of cervical cancer were sexual intercourse, STDs, HPV, environmental conditions such as the use of pesticides and radiation as well as poor health in general. Younger teens were less likely to mention the causes of cancer as sexual activity, STDs and HPV than were older teens. In addition, younger teens had heard of HPV as much as older teens. This suggests that age plays an important role in determining an adolescent girl's knowledge on cervical cancer. Older teens are therefore more likely to be more exposed and interested in information on cervical cancer than younger teens (Kemberling *et al.,* 2011). This was also confirmed in a study by Rashid *et al*, they compared the knowledge levels of both boys and girls. Among the girls, older girls were more aware of the disease compared to younger girls. It was also

observed that girls were more aware of the existence of HPV vaccines (44%) compared to boys (Rashid *et al.,* 2016).

In addition to that, a study conducted by (Saha *et al.,* 2010) found out that, over half (53.3%) of the participants have heard about cervical cancer and most were able to identify the risk factors associated with the disease. Most of the respondents (54.0%) identified HPV as a risk factor of this disease. A considerable portion of the respondents (37.8%) also identified early onset of sexual activity and multiple sexual partners and smoking (21.1%) as risk factors with 27% of the respondents attributing the disease to family history of cervical cancer. Ten percent did not know the risk factors of this disease.

The Rashwan, Ishak and Sawalludin study discovered that majority of the respondents (80.4%) had heard about cervical cancer. This, however, had a strong significant relationship with form and race. In terms of race, more Malay students (86.9%) had heard about cervical cancer, followed by Indian (80.6%) and Chinese students (69.9%). Although most of the respondents had heard of cervical cancer, 74.4% of them had low level of knowledge on the causes and prevention of cervical cancer. Respondents from the science classes had a significantly higher knowledge of cervical cancer and its prevention than respondents from the art classes because the former had previous knowledge about the disease because of their science background than the latter that had little science background. Also more respondents in lower Form 6 (92.8%) had heard about cervical cancer than form 4 students (76.2%) (Rashwan *et al.,* 2013).

Similarly, (Hoglund *et al.,* 2008) established in the study in Sweden that the respondents lacked knowledge about the HPV and its relationship with cervical cancer. In addition, Di Guiseppe *et al.*, discovered in the study in Italy that only half of the respondents said that they had heard of cervical cancer before. In general, only 23.3% of the respondents had heard about cervical cancer and that HPV is one of the most widespread infections of the genital mucosa. Of the respondents, only 29.8 % stated

that HPV is one of the most common infections of the genital mucosa while three-quarters of them knew that the infection is primarily transmitted through sexual intercourse (Di Giuseppe *et al.,* 2008).

According to Bucholc and Trojnar, 67% of the respondents stated that this dreadful disease can be prevented whereas 28% thought otherwise. Five percent of the respondents believed that this disease directly leads to death. The study conducted revealed that nearly half of the high school pupils (47%) were unable to determine what the risk factors of cervical cancer were, though 78 girls knew that it was an infection with HPV. Another 14 (7%) acknowledge they were only vaginal infections while 13 (6.50%) mentioned that genetic factors contributed to this dreadful disease, whereas one person (0.50%) thought of it as a carrier of an HIV virus (Bucholc & Trojnar, 2015). In a further study conducted by Saha *et al*, the students had very low level of knowledge about the risk factors of for cervical cancer. Knowledge was least (3%) for 'multiple sex partners' as a risk factor followed by 4% for 'other cervical cancer infections'. However, the largest proportion (29%) of the students recognized smoking as a risk factor. In addition, out of the total participants 41% responded that sexual activity may be involved with the etiology of cervical cancer (Saha *et al.,* 2010).

In contrast, Kamzol *et al.*, discovered in the study in Poland that almost all the respondents (98.5%) had heard about cervical cancer. Eighty-four percent knew that cervical cancer leads to death while 44.8% believed that they could develop cervical cancer in future. The respondents believed that the most important risk factors associated with cervical cancer are genetics and family history. They also mentioned infection with HPV and having multiple sexual partners as other causes of cervical cancer (Kamzol *et al.,* 2012). This revealed that the respondents in this study had higher knowledge levels on cervical cancer. Similarly, in a study conducted by Getahun *et al*, 495 (78.7%) of the respondents have heard about cervical cancer (Getahun *et al.,* 2013)

The level of knowledge on cervical cancer among adolescent girls in Africa was significantly lower than in most Western countries. The Hoque's study in South Africa discovered that of all the respondents, only 33 % had heard about cervical cancer. Of this number, 32 % knew about HPV as the cause of cervical cancer while 26 % cited having multiple sexual partners as the cause. It was also discovered that the respondents were twice more like likely to use condoms if they had heard about cervical cancer. This indicates that sexually active respondents who had heard of cervical cancer and believed that they were at risk of getting the disease took steps in protecting themselves by using condoms(Hoque, 2010). In Nigeria, the Makwe, Anorlu and Odeyemi's study found that 56.4%, 17.7% and 14.4% of the respondents were aware of cervical cancer, HPV infection and HPV vaccine respectively (Makwe *et al.*, 2012). While in Ghana the Abotchie and Shokar's study revealed only 7.9% of the respondents were able to associate cervical cancer with HPV(Abotchie & Shokar, 2009).

Knowledge of cervical cancer prevention

Respondents' knowledge of cervical cancer prevention was also low in most of the studies. The Kemberling *et al.*, study discovered that some of the respondents did not believe that cancer was preventable but others suggested vaccine, medicine, a healthy lifestyle, safer sex practices and abstinence from sex, drugs, alcohol and tobacco as preventive means to cancer. More respondents knew that cancer was curable than others who either did not know or did not think that it was curable. About half of the respondents answered questions on the purpose of a vaccine correctly.

Adolescents aged 15 to 18 years however showed a more precise understanding of the purpose of a vaccine which indicates that older teens know more about such things than younger teens. Some of the respondents gave reasons for accepting to take vaccines as not to fall sick, to get better, and to be healthy or because someone had recommended it. Others said that they would not take the vaccines for reasons that they were afraid of the vaccine shots, the shots would hurt, the vaccine might not work,

neither they nor their sex partners would get an STD and that the vaccine might have adverse side effects (Kemberling *et al.,* 2011).

However, Rashwan, Ishak and Sawalludin, found that 70.4 % had low knowledge about the cervical cancer prevention. Most of the respondents (68.9 %) expressed interest in finding out more information about cervical cancer vaccines if they existed. More respondents in lower form 6 (77.5 %) agreed to be take the vaccine than respondents in form 4 (66.5 %). The main reason for agreeing to take the vaccine was because some respondents (51.1 %) were aware of the risk associated with developing cancer. Respondents who refused to take the vaccine (12.4 %) stated that they did not believe that they were prone to developing cervical cancer. Others (11.1 %) were afraid of adverse effects of taking the vaccine while some (8.7 %) did not know of the importance of vaccination (Rashwan *et al.,* 2013).

