

**ENSIGN COLLEGE OF PUBLIC HEALTH**

**COGNIZANCE OF CERVICAL CANCER AND ITS SERVICE DELIVERY  
PRACTICES AMONGST COMMUNITY HEALTH NURSES AT THE KROBO  
ENCLAVE IN THE EASTERN REGION OF GHANA**

**BY**

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**THIS DISSERTATION IS SUBMITTED TO THE ENSIGN COLLEGE OF PUBLIC HEALTH  
IN PARTIAL FULFILLMENT OF MASTER OF PUBLIC HEALTH DEGREE**

**MAY, 2021**

**DECLARATION**

I, Victoria Partey-Newman, do hereby declare that, with the exception of cited literature, which is acknowledged, this dissertation is the result of my own original research under the supervision of Dr. Edward Kofi Sutherland. This work has neither in part nor in whole been presented elsewhere for any other purpose.



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## **DEDICATION**

I dedicate this work to God Almighty who has held my hand through this entire programme, my sweet Mother, Beatrice Partey, my husband Bishara Newman, my twin sister Vida Partey, Miss Grace Nandaya and the entire Partey family.

## ACKNOWLEDGMENT

I give thanks to the Almighty God for his continuous grace and mercies he showered on me to complete this programme successfully.

I also wish to express my sincerest gratitude to my supervisor, Dr. Edward Kofi Sutherland for the effective supervision, advice, and recommendations to shape this dissertation. I am indeed grateful.

I express my appreciation to the entire lecturers and staff of the Ensign College of Public Health for their support throughout the period of studies.

I am most grateful to my Dad, Mr. Archibald Partey and my Pastor Dominion Daniel for their love and encouragement throughout this period.

I want to extend my heartfelt gratitude to my classmate Claudia Nana-Atoo for the care, support and love shown me during this course.

Finally, to all my friends and mates especially John Shemen Akuffo, Rebecca Ametepey, Sedinam Adamaley and George Oppong Manuh, Curtis Conduah for their support and inspiration in diverse ways to make this dissertation a success.

## ABSTRACT

**Introduction:** Cervical cancer incidence is increasing worldwide and posing as a major public health problem and a global pandemic.. In Ghana, 3151 women are diagnosed with cervical cancer annually and 2119 women die from it. This research targets Community health nurses (CHNs) as they are the basic unit of the primary healthcare system in Ghana and reach out to largely rural communities. Also, known as ‘the grass-root health workers’ they bridge communities to primary and preventive health care services and are vital in the fight against cervical cancer. Hence the need to assess their cognizance level of cervical cancer and service delivery practices. The focus of the study was on community health nurses at the Krobo Enclave in the Eastern Region of Ghana.

**Objectives:** The general objective of the study was to assess the cognizance of cervical cancer and its associated service delivery practices amongst community health nurses at the Krobo Enclave in the Eastern Region of Ghana.\

**Methods:** A quantitative, cross-sectional descriptive design was used to assess the cognizance of cervical cancer and its service delivery practices amongst community health nurses at the Krobo Enclave in the Eastern Region of Ghana. The study commenced on January,2020 and ended in April, 2020.The Krobo enclave consist of Upper Manya Krobo, Lower Manya Krobo and Yilo Krobo. Employing the census method, a total of 177 community nurses were targeted for the study.

**Results:** 145 out of177 community health nurses responded yielding a response rate of 82.3%

Concerning age about 90% of the respondents who participated in the study were in the youthful brackets (20-29 and 30-39 respectively. Females were dominant representing (79%) of the study population. Most belonged to Christian religion (95%), followed by very few percentages from the other religions. The highest educational level reported in the findings was at the degree level.

A very minimum percentage of the respondents have attained that level (4.5%) and bulk of the community healthcare workers were certificate holders (73.79%). About one-third of the respondent (42.76%) reported origin from the Akan tribe, followed by the Ga-Adangme (26.9%) and Ewe (21.38%). To assess levels of general awareness, knowledge and service delivery practices, a numeric scoring pattern was used, and the variables were further categorized into binary (low or high); means were used as cut-off scores. Respondents receiving scores greater than the mean score for general awareness ( $6.0 \pm 1.3$ ), total knowledge ( $27 \pm 5.6$ ), service delivery ( $8.0 \pm 1.2$ ) were deemed to be high response and vice versa. Most of the respondents (62.8%,  $n=91/145$ ) had low general awareness on cervical cancer, (55.9%,  $n=81/145$ ) respondents had a high percentage of total knowledge and majority (67.6%,  $n=98/145$ ) had low service delivery practices. There was a weak positive correlation between cognizance and service delivery practices

### **Conclusion:**

The general awareness in relation to the current trends concerning cervical cancer was very low. The knowledge level was high but however, the service delivery practices amongst community health nurses in the krobo enclave was extremely low. The cognizance level amongst community nurses in the krobo enclave was high and there was a weak positive correlation between cognizance and service delivery practices. There is a need for regular cervical cancer workshops and continuous professional training programs to equip CHNs provide good cervical cancer care services within the communities.

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## **LIST OF ABBREVIATIONS**

WHO: World Health Organization  
LMIC: Low- and Middle-Income Countries  
IARC: International Agency for Research for Cancer  
GLOBOCAN: Global Burden of Cancer Study  
HPV: Human Papilloma Virus  
CDC: Centre for Disease Control  
MOH: Ministry of Health  
STI: Sexually Transmitted Infections  
HIV: Human Immunodeficiency Virus  
AIDS: Acquired Immunodeficiency Syndrome  
GAVI: Global Alliance for Vaccines and Immunizations  
CHPS: Community-based Health Planning and Services  
ICO: Information Commissioner's Office  
VIA: Visual inspection with Acetic Acid  
DES: Diethylstilbestrol  
ACS: American Cancer Society  
CCS: Canadian Cancer Society  
UNAIDS: Joint United Nations Programme on HIV/AIDS  
WIFA: Women in the Fertile Age  
GHS: Ghana Health Service  
ANC: Antenatal Care  
CWC: Child Welfare Clinic  
HCP: Health Care Professionals  
PHCs: Private Health Centres  
VHVs: Village Health Volunteers  
KATH: Komfo Anokye Teaching Hospital  
CHW: Community Health Worker  
CHNs-Community Health Nurses