Likewise, the Kamzol *et al.*, study discovered that 30.1 % of the respondents did not know that vaccination is a way of preventing cervical cancer (Kamzol *et al.,* 2012). Similarly, the Hoglund *et al.*, study found that the respondents' knowledge on the vaccine was inadequate. The respondents stated that they used condom when having sexual intercourse with new partners however this reduced if they used oral contraceptives and had been vaccinated against an STI (Hoglund *et al.,* 2008). The Di Guiseppe *et al.*, study discovered that 60.2 % of the respondents knew that many cervical cancer incidences and deaths can be prevented by means of a pap test to detect precancerous changes in the cervix while 34.8% knew that the risk of HPV and cervical cancer can be reduced through condom use. Less than 42.2% of the respondents knew that the HPV vaccine is used to prevent cervical cancer while only 15.3 % knew of the vaccine's availability in Italy. Majority of the respondents (81.7 %) had the desire of getting HPV vaccine in future. Their reasons were that taking the vaccine reduces one's risk of getting infected with HPV (73.8%), developing cervical cancer (59.7%) and because they were feeling at risk of getting the disease (10%). The respondents who did not express the desire of getting

the HPV vaccine said that they believed the vaccine was dangerous (59.6%) and that they do not feel at risk of getting the disease (Di Giuseppe *et al.,* 2008).

In contrast, the Hoque's study in South Africa revealed that 31 % of the respondents had heard about the Pap smear test out of which 33% were aware that the test is used to either detect or prevent cervical cancer (Hoque, 2010). This finding was higher compared to the study by Makwe, Anorlu & Odeyemi, (2012) in Nigeria where it was discovered that only 12.7 % of the respondents knew that Pap smear could be used to prevent cervical cancer. However less than 50% of the respondents who knew about the HPV vaccine knew that it was for preventing cervical cancer (Makwe *et al.,* 2012).

Likewise in Ghana, Abotchie and Shokar discovered that most respondents were not aware of any local cervical cancer screening programme. The prior pap screening rate among the respondents was 12.0%. Sixty-eight percent of the respondents identified that young women were prone to getting cervical cancer while 52.5% believed they were at risk of developing cervical cancer. The barriers to the respondents going for screening were lack of awareness of the importance of the pap screening in diagnosing cancer, fear of what people might think and lack of information about how to get screening services. Others also did not have the belief that cervical cancer screening diagnoses cancer while others believed that the Pap smear test was painful and others also believed that the test could take away their virginity. In addition, some of the respondents (23.4%) were concerned about issues with cost; others (24.3%) did not know where to go to get screening while others stated that if they went for the screening, everyone would think that they are sexually active (Abotchie & Shokar, 2009).

Furthermore, a study conducted by Getahun *et al*, revealed that, regular medical checkup/screening was on top of the list of preventive measures (54.8%), whereas other preventive measures like vaccine for HPV, delaying sexual debut, being faithful to sexual partner, consistent condom use had 6.0%, 6.2%,

6.0%, 2.2% respectively. However, majority (36.1%) did not know any preventive measures and 3.7% was recorded for others (Getahun *et al.,* 2013).

Sources of information on cervical cancer and its prevention

The media served as major sources of information on cervical cancer and its prevention among most of respondents in the studies reviewed. Most of them preferred the media to other sources, although some also preferred getting information from medical personnel.

Kemberling *et al.*, found that most of the respondents commonly mentioned school, medical staff, family, television, and internet as their sources of health information. Sources that were less common among them were peers, posters and brochures. Younger teens generally mentioned their school and teachers as their main sources of information. However older teens got their information from family. Magazines were a common source of information while newspapers and radio were less chosen as sources. Older teens mostly chose medical staff, television and the internet as sources of health information than did younger teens. Respondents' preferred type of media was television, the internet, brochures and posters respectively because of the relative privacy and ease accompanied with seeking information from such sources. The respondents also said that they would rather approach medical personnel than teachers with questions about cervical cancer and HPV although they commonly cited teachers as a source of information. Their belief was that medical personnel work in the health sector therefore they are the best source from which information on cervical cancer should be sought (Kemberling *et al.,* 2011).

Similarly, the Rashwan, Ishak and Sawalludin, study found that the preferred source of information on cervical cancer to the respondents was the internet (64.4%). This was followed by books and magazines (54.0%) and health care professionals (52.9%) (Rashwan *et al.,* 2013). Also, Kamzol *et al.*, stated that

the respondents cited the internet, television and newspaper as the main sources of information about cervical cancer (Kamzol *et al.,* 2012).

The media also served as an important source of information on cervical cancer prevention in the Di Guiseppe *et al.*, study in which 62.7% of the respondents who knew of the vaccine's availability in Italy got the information on television or mass media. Some respondents (17.4%) also mentioned health professionals as their source of information on the vaccine's availability in Italy (Di Giuseppe *et al.,* 2008). Moreover, Getahun *et al.*, found out that, television/radio was the predominant source of information (60.8%) followed by health professionals (34.9%) and friends/relatives (21.6%) (Getahun *et al.,* 2013), however, respondents in the study conducted by Saha *et al.*, showed that majority of them (60.0%) identified medical or nursing staff/community health workers as their main source of information on cervical cancer while 15.6% identified their source as family members and the media. However, 55.3% of the total respondents did not know that cervical cancer can be prevented (Saha *et al.,* 2010).

In contrast, the Hoglund *et al.*, study discovered that the main source of information on cervical cancer for the respondents was the school which was followed by youth clinics and the media (Hoglund *et al.,* 2008). In addition, Hoque revealed that almost half of whom (42%) had heard of cervical cancer from medical or community health workers. Nineteen percent had heard it from the media. Only 31% of the respondents had heard of the pap smear test, about half (46%) of whom had heard it from health workers. The respondents' sources of information on cervical cancer, HPV infection and vaccine were television (21%), print media (12.7%), health campaigns (12.2%), family and friends (9.9%), and health care providers (9.4%) (Hoque, 2010).

CHAPTER THREE

3.0   METHODOLOGY

3.1   STUDY SITE

The Lower Manya Krobo Municipality (LMKM) is one of the twenty-six (26) Municipalities and Districts in the Eastern Region of Ghana with Odumase-Krobo as its administrative capital. The LMKM lies between latitude 6.05^0S and 6.30^0N and longitude 0.08^0E and 0.20^0W with an altitude of about 457.5m above sea-level. The LMKM is the parent district from which Upper Manya Krobo district was carved-out. The municipal shares boundary with Upper Manya Krobo to the north, Dangme West to the south, Yilo Krobo Municipal to the west and Asuogyaman District to the east. The 2010 Population and Housing Census indicated a population size of 89,246 for the municipality and this comprised 41,470 males representing 46.46% and 47,776 females representing 53.54%.

The municipal is relatively flat to the southeast with isolated hills to the northeast. It has an undulating landscape with several streams which empty into the Lake Volta. It has a typically tropical climate and experiences major rainy season from March to July whereas the minor rainy season is from September to October. The vegetation generally falls within the dry semi-deciduous and dry deciduous forest. There are four forest reserves in the municipal which occupy about 60sqkm of the land namely; Volta River Block 1, Yongua, Sapawa and Aboden forest reserves.

The Krobos are the major ethnic group in this municipal with the Ewes and Akans in minority. The residents are predominantly Christians with just few Moslems present. The Krobos are associated with a cultural practice called "DIPO" and its essence is usher in the girl-child into adulthood.

The main occupations in the municipal are farming, fishing trading and artisan jobs. Livestock rearing is also common with sheep, goats and poultry dominating. The major economic tree found is the *Magnifera indica* (Mango).

There are a total of seven (7) senior high schools in the municipal; four public and three private schools. They have three vocational/technical schools with one tertiary institution. The illiteracy rate is approximately 45% of the population (Municipal Profile, 2015)

3.2   STUDY DESIGN

The study design was cross-sectional of which a survey instrument was used to gather the needed data. At the senior high school level, it is believed that the literacy rate is high as most could read and understand the questions as well as follow instructions, hence the designed questionnaire was self-administered. Respondents were encouraged to answer the questions with sincerity and complete fidelity and the questionnaires was worded to make it understandable to the respondents.

The questionnaire constituted mostly of close-ended questions and some open-ended questions. The close-ended questions were employed due to its limiting nature which also allows for easy analysis. Close-ended questions affords a respondent to choose from a list of answers provided or listed. The open-ended questions gave the respondents the opportunity to express their thoughts and feelings about a particular question. It allows for in-depth responses and also supplements the closed-ended questions. The responses from the open-ended questions were categorized under various themes and coded numerically to allow for easy analysis. The questionnaire sought to determine the knowledge of adolescent girls on cervical cancer, its causes and prevention. It also elicited information about their sexual behaviour, their preferred source of information and why they preferred that source and to know if they perceive themselves at risk of getting cervical cancer.

3.3   STUDY POPULATION

The study population for this research were female senior high school students in selected schools in the Lower Manya Krobo Municipality. The study was restricted to female students only as they are susceptible to cervical cancer. There are seven (7) senior high schools in the Lower Manya Krobo Municipality. Four of these schools were randomly selected. These are Krobo Girls Senior High School which is a single sex school, Akuse Methodist Senior High School, Manya Krobo Senior High School and King David's College.

3.4   STUDY VARIABLES

The study variables of this study is the knowledge of cervical cancer among the female students, their source of information and how their form or status influence this knowledge.

3.5   SAMPLE SIZE AND SAMPLING TECHNIQUE

The sample was made up of female students in Krobo Girls Senior High School, Akuse Methodist Senior High School, Manya Krobo Senior High School and King David's College. These four schools has an estimated female population of about 3, 084. With a margin error of 5% and a 95% percent confidence interval, using the Raosoft Software sample size calculator (http://www.raosoft.com/samplesize.html), the preferred sample size was 342 but was adjusted to 400 to cater for non-respondent rate. The four schools were grouped into four different strata. Proportional allocation was then used to determine the size that should be taken from each stratum.

The formula that was used to calculate the size for each stratum is shown below;

$$n_h = \left(\frac{N_h}{N}\right) \times n$$

Where

n_h = sample size of a particular stratum

N = total size of the population

n = total sample size

N_h = Population size of a particular stratum.

Hence, the sample taken from each school was calculated as follows:

Krobo Girls = (1,564 / 3,084) * 400

= 202

Manya Krobo = (680 / 3,084) * 400

= 88

Akuse Methodist = (690 / 3,084) * 400

= 89

King David's = (150 / 3,084) * 400

= 20

The attendance rooster of the classes was used to select participants randomly for the study. Random numbers were assigned to the names of all the female students from each form and an even or odd number was selected at random. The questionnaires were self-administered with little or no supervision since each participant could read and write.

3.6   PRETESTING

The survey instrument was pretested among female students at Modern Senior High School in Kpong, a town in the Lower Manya Krobo Municipal. This process ensured the evaluation of the questionnaire, its reliability, average time needed to complete each questionnaire, the structure of the questions and their clarity and evaluate the success of the training of research assistants.

3.7   DATA HANDLING

Data collected was immediately handed over to the researcher. Data was then entered into excel and locked with password to protect the sensitive information it carried and only the researcher had access to it.

3.8.   DATA ANALYSIS

Data entry was done using Microsoft Excel version 2013. The coded numerical data entered into Excel was then imported and analyzed with STATA Statistical software package (*StataCorp.2007. Stata Statistical Software. Release 14*. StataCorp LP, College Station, TX, USA). Data was entered twice and merged to ensure data was cleaned and locked with a password to ensure data confidentiality. Quantitative data was analyzed using descriptive statistics in percentages, frequencies, means, cross-tabulations, chi-square was used to make the analysis clear and easy to understand. Logistic and multinomial regression was also used to make predictions.

3.9   ETHICAL CONSIDERATION

An institutional approval was sought from the Ghana Education Service following the ethical approval from the Ensign College of Public Health Ethics Review Board. There are no risks involved in the study, participants rather will stand a chance of gaining some knowledge about cervical cancer. Signed individual informed consent was obtained from each participant before they were enrolled into the study. Participants were told about their rights to withdraw from the study without any form of coercion as the study is voluntary. Identities of participating students was not disclosed at any point of the study and will remain anonymous to ensure confidentiality.

The research was self-sponsored and there was no form of compensation for participating students to ensure that responses from the participants would not be bias on account of hope of remuneration.

3.10   LIMITATIONS OF THE STUDY

Some of the questions sought to elicit sexual activity and other information of respondents and not all were willing to give out such sensitive information even though there were no names attached to it. Some of the heads of the schools were not readily available and this delayed data collection for some schools involved. The small nature of the sampled size used will make it impossible to generalize the key findings to a larger population. Also, some information gathered from the respondents could be subjected to recall bias. Typical among this will be how information on cervical cancer and its prevention has affected their sexual behavior.

3.11.   ASSUMPTIONS

The researcher assumed that participants will answer truthfully and the sample size chosen is representative enough of the population I wish to make inferences to.

The participants will answer the questions truthfully because the participants' identity is highly confidential and that the survey instrument does not require the identity of the participants. All information obtained will be secured under lock and all data entered will be de-identified and will be available only to persons related to the study (supervisors and myself). Participation in the study is completely voluntary and individuals reserve the right to participate.

Due to the small sample size, the findings of the study cannot be generalized to the country but it is representative enough to make inferences to the participants in the Lower Manya Krobo Municipal.

CHAPTER FOUR

4.0.   RESULTS OF THE STUDY

4.1   Introduction

This chapter presents the findings from the study. The findings and analysis are specifically based on the research objectives and research questions. The objectives of this study was to estimate the awareness of cervical cancer among students, to assess the knowledge about the risk factors of this dreadful disease and to identify respondents sources of information on cervical cancer.

4.2   Demography of the Respondents

The total number of respondents targeted for the study was 400 female students from selected Senior High School in the Lower Manya Krobo Municipality. This is made up of 202 students from Krobo Girls, 88 from Manya Krobo, 89 from Akuse Methodist and 20 from King David's College. Out of the 400 students targeted, 389 students were reached, giving a response rate of 97.25%.

Manya Krobo recorded 86 respondents representing 97.73% out of the 88 respondents targeted. There was a 100% response rate in King David's College and Akuse Methodist. In Krobo Girls, 195 of the respondents were reached, representing 96.53% of the targeted 202 students. In all, Krobo Girls formed the majority (50.13%) of the respondents, with Manya Krobo, Akuse Methodist and King David's College forming 22.11%, 22.62% and 5.14% respectively.The students in Form 1 constituted a majority (39.07%) whereas that of Form 2 and 3 constituted 30.08% and 30.85% of the respondents respectively. Majority (87.40%) of the students were boarders. Most of the respondents (47.04%) were in the General Arts program followed by Home Economics students constituting 30.33%. The least represented was Visual Arts (4.88%). Majority (67.61%) of the respondents were in the age group of 16 to 18 years with the mean age of 16.61 ±1.61. Christianity constituted the major (95.37%) religious affiliation of the respondents as seen in Table 1.