GPCR: Ghana National Population-Based Cancer Registry

ICC: Invasive Cervical Cancer

HBM: Health Belief Model

# CHAPTER ONE

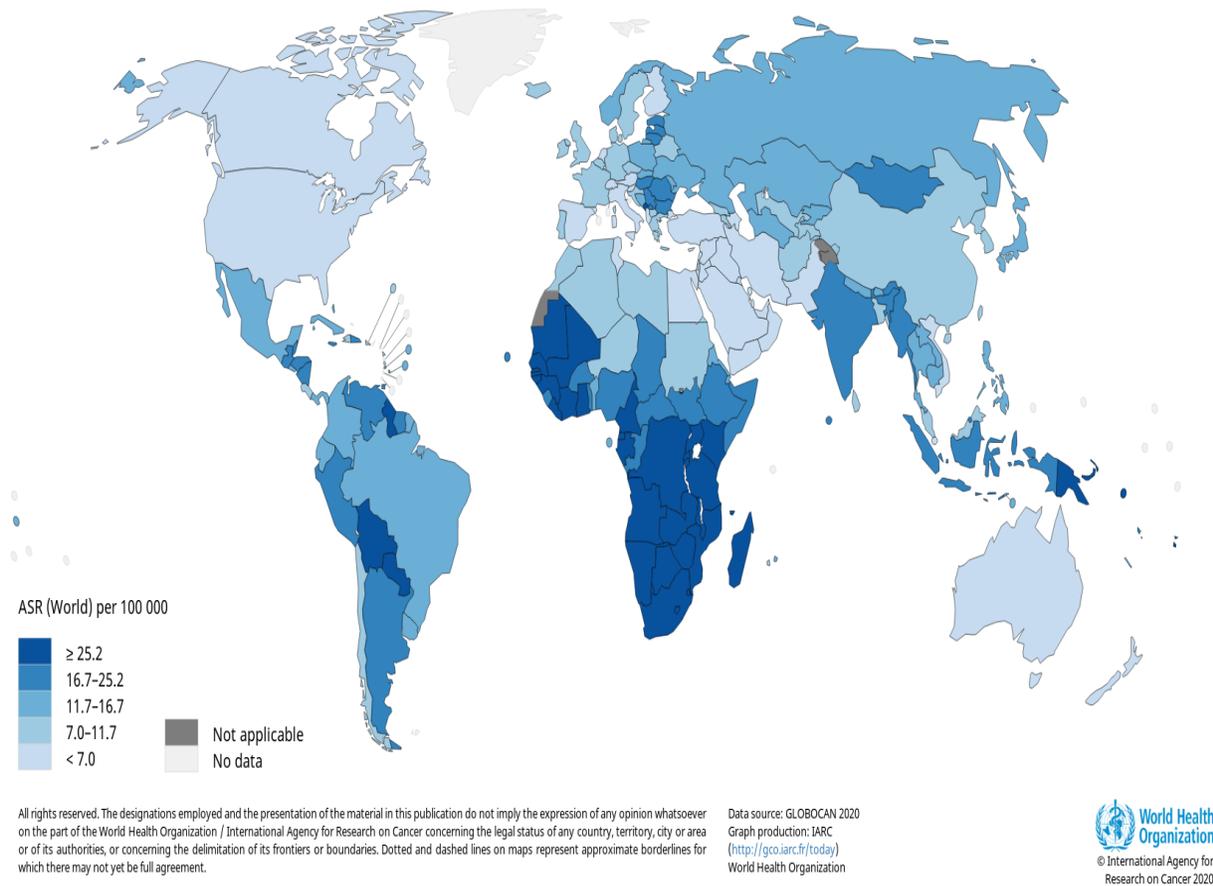
## INTRODUCTION

### 1.1 Background Information

Cancer incidence is increasing worldwide and posing as a major public health problem and a global pandemic (WHO, 2014a). It is imposing health, economic and social burdens on both developed and developing regions, with reported global annual new cases of 882,900 and 444,500 respectively for breast and cervical cancers. These are the leading cancers among women in developed countries. More than 324,300 and 230,400 women die each year from these cancers (Aweke, et al., 2017). In February 2019, on World Cancer Day, the World Health Organization (WHO) indicated that each year, cervical cancer killed over 300,000 women with more than 85% of these deaths occurring in less developed regions of the world (WHO, 2019).

In Sub-Saharan Africa, according to Aweke, et al., (2017), 34.8 new cases of cervical cancer are diagnosed per 100,000 people annually and out of this 22.5 die from the disease. Nearly 90% of the 311,000 cervical cancer deaths worldwide in 2018 occurred in Low - and Middle-Income Countries (LMICs) (WHO, 2020). It is estimated that approximately 3,052 new cases of cervical cancer were registered in Ghana in 2012, representing 32.7 % of the country's total cases of cancer among women (IARC & WHO, 2012). The crude incidence rate of cervical cancer in Ghana has been estimated at 24.3 per 100,000 population per year (Bruni, et al., 2015). Figure 1.1 below shows the latest global incidence rates of cervical cancer, where more than 25 new cases per 100,000 women occurred in sub-Saharan Africa, central Asia and Latin America (IARC & WHO, 2020).

Estimated age-standardized incidence rates (World) in 2020, cervix uteri, all ages



**Figure 1.1: Global estimated age-standardized incidence rates of cervical cancer for all ages in 2020**

Source: GLOBOCAN 2020. International Agency for Research on Cancer (IARC) (IARC & WHO, 2020)

Cervical cancer is caused by a sexually transmitted infection of some forms of Human Papillomavirus (HPV) soon after sexual intercourse starts (WHO, 2020). There are more than 100 types of HPV, with at least 14 cancer-causing types (also known as high-risk types) and two types of HPV (16 and 18) causing 70% of cervical cancers and cervical precancerous lesions (WHO, 2020). The genital areas of men and women, including the skin of the penis, vulva (area beyond

the vagina) and anus, as well as the lining of the vagina, cervix and rectum, can be affected by more than 40 forms of HPV (CDC, 2020). CDC (2020), projects around 10% of females with cervical HPV infection will develop long-lasting HPV infections that place them at risk for cancer of the cervix. It can induce cell changes considered pre-cancerous as high-risk HPV lingers and infects the cells of the vulva, vagina, penis, or anus.