Table. 1: Demographic Characteristics of Respondents

Variable	Category	N (%)
School	Manya Krobo	86(22.11)
	Akuse Methodist	88(22.62)
	King David's	20(5.14)
	Krobo Girls	195(50.13)
Age Group	13 - 15	90(23.14)
	16 - 18	263(67.61)
	19 - 21	30(7.71)
	22+	6(1.54)
Grade	Form 1	152(39.07)
	Form 2	117(30.08)
	Form 3	120(30.85)
Status	Boarder	340(87.40
	Day Student	49(12.60)
Program	Science	46(11.83)
	General Arts	183(47.04)
	Home Economics	118(30.33)
	Visual Arts	19(4.88)
	Business	23(5.91)
Religion	Christianity	371(95.37)
	Islam	16(4.11)
	Traditional	1(0.26)
	Other(unspecified)	1(0.26)
Mean Age	16.61	SD 1.61

Source: *Field Data, 2017*

4.3   Respondents' Knowledge and Sources of Information on Cervical Cancer and its Prevention

Findings from the study revealed that 53.49%, 44.32%, 45% and 77.44% of the respondents from Manya Krobo SHS, Akuse Methodist SHS, Kind David's College and Krobo Girls SHS have heard of cervical cancer respectively. This shows that there were more students from Krobo Girls SHS who have heard of this dreadful disease, whereas Akuse Methodist recorded 44.32% which was the lowest among the schools. Collectively, 245 of the respondents representing 62.98% had heard of cancer of the cervix whereas the remaining 37.02% reported they have not heard about it as shown in Table 2.

Table. 2: Knowledge on Cervical Cancer by School

Heard of Cervical Cancer	Senior High School				
	Manya Krobo	**Akuse Methodist**	**King David's**	**Krobo Girls**	**Total**
Yes	46	39	9	151	**245**
	53.49%	44.32%	45.00%	77.44%	**62.98%**
No	40	49	11	44	**144**
	46.51%	55.68%	55.00%	22.56%	**37.02%**
Total	**86**	**88**	**20**	**195**	**389**
	100%	**100%**	**100%**	**100%**	**100%**

Source: *Field Data, 2017*

A bivariate analysis revealed a statistically significant association between a student hearing about cervical cancer and school, grade or form of the respondent and their status either as a day student or a boarder at the time of the study. From the chi-square analysis, the p-value for the Pearson's Chi Square test was less than 0.05 which is an indication of a statistical level of significance. The result is displayed in Table 3.

Table. 3: Bivariate analysis of demographic characteristics on cervical cancer knowledge

Variable (N=389)	Heard of Cervical cancer		P-value
	Yes n=245(%)	No n=144(%)	
School (SHS)			0.00*
Manya Krobo	46(18.78)	40(27.78)	
Akuse Methodist	39(15.92)	49(34.03)	
King David's	9(3.67)	11(7.64)	
Krobo Girls	151(61.63)	44(30.56)	
Age			0.522
13 - 15	53(21.63)	37(25.69)	
16 -18	172(70.20)	91(63.19)	
19 - 21	17(6.94)	13(9.03)	
22+	3(1.22)	3(2.08)	
Form			0.002*
1	84(34.29)	68(47.22)	
2	70(28.57)	47(32.64)	
3	91(37.14)	29(20.14)	
Status			0.013*
Boarder	222(90.61)	118(81.94)	
Day Student	23(9.39)	26(18.06)	
Programme of Study			0.174
Science	35(14.29)	11(7.64)	
General Arts	114(46.53)	69(47.92)	
Home Economics	67(27.35)	51(35.42)	
Visual Arts	14(5.71)	5(3.47)	
Business	15(6.12)	8(5.56)	
Religion			0.471
Christianity	233(95.10)	138(95.83)	
Islam	11(4.49)	5(3.47)	
Traditional	0	1(0.70)	
Other(unspecified)	1(0.41)	0	

Source: *Field Data, 2017*

Another bivariate analysis was also conducted on respondents' perception and behavior on knowledge of cervical cancer. There was an association between knowledge on cervical cancer and believe that the respondent is at risk getting cervical cancer; has affected their sexual behavior and searching for

information on the dreadful disease because the p-values measured were less than 0.05. On the contrary, no association was found between cervical cancer knowledge and risk of developing cervical cancer as shown in Table 4.

Table. 4: Bivariate analysis on cervical cancer and respondents' perception and behavior

Variable (N=389)	Heard of Cervical Cancer		P-value
	Yes n=245(%)	No n=144(%)	
Believe at risk of getting CC			**0.042***
Yes	73(29.80)	40(27.78)	
No	81(33.06)	32(22.22)	
Not Sure	91(37.14)	72(50.00)	
At risk of developing CC			**0.293**
Yes	58(23.67)	26(18.06)	
No	183(74.70)	117(81.25)	
No Answer	4(1.63)	1(0.69)	
Affected Sexual Behaviour			**0.002***
Yes	42(17.14)	13(9.03)	
No	131(53.47)	63(43.75)	
Not Sure	72(29.39)	66(47.22)	
Search for information on CC			**0.006***
Yes	55(22.45)	14(9.72)	
No	189(77.14)	129(89.58)	
No Answer	1(0.41)	1(0.69)	

Source: *Field Data, 2017*

Table. 5: Output of logistic regression between knowledge of cervical cancer and some variables

Variable	Categories	P-Value	OR (95% CI)
Age Group	13 - 15	R	1
	16 - 18	0.268	1.3 (0.81 - 2.15)
	19 - 21	0.831	0.91 (0.39 - 2.10)
	22- 25	0.67	0.69 (0.13 - 3.65)
School	Manya Krobo	R	1
	Akuse Methodist	0.227	0.69 (0.38 - 1.25)
	King David's	0.495	0.71 (0.26 - 1.8)
	Krobo Girls	0.00*	2.98 (1.73 - 5.12)
Grade	Form 1	R	1
	Form 2	0.45	1.21 (0.73 - 1.97)
	Form 3	0.001*	2.54 (1.5 - 4.29)
Status	Boarder	R	1
	Day Student	0.014*	0.47 (0.25 - 0.86)
Programme	Science	R	1
	General Arts	0.083	0.52 (0.25 - 1.09)
	Home Economics	0.024*	0.41 (0.19 - 0.89)
	Visual Arts	0.838	0.88 (0.26 - 2.99)
	Business	0.343	0.58 (0.19 - 1.76)
Risk of getting disease	Yes	R	1
	No	0.25	1.39 (0.79 - 2.43)
	Not sure	0.13	0.68 (0.42 - 1.12)
Developing cervical cancer	Yes	R	1
	No	0.18	0.7 (0.42 - 1.18)
	Not sure	0.61	1.79 (0.19 - 16.83)
Affected Sexual Behaviour	Yes	R	1
	No	0.211	0.64(0.32 - 1.28)
	Not sure	0.002*	0.33 (0.16 - 0.67)
	No answer	0.14	0.15 (0.01 - 1.85
Own information	Yes	R	1
	No	0.002*	0.37 (0.19 - 0.70)
	No answer	0.344	0.25 (0.15 - 4.33)

Source: *Field Data, 2017*   R denotes the reference group.

From the logistic regression in Table 5, none of the age groups was significant compared to the reference group. A respondent in Krobo Girls SHS was 2.98 times more likely to hear about cervical cancer compared to the reference group which is Manya Krobo SHS adjusting for all other variables. Likewise a respondent in Form 3 is 2.54 times more likely to have knowledge of cervical cancer compared to the colleague in Form 1, holding all other variables constant.

With regards to the residential status of the respondents, a Day student has 0.47 lower odds to have cervical cancer knowledge than the respondents who is a Boarder, likewise a respondent who offered Home Economics was 0.59 times less likely to hear of cervical cancer compared to their colleagues in the science program adjusting for all other explanatory variables.

For respondents who were not sure whether information on cervical cancer has affected their sexual behavior, they have 0.33 lower odds to hear of cervical cancer compared to the respondents who admitted information on cervical cancer had changed their sexual behaviour as at the time of the study. More so, students who had not searched for information on their own on cervical cancer were 0.63 times less likely to hear of cervical cancer as compared to their colleagues who have been searching for information on cervical cancer.

Using KROGISS (the only single sex school) as the base group in a multinomial logistic regression model (Table 6), it was revealed that for switching from a Boarder to Day student, an individual in Makrosec was 2.11 times more likely to have knowledge on cervical cancer although the p-value was not statistically significant holding all other covariates constant. However, for the source of information for the same individual, he/she is 14.76 times more likely to have knowledge on cervical cancer from teachers and religious leaders adjusting for all other variable.

Table. 6: Output of Multinomial logistic regression of school on cervical cancer knowledge.

School		RRR	P-value	95%(CI)
Makrosec	1 (Reference)			
	2	1.17	0.638	0.6007 - 2.2983
Form	3	1.18	0.631	0.6056 - 2.2858
	Boarder(Reference)			
Status	Day Student	2.11	0.206	0.6637 - 6.7232
Heard of Cervical Cancer	No(Reference)			
	Yes	0.3	0.00	0.1679 - 0.5197
	Family/friends (Reference)			
	Teachers/Religious leaders	14.76	0.001	3.1726 - 68.6592
Source	Health workers	1.01	0.984	0.4037 - 2.5229
	Electronic/Print media	1.19	0.736	0.4335 - 3.2668
Akuse Methodist	1 (Reference)			
	2	0.49	0.03	0.2491 - 0.9299
Form	3	1.02	0.00	0.7365 - 0.3843
	Boarder (Reference)			
Status	Day Student	12.28	0.00	4.6221 - 32.6375
Heard of Cervical cancer	No (Reference)			
	Yes	0.28	0.00	0.1573 - 0.5086
	Family/friends (Reference)			
	Teachers/Religious leaders	8.35	0.015	1.5092 - 46.2111
Source	Health workers	1.19	0.72	0.4589 - 3.0883
	Electronic/Print media	0.99	0.98	0.3380 - 2.8974
Kindacoco	1(Reference)			
	2	0.49	0.32	0.1233 - 1.9630
Form	3	1.02	0.97	0.3001 - 3.4755
	Boarder (Reference)			
Status	Day Student	41.86	0.00	12.2835 - 142.6503
Heard of Cervical cancer	No (Reference)			
	Yes	0.21	0.005	0.0705 - 0.6221
	Family/friends (reference)			
	Teachers/Religious leaders	4.41	0.285	0.2904 - 67.0109
	Health workers	0.66	0.567	0.1588 - 2.7407
Source	Electronic/Print media	0.89	0.894	0.1623 - 4.8900
KROGISS		**Base Outcome**		

Source: *Field Data (2017)*

Moving from Form 1 to Form 3, a student from Akuse Methodist was 1.02 times more likely to know of the disease compared to the counterpart in Krobo Girls adjusting for all other covariates in the model. Similarly, for switching from a Boarder to being Day student from Akuse Methodist compared to Krobo Girls a student stands a high chance (12.28) of getting knowledge on the disease and consequently was 8.35 times more likely to also get information of this disease from teachers and religious leaders adjusting for all predicting variables.

A similar trend was seen in Kindacoco where for moving to a Day student status, one is 41.86 times more likely to know of cervical cancer compared to the colleagues in the base group when all other covariates are held constant. It however turned to have 4.41 chance of getting this information from teachers and religious leaders.

It could be deduced from the table that, there was a trend in the relative risk ratios of the variables computed. For instance, the relative risk ratio computed for Makrosec, Akuse Methodist and Kindacoco on having heard of cervical cancer were respectively 0.3, 0.28 and 0.21. From the above table, these findings were statistically significant.

From the research, it was revealed that 94 of the respondents representing 24.16% were sexually active. Out of the 94 respondents, 26.60% reported they always use condom when having sex, 40.43% revealed that they sometimes use condom and 32.98% reported they never use condom during sexual intercourse with their partners. Majority (59.57%) of the respondents reported having had only one regular sexual partner as at the time of the study, 25.53% had two partners whilst the rest indicated having had at least three (3) sexual partners as shown in Table 7.

Table. 7: Number of Sexual Partners

Sexual Partners	Frequency	Percentage
1	56	59.57
2	24	25.53
3	2	2.13
4+	12	12.77
Total	**94**	**100**

Source: *Field Data, 2017*

Respondents were also asked about the age of their first sexual debut. The youngest age at which one of the respondents reported having had sexual encounter was as low as 7 years. Table 8 shows the age of respondents and their first sexual experience.

Table. 8: Age of respondents' first sexual experience

Age of Sexual Debut	Frequency	Percentage
<12	7	7.45
13 – 15	39	41.50
16 – 19	44	46.81
>20	4	4.26
Total	**94**	**100**

Source: *Field Data, 2017*

4.3.1   Respondents knowledge on causes of Cervical Cancer and its prevention

Respondents who had knowledge of the disease were asked, in multiple response option to mention the causes of cervical cancer. Out of the 245 respondents representing 62.98% who had heard about cervical cancer, 149 of them representing 60.82% knew the causes or the risk factors of the disease. There were others who mentioned more than one cause of the disease.

The commonly mentioned causes of cervical cancer from the table below (Table 9) is unprotected sex (48.16%), Bad sanitary practice (34.29%) which includes but not limited to using chemicals to wash the vagina or inserting harmful substances in the vagina; multiple sexual partners (15.92%); unhygienic breast care (9.80%) which includes putting of phones and moneys around the breast. The causes such as smoking (3.27%), excessive use of contraceptives (2.45%), sharing of items (1.22%) and bad personal hygiene (0.41%) were also mentioned by the respondents.

In addition, majority of the respondents (74.04%) who have heard about cervical cancer knew that the disease affected only women and a much higher proportion (82.26%) knew that the disease could lead to death.

Table. 9: Perceived Causes of Cervical Cancer

Causes	Frequency	Percentage
Unprotected Sex	118	48.16
Bad Sanitary Practice	84	34.29
Multiple Sex Partners	39	15.92
Unhygienic Breast Care	24	9.8
Sex at Early Age	17	6.94
Abortion	12	4.9
Self-Medication/Drug Abuse	9	3.67
Bad eating habits	8	3.27
Smoking	8	3.27
Radiations	6	2.45
Excessive Contraceptive Use	6	2.45
Sharing Items	3	1.22
Condom Use	3	1.22
Bad Personal Hygiene	1	0.41
Others	7	2.86

Source*: Data from field*, 2017

It could be deduced from the study that most of respondents (76.61%) knew that this disease could be prevented, only 29.31% of the respondents knew about cervical cancer screening in Ghana and 17.74%

knew of HPV vaccines in the country. A considerable proportion of the respondents (55.27%) were able to give what they felt could be done to prevent this disease, out of which 68.84% actually knew some prevention measures. The Table 10 below shows the perceived prevention measures outlined by the respondents.