Cervical cancer, as long as it is diagnosed early and treated successfully, is one of the most preventable and treatable types of cancer. For robust cervical cancer control systems and underpin successful policy-making, high-quality and timely evidence is crucial (WHO, 2018). Comprehensive management of cervical cancer requires primary prevention (HPV vaccination), secondary prevention (precancerous lesion screening and treatment), tertiary prevention (invasive cervical cancer diagnosis and treatment) and palliative care (WHO, 2020). A cost-effective approach to combating cervical cancer is to screen and treat pre-cancer lesions in women (WHO, 2020). Since vaccines are proven to be safe and effective in preventing HPV infections, the WHO recommends vaccines that protect against HPV 16 and 18, which as indicated by Clifford et al., (2006) jointly cause 70%–75% of all cervical cancers and also 40%–60% of their precursors.

According to CDC (2019), people who began having sex at an early age, or have had sex with many others, are likely to get HIV (the virus that causes AIDS). In addition to having HPV infection, smoking, HIV or any disease that makes it harder for your body to combat health issues, long-term (five or more years) use of birth control drugs, having three or more children born, can raise the risk of cervical cancer for a woman (CDC, 2019). Modern research shows that for screening, HPV testing is more reliable than cervical cytology (Catarino, et al., 2015). In the developing nations, though, these extremely sensitive tests produced for primary screening are not

easily obtainable. Pap smear has become the most popular tool for screening for cervical cancer. It is readily available and is less costly than testing for HPV ( Daniyan, et al., 2019).

In Ghana, the following strategies have been outlined in the “National Strategy for Cancer Control” regarding HPV vaccination and screening and early detection of cervical cancer: routine vaccination with one approved HPV vaccine would be offered for all females from 10 to 14 years of age through school-based vaccine delivery, community based and outreach clinics as well as catch up immunizations; cervical cancer general awareness program would be in place by using health communication messages via posters, leaflets and electronic media; both organized screening and opportunistic screening integrated into the existing health system such as the reproductive health programmes (Family planning and STI services) would be employed to reach the target populations (MOH, 2011). Cudjoe (2020), reported that 2019 had marked exactly 6 years since the introduction of a nationwide HPV vaccine program funded by GAVI. Nevertheless, no reported estimates of recent success have been made available, nor have reports of the number of girls who have been vaccinated through the initiative, as well as implementation issues, been made available

Presently, because of its high costs and even efficient screening procedures due to lack of facilities, skills and so on, it is shown that the countries with the greatest prevalence of cervical cancer are those unable to adopt HPV vaccination (Manaf, et al., 2017). Cervical cancer is one of the types of female cancer that is more easily preventable (WHO, 2020). However, lack of knowledge of cervical and its risk factors, inadequate access to prevention care, availability of services and the existing health service system can have an effect on cervical cancer screening decisions (Aweke, et al., 2017). It is against this background that this study assesses the cognizance of cervical cancer

and its service delivery practices amongst community health nurses at the Krobo Enclave in the Eastern Region of Ghana.

## **1.2 Problem Statement**

Cervical cancer is the most prevalent malignancy of the female genital tract in many low-income countries and the second common in the world (Ferlay , et al., 2012). It is the second most common cancer in Ghana among women of 15 and 44 years (ICO/IARC, 2019).

In 2020, the estimated crude incidence rate for cervical cancer in Ghana was 18.3 per 100,000 females for all ages (IARC & WHO, 2020). Ghana has a population of 8.57 million women ages 15 years and older who are at risk of developing cervical cancer. Latest estimates suggest that 3151 females are diagnosed with cervical cancer per year and 2119 die from the condition (ICO/IARC, 2019). Data on the burden of HPV among the general population of Ghana is not yet available (MOH, 2011).

A recent study in Accra shows 10.6 percent HPV infection rates (MOH, 2011). However, roughly 21.5 percent of women in the general population in Western Africa, the region within which Ghana is based, are reported to be harboring HPV infection at a given time. Not only in young adults, but also in women of middle and older ages; high HPV prevalence was observed (MOH, 2011). A cross sectional study conducted by Awua et al., (2020), in Akuse, a town located within the Krobo Enclave, specifically the Lower Manya Krobo Municipality of the Eastern region of Ghana indicated that there was a high burden of HPV infections (both vaccine-preventable and non-vaccine preventable), as detected with both self-collected and provider-collected specimens.

In a study at a Tertiary Health Facility in South-East Nigeria, Daniyan, et al. (2019) stated that the general awareness, behaviors, and practice of the various screening modalities differ according to

age, place, schooling, and development among female health staff. They also noted that numerous factors have been given as reasons for low use, such as erroneous assumptions, lack of knowledge, lack of referrals from physicians, among others.