Table. 10: Perceived prevention measures of cervical cancer

Prevention measure	Frequency	Percentage
Clinician	42	16.73
Condom use	49	19.52
Good Sanitary Practice	57	22.71
Education	19	7.57
Avoid early sex/Abstinence	37	14.74
Personal Hygiene	17	8.37
One Partner/Avoid MSP	21	3.59
Prescribed medicine	9	6.77
Total	**251**	**100**

Source: *Field Data, 2017*

When the respondents were asked to indicate if they believed they were at risk of getting the disease, 29.05% of them believed that they were at risk of getting the disease; 29.05% of the respondents said they believed they were not at risk. However, 41.65% of the respondents were not sure if they were at risk of getting the disease. For those who were not sure gave reasons that they do not know how the disease spread and some did not know what the disease was; to others it was their first time of hearing this disease. For those who accepted the belief of being at risk admitted in their reasons that they are guilty of inserting chemicals in the vagina and have also engaged in an unprotected sex before.

4.3.2   Respondents Sources of Information on Cervical Cancer and its Prevention

Respondents who had knowledge of cervical cancer and its prevention were asked in a multiple response question to indicate their sources of information. Most of the respondents relied mainly on

television (18.01%) as their source of information on cervical cancer and its prevention. Other sources of information which was mentioned by the respondents were health workers (17.62%), teachers (14.27%), newspapers and magazines (13.78%) and radio (12.2%). Other sources of information was quite on the low, thus internet (0.50%) religious leaders (3.25%), siblings (3.44%) and parents (9.65%). However, majority of the respondents (60.67%) chose health workers as their preferred source of information when it comes to cervical cancer as shown in the table. The least preferred source of information was religious leaders (0.26%) as shown in Table 11.

Table. 11: Respondents' Preferred Source of Information on Cervical Cancer

Preferred Source	Frequency	Percentage
Parents	32	8.23
Teachers	23	5.91
Health Workers	236	60.67
Siblings/Friends	9	2.31
Radio/Television	73	18.77
Newspapers/Magazines	9	2.31
Internet	4	1.03
Unanswered	3	0.77
Total	**389**	**100**

Source: *Field Data, 2017*

CHAPTER FIVE

5.0   DISCUSSION

5.1   INTRODUCTION

This chapter presents the findings in the previous chapter which is discussed and analyzed in line with existing theory and the objectives of the study. This chapter also focuses on the research questions that were generated from the beginning of the study to enable the study draw valid inferences and requisite recommendations which would impact the health of the female senior high school students in Lower Manya Krobo Municipality.

5.2   Knowledge and sources of information on cervical cancer

The study sought to estimate the awareness of cervical cancer of the female senior high school students. From Table 2, 53.49% of students from Manya Krobo SHS, 44.32% from Akuse Methodist, 45% from King David's and 77.44% from Krobo Girls had heard about cervical cancer. This means that a student from Krobo Girls had more knowledge of this disease. In terms of the total respondents, awareness level was 62.98% whereas 37.02% had no knowledge of the disease. Out of those who had heard of the disease, 60.82% knew about the probable causes or the risk factors of the disease. However, none of the respondents were able to mention HPV as the main risk factor of the disease.

Some of the responses given by the respondents were unprotected sex (48.16%), multiple sex partners (15.92%), bad sanitary practice (34.29%), and sex at early age (6.94%) as seen in table 9.

In a similar study conducted by (Saha *et al.,* 2010), over half (53.3%) of the participants had heard about cervical cancer, which is relatively low compared to participants who had heard about it in this study, that is 62.98%. However, most of the respondents in the Saha *et al.,* study were able to identify the risk factors of the disease. A considerable portion of the respondents (37.8%) identified early onset

of sexual activity and multiple sexual partners and smoking (21.1%) as risk factors of the disease, which was relatively higher compared to the findings of this study which revealed early onset of sexual activity (6.94%) and multiple sexual partners (15.92%). In addition, a study conducted by Hoque in South Africa discovered that of all the respondents, only 33% had heard about cervical cancer (Hoque, 2010) which is relatively lower to what was revealed in this study which was 60.82%.

Majority of the respondents (74.04%) who had heard about the disease knew it affected only women and a similar proportion (82.26%) knew the disease could lead to death. Moreover, a higher proportion of the respondents (76.61%) knew the disease could be prevented, however only 29.31% and 17.74% knew about screening activities and HPV vaccines. Some of the respondents perceived prevention measures were seeing clinicians for checkup (16.73%), education (7.57%), abstinence (14.74%), and good sanitary practice (22.71%). On the contrary, 67% of the respondents stated the disease can be prevented, 5% believed that the disease leads to death according to a study conducted by (Bucholc & Trojnar, 2015). Similarly in Nigeria, it was discovered that only 12.7% of the respondents knew about screening as a tool for prevention and less than 50% of the respondents who even knew about the HPV vaccine knew that it was for preventing cervical cancer (Makwe *et al.,* 2012). Likewise in Ghana, Abotchie and Shokar discovered that respondents were not aware of any local cervical cancer screening program with 12% screening rate among the respondents (Abotchie & Shokar, 2009).

Majority of the respondents (41.65%) were not sure if they were at risk of getting the disease, however, 29.05% believed they were at risk of getting the disease and similar percentage also believed they were not at risk of getting the disease. In addition, majority of the respondents (77.12%) did not think they were at risk of developing cervical cancer whereas 21.59% of the respondents they were at risk of developing cervical cancer. In a study by Kamzol *et al.*, 44.8% of the respondents believed they could develop cervical cancer in the future (Kamzol *et al.,* 2012). Also a study conducted by Di Guiseppe *et*

al., revealed that only 10% of the respondents felt they were at risk of getting the disease (Di Giuseppe *et al.,* 2008).

5.2.1   Respondents onset of sexual debut and behaviour

The study also revealed that 24.16% of the respondents were sexually active at the time of the study. Out of this respondents, 26.60% reported using condom always when having sex, 40.43% stated they sometimes use condom and 32.98% reported they never use condom. Majority of the respondents (59.57%) reported having only one sexual partner at the time of the study, 25.53%, 2.13% and 12.77% of the respondents indicated having had 2, 3 and four plus sexual partners. One of the respondents reported having started sexual activity at age 7, however the age rage where most of the respondents begun their sexual activity was 13 to 15 years (41.50%) and 16 to 19 years (46.81%).

A study conducted by Ghotbi and Anai revealed that the earliest age at which two of the respondents started engaging in sexual activity was 13 years whiles most of the respondents had their first sexual activity at the age of 18 years. Fifty-nine percent of sexually active students had one or two sex partners. Other sexually active students, 22% and 14%, stated that they had three and four or five sexual partners respectively while 14% had more than five partners. Out of these students, 42% used condoms consistently while 56% represented those who did not use condoms consistently (Ghotbi & Anai, 2012). In a similar study conducted in Nigeria, Makwe *et al.*, discovered that almost half (56 %) of the respondents were not sexually active. However, those who were sexually active had commenced having sexual intercourse as early as eight years (Makwe *et al.,* 2012). Hoque in the study in South Africa did not determine the age of first sexual intercourse among the respondents but discovered that 40% of them were sexually active. Out of this number, 28 % said that they had two or more sex partners (Hoque, 2010).