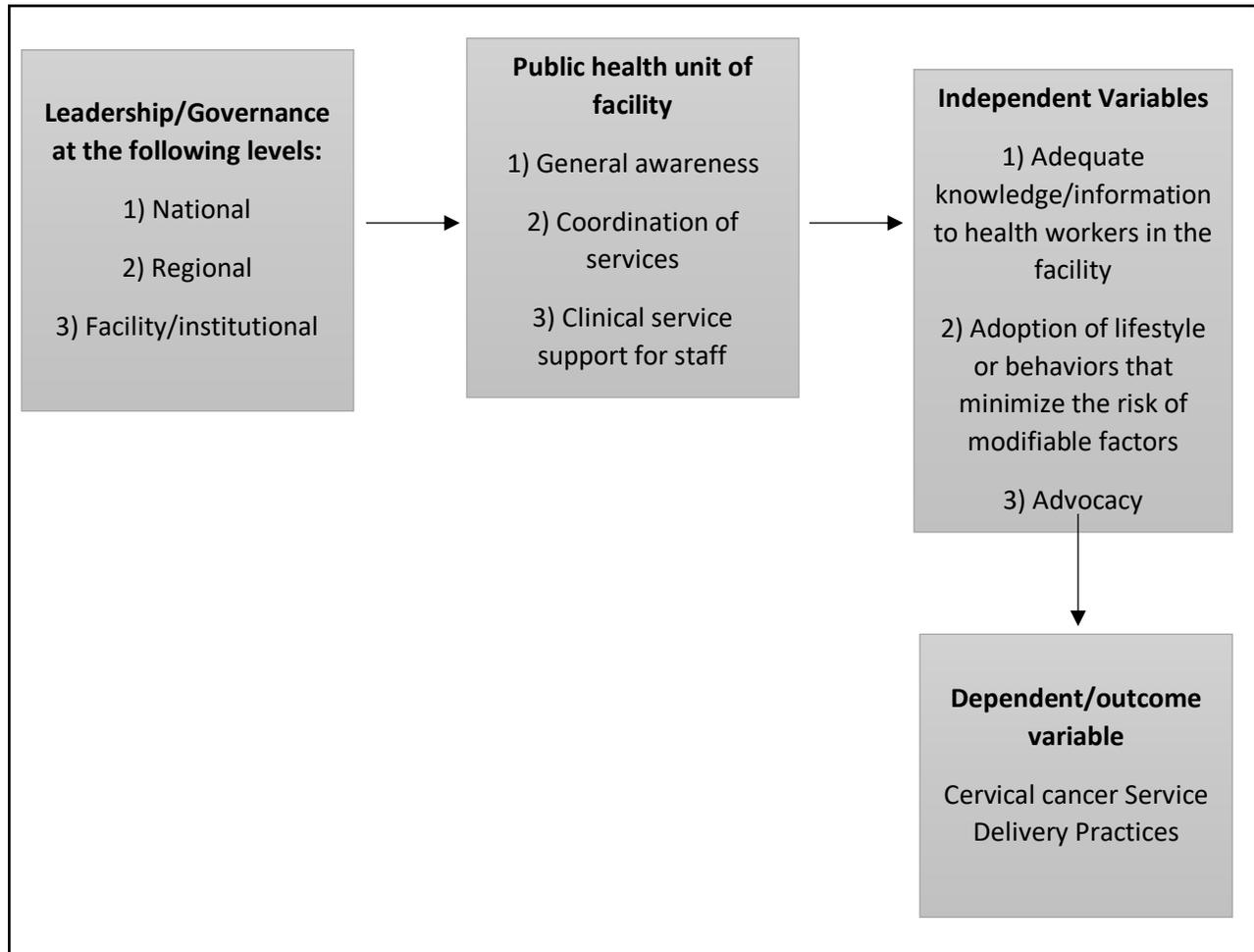
In terms of prevention and screening among healthcare personnel, there is a lack of institutional care, greatly impacting the role that health professionals need to play in solving the widespread of cervical cancer in the general population (Ghana Statistical Service, 2014). About 90% of the cases presented in health facilities in Ghana appear to be at an advanced stage where the disease has already progressed (MOH, 2011) due to poor knowledge of cervical cancer (Binka, et al., 2017). Results of past studies indicate that, even among women with advanced education, knowledge of cervical cancer and HPV is very poor in Ghana (Williams, 2012). This emphasizes the need to strategically reach out to these women as well as less educated women using a primary healthcare approach. Low awareness among healthcare providers about cervical cancer and its related service delivery methods influences their role in advocacy and, ultimately, the acceptance of screening services (Heena, et al., 2019). This is because it is rare that healthcare professionals would prescribe programs that they themselves do not patronize (Ghana Statistical Service, 2014). Community health nurses are a unique category of healthcare personnel who provide service to community members at CHPS compounds mostly in the rural, peri-urban and sometimes urban settings. Per the Ghana Health Services organogram chart, they are at the basic unit of primary healthcare provision and are the first point of contact for healthcare service delivery within Ghanaian communities. This research therefore, seeks to assess the cognizance of cervical cancer and its service delivery practices amongst community health nurses. It is the first of its kind at the Lower Manya Krobo, Yilo Krobo and Upper Manya Krobo Municipalities (the Krobo Enclave) and is expected to help inform policy decision.

### **1.3 Rationale of Study**

Health professionals remain valuable sources of knowledge and guidance on testing for cervical cancer (Bakari, et al., 2015). The study was carried out to assess the cognizance of cervical cancer and its service delivery practices amongst community health nurses. The study's results will help decide whether there is a need to teach health workers about the importance of screening for cervical cancer and the different screening procedures used in our country. It will also assess whether there is a need for a shift of approach towards preventing cervical cancer. This will have a huge effect on the general populace as this group of individuals will be more useful for carrying out the interaction required for public enlightenment and behavioral reform to minimize the growing cases of cervical cancer in our nation. It would also encourage them to educate the general public about available screening approaches and how to access screening services that are available. The data collected from this research is also intended to form the basis for further interventions in the prevention of cervical cancer at the national and institutional level, where it could contribute to policy adjustments in the care of cervical cancer for the general public as well as to routine screening of its staff.

### **1.4 Conceptual Framework**

The conceptual framework describes and demonstrates the link between the different concepts in the analysis and "sets the stage" for the introduction of the main research topic that guides the reporting of the investigation (McGaghie, et al., 2001). This conceptual framework integrates the use of the Comprehensive Cervical Cancer Control: A guide to essential practice (WHO, 2014b) and Predictors of Cervical Cancer Service delivery practices i.e. Health Belief Model (HBM) (Mckellar & Sillence, 2020).



**Figure 1.4: Conceptual framework of the Study**  
 Source: Adapted and modified from (Pieterse, 2017)

Leadership and governance at the national, regional and institutional level do play a role in the reduction of the incidence of cervical cancer by organizing programs and workshops at the community level. Strong coordination between leadership and the public health unit occurs at the facility level. Management is interested in the development of legislation. The Public Health Unit provides staff with knowledge of cervical cancer, community planning and clinical service

assistance. With the outfit engaged in history focused on the detection of risk factors, professional assistance for workers of the public health unit is highly critical, relevant and important. This invariability contributes to occupational risk categorization which leads to cervical cancer screening for workers' dependent on other supportive tests. Secondary care at the facilities level requires monitoring of all sexually active workers as well as those 30 years and over. Just HPV DNA test, HPV DNA with cytology, visual examination with acetic acid or VIA/VIL lugol's iodine and Pap smear can be performed. In addition, other improvements to the lifestyle that decrease risk factors are discussed, which often reduce the risk of cervical cancer. It is also done to monitor workers for screening, prompts and arrangement of vaccinations that are affordable or subsidized. There is more understanding or education combined with life style change and advocacy in both the public health unit and clinical care support for workers, both of which ultimately contribute to cervical cancer screening and service delivery. Many with precancerous lesions that can grow into cancer of the cervix are treated and followed.

### **1.5 Research Questions**

1. What is the level of general awareness of cervical cancer amongst community health nurses at the Krobo Enclave?
2. What is the level of knowledge of community health nurses at the Krobo Enclave on cervical cancer?
3. What is the cervical cancer associated service delivery practices among the community health nurses at the Krobo Enclave?
4. To what extent is cognizance of cervical cancer associated with service delivery practices amongst the community health nurses at the Krobo Enclave?

## **1.6 General Objective of the Study**

The general objective of the study was to assess the cognizance of cervical cancer and its associated service delivery practices amongst community health nurses at the Krobo Enclave in the Eastern Region of Ghana.

## **1.7 Specific Objectives**

- To assess general awareness level of cervical cancer amongst community health nurses at the Krobo Enclave.
- To assess the level of knowledge of community health nurses at the Krobo Enclave on cervical cancer.
- To determine cervical cancer associated service delivery practices among the community health nurses at the Krobo Enclave.
- To investigate the association between cognizance of cervical cancer and service delivery practices amongst the community health nurses at the Krobo Enclave.

## **1.8 Profile of Study Area**

The name “Krobo” is of Akan origin and is derived from the term “Kro-obo-so-Foɔ”, meaning “Town of rock/mountain dwellers”. The Krobo Mountain is the cultural and ritual center for the Krobo people. The Krobo enclave, located in the Eastern Region of Ghana, is made up of the Yilo Krobo, Lower Manya Krobo and Upper Manya Krobo (Gbɔjɔɔ, 2016).



*Figure 1.8: Map of Eastern Region showing Study Area marked with red arrows*  
 Source: Adapted and modified from (Pieterse, 2017)

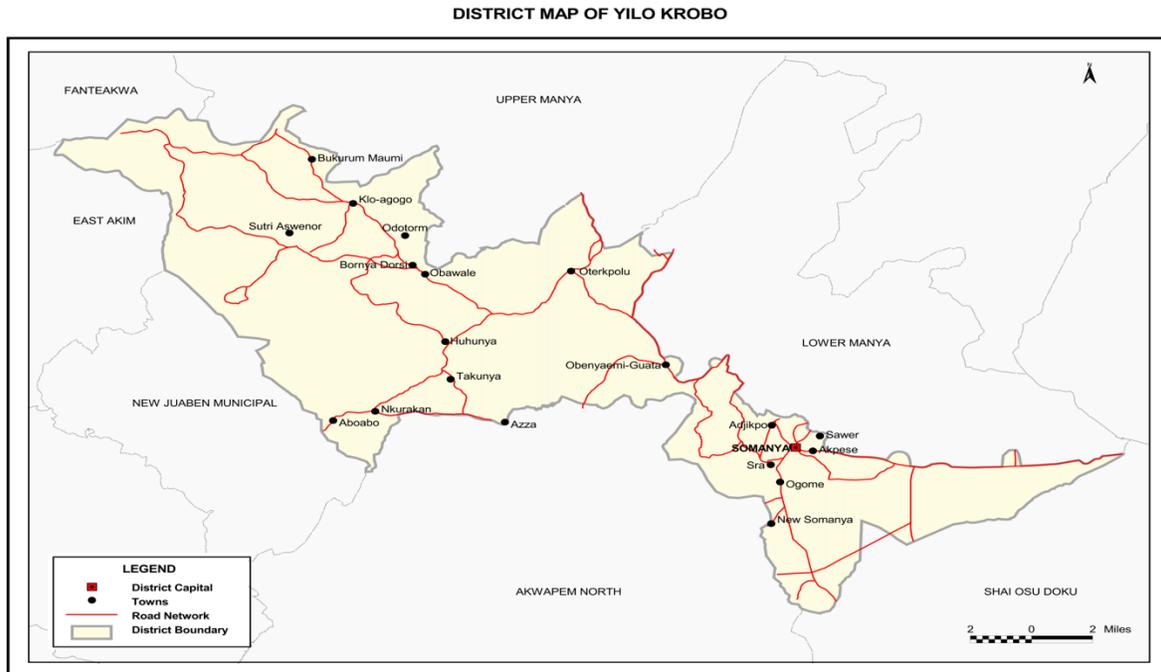
### 1.8.1 Yilo Krobo

The Yilo Krobo Municipality is bounded in the north and east respectively by Lower Manya Krobo Municipality and Upper Manya Krobo District. There are approximately two hundred and thirty (230) settlements in the municipality, of which only the municipal capital, Somanya and Nkurakan, have populations over 5,000. The municipality consists of seven (7) zonal councils: Somanya, Oterkpolu, Boti, Nkurakan, Nsutapong, Klo-Agogo and Obawale. The municipality occupies an area of 805 square miles, representing 4.2% of the Eastern Region's total area. This translates into a population density per square kilometer of 109 inhabitants. (ERCC, 2016).