5.2.2 Respondents sources of information

Respondents were also asked about their source of information on cervical cancer and its prevention. Majority of the respondents (60.67%) chose health workers as their preferred source of information because they were more knowledgeable and it was their profession and hence can give accurate responses. Other respondents (18.77%) also relied heavily on radio/television as their preferred source of information because it would show images and videos of how the disease is and it will enhance their understanding the more. Internet (1.03%) was the least source preferred at the time of the study. Some of the respondents also chose teachers (5.91%), parents (8.23%), newspaper/magazines (2.31%), and siblings/friends (2.31%) as their preferred source of information.

Other studies conducted had contrasting results. For instance in a study conducted by Rashwan, Ishak and Sawalludin, the preferred source of information was the internet (64.4%), followed by books and magazines (54.0%) and health care professionals (52.9%) (Rashwan *et al.,* 2013). Moreover, Getahun *et al.*, found out that, television/radio was the predominant source of information (60.8%) followed by health professionals (34.9%) and friends/relatives (21.6%) (Getahun *et al.,* 2013), however, respondents in the study conducted by Saha *et al.*, showed that majority of them (60.0%) identified medical or nursing staff/community health workers as their main source of information on cervical cancer while 15.6% identified their source as family members and the media (Saha *et al.,* 2010).

From the bivariate analysis which was conducted, there were associations found between knowledge of cervical cancer and some selected variables. Knowledge of cervical cancer was associated with the school with p-value of 0.00 which is significant. In addition, the grade of the student also played a role in cervical cancer knowledge. There was an association found between the grade (whether form 1, 2,

or 3) and the knowledge (p-value (0.002)) and likewise the status of the student whether a day student or a boarder (p-value (0.013)).

In addition, further analysis was conducted on the respondents' perception and behavior on the knowledge of cervical cancer. It was revealed from the studies that knowledge on cervical cancer affected their sexual behavior as there was an association between them (p-value (0.002)). Moreover, there was an association between cervical cancer knowledge and respondents' believe that they are at risk of getting the disease. The test conducted revealed that it was statistically significant. More so, there was an association between knowledge of cervical cancer and search of information on the disease. The p-value for the test was 0.006 which is less than 0.05 level of significance.

From the logistic regression output, the study revealed that a student who attended Krobo Girls were 2.98 times more likely to have a knowledge of the disease. The study also revealed that with a student in form 3, there was a 2.54 more chance in acquiring knowledge of this disease. On the contrary, a day student was 0.47 times less likely to have knowledge of this disease and those who did not search for information of cervical cancer on their own were 0.37 times less likely to also have a knowledge of this disease.

Furthermore, a multinomial logistic regression was conducted on the schools using Krobo Girls as the base outcome. This analysis revealed that day students stood a brighter chance of getting more knowledge on this disease than their colleague boarders. Students in Makrosec, Akuse Methodist and Kindacoco were 2.11, 12.28 and 41.86 times more likely to have knowledge on cervical cancer from teachers and religious leaders than their colleagues in the boarding school respectively. This corroborated with their source of information. Thus, a day student in Makrosec, Akuse Methodist and Kindacoco were 14.76, 8.35 and 4.41 times more likely to get this information from their teachers and religious leaders. This might be due to the fact that because they are day students, they have the chance

of listening to their teachers and also coming home to listen to other religious leaders when they visit their various places of worship. On the other hand, their colleague boarders are restricted to the confines of the school and this might contribute to them not having enough knowledge on the disease.

CHAPTER SIX

6.0   CONCLUSION AND RECOMMENDATION

6.1   CONCLUSION

The study sought to estimate the awareness of cervical cancer, to assess their knowledge about the risk factors and to identify their source of information. In all, 389 respondents; 86 from Manya Krobo, 88 from Akuse Methodist, 20 from King David's College and 195 from Krobo Girls participated in the study giving a response rate of 97.25%.

Majority of the respondents (62.98%) had heard about cervical cancer and 37.02% had no knowledge about it. Out of the respondents who had heard about cervical cancer, 60.82% knew at least one risk factor of the disease but the major factor which is the HPV infection was not mentioned. Moreover, their knowledge on the risk factors was low, sex at early age (6.94%), multiple sexual partners (15.92%), however almost half of the respondents (48.16%) stated unprotected sex as a risk factor. Respondents who were sexually active were 24.16%, and out of this, 40.43% revealed they sometimes use condom when having sex, 32.98% reported they never use condom during sex, however 26.60% stated they always use condoms during sexual activity with their partners. Most respondents who had sex had their first sexual debut between the ages of 13 to 19 years, however a proportion of them had their first sex experience below the age of 12. The study also revealed that only 29.31% of the respondents knew about cervical cancer screening and 17.74% knew about HPV vaccines. Some respondents (29.05%) believed they were at risk of getting the disease whereas 41.65% of the respondents were not sure if they were at risk of getting the disease. Majority of the respondents (60.67%) preferred health workers as their source of information on cervical cancer and its prevention.

From the findings of the study, it could be inferred that, knowledge on cervical cancer is associated with the school one attends. The test conducted revealed the p-value to be 0.00 which is statistically significant. An association was also found between the grade of form of the student and knowledge on cervical cancer (p-value, 0.002) likewise the status of the student as a boarder or as a day student was associated with knowledge (p-value, 0.0013). It was revealed from the studies that knowledge on cervical cancer affected their sexual behavior as there was an association between them (p-value (0.002)). Moreover, there was an association between cervical cancer knowledge and respondents' believe that they are at risk of getting the disease. The test conducted revealed that it was statistically significant. More so, there was an association between knowledge of cervical cancer and search of information on the disease. The p-value for the test was 0.006 which is less than 0.05 level of significance.

Multinomial logistic regression revealed that, day students were more likely to have knowledge on cervical cancer and even stand a higher chance of getting it from both their teachers and religious leaders. This might be due to the fact that because they are day students, they have the chance of listening to their teachers and also coming home to listen to other religious leaders when they visit their various places of worship. On the other hand, their colleague boarders are restricted to the confines of the school and this might contribute to them not having enough knowledge on the disease.

6.2   RECOMMENDATIONS

Based on the findings of the study, there should be more awareness created on the disease. Although most respondents had heard about the disease, they lacked knowledge on the risk factors. It is recommended that through the School Health Educational Program (SHEP), an appropriate educational and awareness program on cervical cancer be developed and targeted at the females to equip and

empower them in having adequate knowledge of the disease. This policy should also target the Boarders since they are more restricted and hardly have access to information.

Due to the smaller sample size used in this study, which is not representative enough to allow for generalization, it is recommended that a larger sample size which is representative enough be used in order to allow for generalizations, however this work will add to the body of existing knowledge of cervical cancer and its prevention in the municipal and the country as a whole.

The study only focused on the quantitative data, it is therefore recommended that a qualitative approach be used in the future to tease out in-depth views from respondents on the subject matter. It also recommended that a similar study be conducted with particular interest to the socioeconomic background of the respondents to know if it has any bearing on the awareness of cervical cancer.

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APPENDIX

QUESTIONNAIRE

ENSIGN COLLEGE OF PUBLIC HEALTH

ASSESSING THE AWARENESS OF CERVICAL CANCER AMONG FEMALES IN SELECTED SENIOR HIGH SCHOOLS IN THE LOWER MANYA KROBO MUNICIPALITY.