According to the 2010 Population and Housing Census, Yilo Krobo Municipal has a population of 87,847, representing 3.3 percent of the total population of the area. Males account for 48.2 percent and 51.8 percent are females. Of the population, about seventy percent (69.8) are rural. There is a sex ratio of 93.2 in the municipality. The municipal population is young (47.4 percent), reflecting a large base population pyramid that tapers off with a limited percentage of elderly residents (8.7 percent). The Municipal's overall age dependence ratio is 77.1, the male age dependence ratio is higher (70) than that of females (62) (GSS, 2014c).

Agriculture, forestry and fisheries are the primary industries in the municipality (41.2 percent). The municipality is also known for the manufacture or production of beads. Males dominate the more physically demanding sectors such as manufacturing, mining and quarrying, transport and storage, and women are more interested in commercial services (wholesale and retail) (GSS, 2014c).

The majority (96.3 percent) of the people living in the municipality are Ghanaians by birth. Traditionalists are in the minority (0.5 percent) in religious belief and the main religion is Pentecostal or Charismatic (49.3 percent) (GSS, 2014c).



**Figure 1.8.1: District Map of Yilo Krobo**

Source: from the 2010 Population and Housing Census report (Pieterse, 2017)

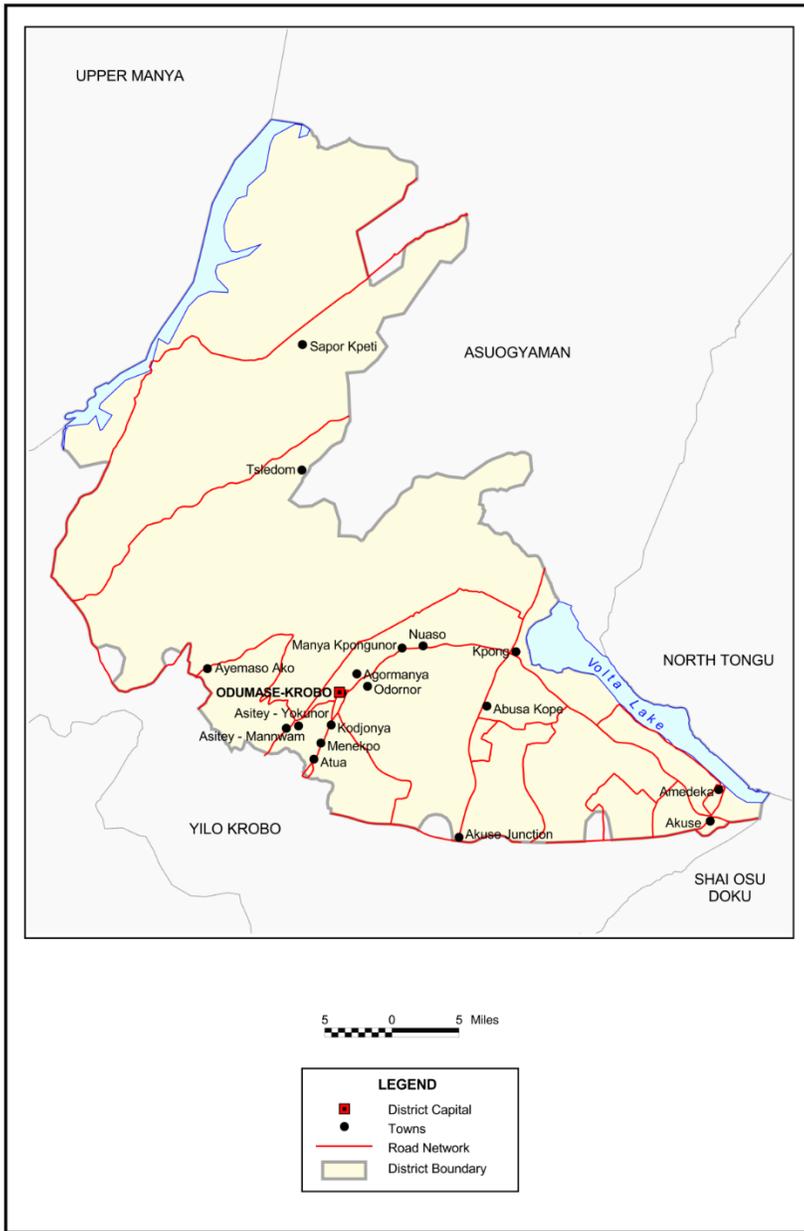
### 1.8.2 Lower Manya Krobo

One of the 26 administrative districts in the Eastern Region of Ghana is the Lower Manya Krobo Municipal (LMKM). As a consequence of the division in 2008 of the then Manya Krobo District into Lower and Upper Manya Krobo, the Municipal came into being. A Legislative Instrument (L.I.) 4026 with Odumase Krobo as the capital was raised to Municipality status in July 2012. The District occupies an area of 304.4 sq km, or about 1.7 percent of the region's total land area (18,310 km). Odumase township (which includes Atua, Agormanya and Nuaso), Akuse and Kpong in the Lower Manya region are the main towns in the district. The District shares boundaries with the Upper Manya Krobo District to the north, DangmeWest and Yilo Krobo to the south, Yilo Krobo Municipal to the west, and Asuogyaman District to the east (GSS, 2014a).

There is a total population of 89,246 in the Lower Manya Krobo Municipality, with males and females making up 46.5% and 53.5% of the population respectively. With 35.1 percent of the population under 15 years old, the municipality has a young population. 8.3 percent of the population is made up of the elderly (60 years and older). Although urban areas have a sex ratio of 84.6, rural areas have a ratio of 99.2, demonstrating that both urban and rural areas have more males than females. The Municipality has a total fertility rate of 3.0, which means that on the average a female aged 15-49 years would give birth to three children before the end of her reproductive years, if she is to adhere to existing age-specific fertility rates (GSS, 2014a).

The residents of Lower Manya Krobo Municipal are primarily farmers active in trade with some of the population. Cereal (maize), along with cassava, pepper, pineapple, watermelon, sweet potatoes, plantain, yam, cocoyam, okra, tomatoes and others, is the most popular agricultural commodity found in the municipality. Natural resources such as limestone and historic tourism destinations are available to the Municipality. The Volta Lake and Krobo hills are some of the natural attractions (GSS, 2014a).