QUESTIONNAIRE

Dear respondent,

My name is Daniel Opoku Agyemang, a graduate student of Ensign College of Public Health, undertaking research work for the award of a Master of Public Health (MPH) degree.

I am interested in finding out what adolescent girls like you know about cervical cancer. The information you provide in this questionnaire is strictly confidential. The final report aggregates all answers and cannot therefore be attributed to you individually or by name. You are further assured that no personal harm or disadvantage will apply to you as a result of your participation in this study. Moreover, you can choose not to continue with, or answer any particular question if you feel strongly about it. Your participation will however, contribute to knowledge generation to help understand the level of awareness of this dreadful disease among girls of your age groups. Do I have your consent to administer the questionnaire to you now?

YES [   ]   **NO [   ]**

Date:………………………………………………….

Signature…………………………………………………

INSTRUCTION: PLEASE TICK A BOX LIKE THIS √ TO SELECT AN ANSWER THAT BEST APPLIES TO YOU OR BY WRITING YOUR ANSWER IN THE SPACE PROVIDED WHERE APPLICABLE

Name of School: (PROVIDED IN PRINT)

Section A: (Demography)

1. Age of respondent …………

2. Which religion do you belong to?

   a. Christian   [ ]   **b.** Islam [ ]
   c. Traditional [ ]   **d.** No Religion [ ]
   e. Others ……………………………..…

3. Form: **a.** One [ ]   **b.** Two [ ]   **c.** Three [ ]

4. Are you   **a.** Boarder [ ]   **b.** Day Student [ ]?

5. What Program are your pursuing?

   …………………………………………

Section B: (Knowledge and Source of information on Cervical Cancer and its prevention)

6. Have you ever heard of cervical cancer?

   a. Yes [ ]   **b.** No [ ]

7. What do you think are the causes of cervical cancer?
   a. ……………………………….………….
   b. ………………………….……………
   c. ……………………………….………….
   d. ……………………………….….……
   e. ……………………….…………….

8. Cervical cancer affects only women.
   a. True [ ]   **b.** False [ ]   **c.** Not sure [ ]

9. Cervical cancer can lead to death.
   a. True [ ]   **b.** False [ ]   **c.** Not sure [ ]

10. Cervical Cancer can be prevented.

      a. True [ ]   **b.** False [ ]   **c.** Not sure [ ]

If you answered True to Question 10, answer Question 11. Otherwise, skip to Question 12.

11. How can cervical cancer be prevented?

    ………………………………………………………………………………………………

    ………………………………………………………………………………………………

    ………………………………………………………………………………………………

12. Do you know of cervical cancer screening in Ghana?

      a. Yes [ ]   **b.** No [ ]

13. Do you know of the availability of cervical cancer vaccines in Ghana?

      a. Yes [ ]   **b.** No [ ]

14. Where did you learn about cervical cancer and its prevention?

                    [PLEASE TICK AS MANY AS APPLY]
    a. Parents[ ]

    b. Teachers [ ]

    c. Health Workers [ ]

    d. Siblings (brothers and sisters) [ ]

    e. Friends (peers) [ ]

    f. Religious Leaders [ ]

    g. Radio [ ]

    h. Television [ ]

    i. Newspapers/ Magazines [ ]

    j. Others (*SPECIFY*)………………..…

15. What is your preferred source of information on cervical cancer and its prevention?
    [PLEASE CHOOSE ONE]
    a. Parents [ ]

    b. Teachers [ ]

    c. Health Workers [ ]

    d. Siblings (brothers and sisters) [ ]

    e. Friends (peers) [ ]

    f. Religious Leaders [ ]

    g. Radio [ ]

    h. Television [ ]

    i. Newspapers/ Magazines [ ]

    j. Others (*SPECIFY*)……………..…

16. Why do you prefer this source above all the others?

…………………………………………………

…………………………………………………

          …………………………………………………

          …………………………………………………

17. Have you looked for information on cervical cancer on your own? **a.** Yes [ ] **b.** No [ ]

18. Why?

……………………………………………………………………………………………………

……………………………………………………………………………………………………

…………………………………………………………

Section C: (Sexual Behaviour)

19. Do you believe that you are at risk of getting cervical cancer?

    a. True [ ]   **b.** False [ ]   **c.** Not sure [ ]

20. Why?

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………………………………………………………………………

21. Has information on cervical cancer and its prevention affected your sexual behaviour in any way?

    a. True [ ]   **b.** False [ ]   **c.** Not sure [ ]

22. If yes, how has it affected you?

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23. If no, why has it not affected you?

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………………………………………………………………………………………………

……………………………………………………………………………..

24. Have you had sex before? **a.** Yes [ ]   **b.** No [ ]

   If No, skip to Question 25.

25. At what age did you have your first sex experience?...............................

26. How many sexual partners have you had since you started having sex?
   a. One [ ]   **b.** Two [ ]   **c.** Three [ ]   **d.** Four [ ]
   e. Other (SPECIFY) …………….

27. How often do you use condoms when having sexual intercourse?
   a. Always   **b.** Sometimes   **c.** Never

28. Do you think you are at risk of developing cervical cancer?   **a.** Yes [ ]   **b**. No [ ]

THANKS FOR YOUR TIME

ENSIGN COLLEGE OF PUBLIC HEALTH - KPONG

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Email: irb@ensign.edu.gh
Website: www.ensign.edu.gh

P. O. Box AK 136
Akosombo
Ghana

21st November, 2016.

INSTITUTIONAL REVIEW BOARD SECRETARIAT

Daniel Opoku Agyemang
Ensign College of Public Health.

Dear Mr. Opoku Agyemang

OUTCOME OF IRB REVIEW OF YOUR THESIS PROPOSAL

At a meeting of the INSTITUTIONAL REVIEW BOARD (IRB) of Ensign College of Public Health held on 16th and 17th November 2016, your proposal entitled "**Assessing the Awareness of Cervical Cancer among Female Students in Selected Senior High Schools in Lower Manya Krobo Municipality** "was considered.

Your proposal has been approved for data collection in the following settings:

1. Your consent/assent form should be given in advance.
2. Group teams to respond at a go.
3. Include health talks and leaflets on the topic in advance.

We wish you all the best.

Sincerely,

Dr (Mrs) Acquaah-Arhin

(Chairperson)

Cc. Dean of Ensign College.

Cc: Ag. Academic Registrar, Ensign College.

GHANA EDUCATION SERVICE

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REPUBLIC OF GHANA

DISTRICT EDUCATION OFFICE
P. O. BOX 49
ODUMASE-KROBO

23RD NOVEMBER, 2016

LETTER OF INTRODUCTION
MR. DANIEL OPOKU AGYEMANG

Mr. Daniel Opoku Agyemang is a second year student of the Master of Public Health (MPH) Degree programme of Ensign College of Public Health, Kpong in the Lower Manya Krobo Municipality.

He is writing a thesis on: Assessing the Awareness of Cervical Cancer among female students in Senior High Schools within the municipality. I would be grateful if you could grant him the needed assistance.

ROSE YAA AKANYI
MUNICIPAL DIRECTOR OF EDUCATION
LOWER MANYA KROBO

ALL HEADS OF SECOND CYCLE SCHOOLS
LOWER MANYA KROBO