**DISTRICT MAP OF LOWER MANYA**



**Figure 1.8.2: District Map of Lower Manya Krobo**

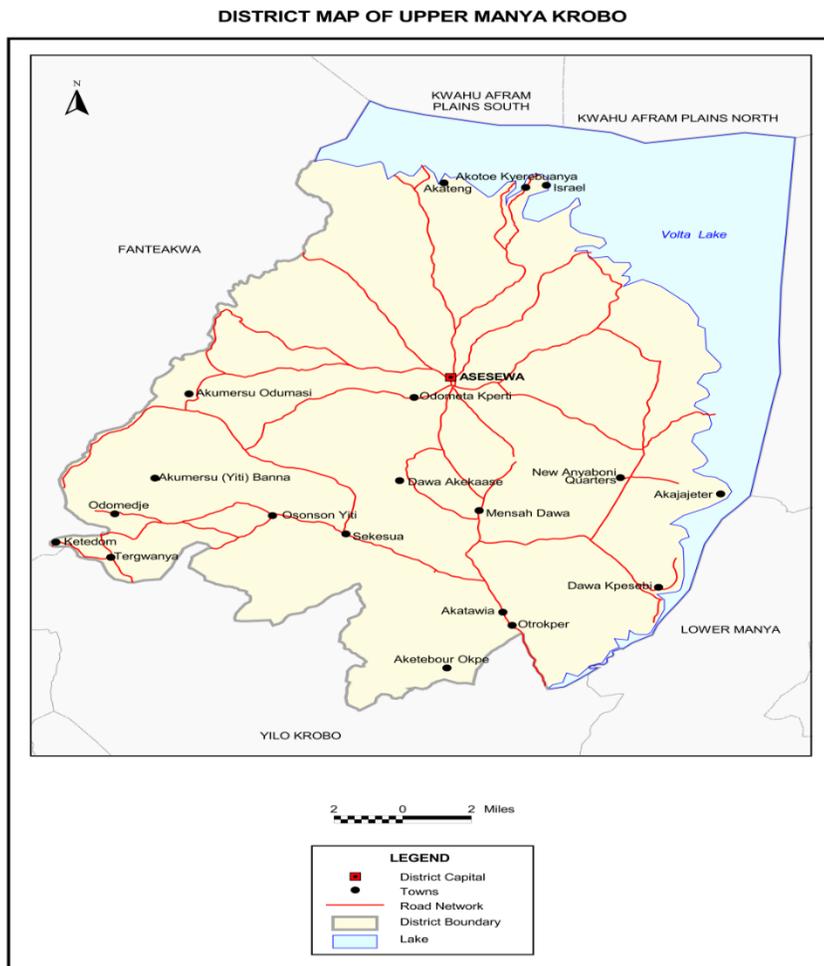
Source: from the 2010 Population and Housing Census report (Pieterse, 2017)

### **1.8.3 Upper Manya Krobo**

One of the twenty-six districts in the Eastern Region of the Republic of Ghana is Upper Manya Krobo District. In February 2008, it was carved out of the then Manya Krobo District by Legislative Instrument 1842 in continuation of the decentralization agenda of the nation, with its capital as Asesewa, a historic trading post, attracting a mix of cultures from all over the world. Asesewa, the district capital, is about 45 km from Koforidua, the regional capital of the Eastern Region, by road (ERCC, 2016).

The people of the land are predominantly Krobos, who according to history acquired the land from the Akyems. However, there are Ewes, Akans, Hausas and other tribes as well. The widely spoken language in the district is Dangme. Most of the people in the district are Christians. Other religious faiths such as Islamic and Traditional religions are also practiced.

Agriculture and associated commerce that employs more than 73 percent of the population dominate the district economy. Industrial operations are mostly small-scale and dependent on indigenous expertise and capital to define them. Any of the basic characteristics of this industry are sole ownership, family ownership and the use of labor-intensive technology. Fitting, welding, carpentry and cassava manufacturing, local gin (Akpateshie) manufacturing, oil palm production as well as tailoring, basket-weaving, bead making and batik tie-dye making are major small-scale industrial activities engaged by individuals (GSS, 2014b).



**Figure 1.8.3: District Map of Upper Manya Krobo**

Source: from the 2010 Population and Housing Census report (Pieterse, 2017)

## 1.9 Scope of Study

Cancer of the cervix is a non-communicable disease resulting from a network of causative and associated factors. Previous studies on knowledge and screening practices of cervical cancer among health workers in Ghana have focused on, general awareness of cervical cancer screening among nurses in Korle Bu Teaching Hospital (Mensah, 2016), knowledge of cervical cancer and patronage of cervical cancer screening services among female health workers in Kumasi, Ghana

(Adageba, et al., 2011), knowledge and screening practices of cervical cancer among female health workers at the Greater Accra Regional Hospital in Accra (Ghana Statistical Service, 2014) etc. The scope of the current study is on the cognizance of cervical cancer and its service delivery practices amongst community health nurses at the Krobo Enclave in the Eastern Region of Ghana. Community health nurses are a unique category of healthcare personnel who provide service to community members at CHPS compounds mostly in the rural, peri-urban and sometimes urban settings. Per the Ghana Health Services organogram chart, they are at the basic unit of primary healthcare provision and are the first point of contact for healthcare service delivery within Ghanaian communities. The reason for limiting the scope of the study is to enable the investigator focus on community health workers' knowledge and associated practices on this disease.

### **1.10 Organization of Report**

The main body of the report is preceded by detailed contents including lists of figures, tables, and definition of terms used in the report. This is followed by an abstract giving briefly the scope and objectives of the study, methodology, findings and conclusions.

Chapter One explains the importance of the topic, scope, problem statement, significance of study, objectives, research questions and conceptual framework. Chapter Two is the review of literature associated with the topic under study. Chapter Three talks about the methodology including study design, study population, sampling, data handling and analysis, ethical considerations and limitation of the study. Chapter Four is on results from data analysis, presented by pie charts and tables. Chapter Five discusses the results and compares it with available literature on previous works by other researchers. Chapter Six gives the conclusions and recommendations.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

The chapter consists of the review of pertinent literature for the research. The literature is grouped into headings for the purpose of clarification. However, the literature covers the research aims. The examination used search engines such as Google Scholar, Science Direct, Web of Science, African Journal Online, and several books. Main terms were used in the search engine, such as cervical cancer, cancer knowledge, socio-demographic causes, cervical cancer general awareness, perceptions and myths regarding cancer screening, cervical cancer occurrence and prevalence. In conjunction with the conceptual context and specified research questions of the study, the literature was reviewed.

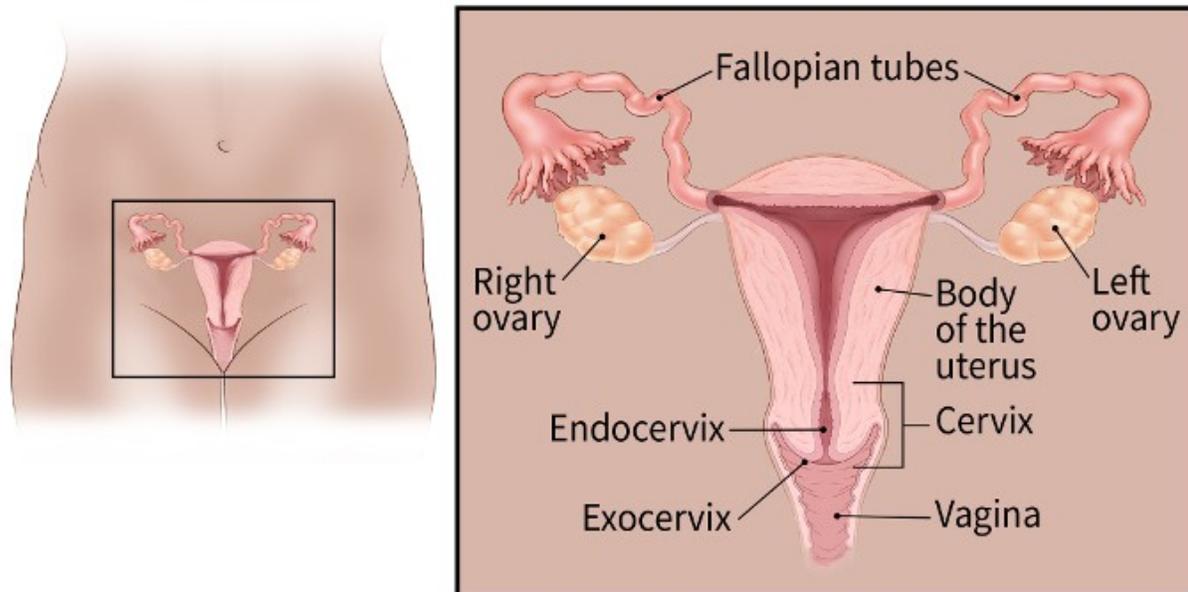
#### **2.2 Comprehension of Cervical Cancer**

##### **2.2.1 Description and Etiology of Cervical Cancer**

Cervical cancer is a malignant condition of the cervix in women that mostly develops at around the age of 54 in the 5th to 6th decade of life, but has a pre-malignant period in younger women under the age of 40 (Anorlu , 2006). While scientists have failed to advance the knowledge of most of the main female cancers, there has been considerable advancement in understanding the etiology of cervical cancer (Colditz, 2019). Particularly, it is now established that the human papilloma virus is the essential causative organism for this disease (Atienza-Amores, et al., 2014). The Human Papillomavirus (HPV) is sexually infectious and is a sexual infection that can be easily transmitted. The greatest prevalence of HPV infection occurs in most populations within 5-10 years of first sexual activity and the highest predominance rates are perceived in women aged 20-

24 years (Naber, et al., 2019). Approximately 50-80% of sexually active women are open to at least one form of HPV at one point in their lifetime (Cunningham, et al., 2015).

Cancer begins as cells begin to develop out of control in the body (ACS, 2020). While cervical cancers originate in pre-cancerous (pre-cancer) cells, only certain women with cervical pre-cancer can develop cancer. For most women, without any therapy, pre-cancerous cells would go away. In certain women, however, pre-cancer turns into real (invasive) cancer. Nearly all cervical cancers can be avoided when treating cervical pre-cancers (ACS, 2020). Figure 2.1 below shows the components of the female reproductive system.



**Figure 2.1: Components of the female reproductive system.**

Source: American Cancer Society (ACS), 2020 (ACS, 2020)

In Figure 2.1 above, the cervix is made up of two parts, endocervix and exocervix (the outer part that is visible to Physicians during speculum examinations) which are covered with two types of cells, glandular and squamous respectively.

In the cervix, the place where the two types of cells (glandular and squamous) meet is called the transformation zone. As you women get older and give birth the exact location of the transformation zone changes. In the cells in the transformation zone, most cervical cancers begin (ACS, 2020).

While a variety of challenges remain unresolved, including what factors could facilitate the development of low-grade lesions to neoplastic disorders, we are well on our way to gaining adequate information through vaccinology initiatives to initiate efforts to eliminate this disease (Brinton, 2000).

### **2.2.2 Types of Cervical Cancer**

The way they appear with a microscope in the laboratory classifies cervical cancers and cervical pre-cancers. Squamous cell carcinoma and adenocarcinoma are the primary forms of cervical cancers (ACS, 2020).

- ❖ Squamous cell carcinomas are the majority of (up to 9 out of 10) cervical cancers. In the exocervix, these cancers arise from cells. Carcinomas of squamous cells most frequently begin in the transition region (where the exocervix joins the endocervix).
- ❖ Adenocarcinomas constitute the majority of other cervical cancers. Cancers that grow from glandular cells are adenocarcinomas. Cervical adenocarcinoma grows from the endocervix's mucus-producing gland cells.
- ❖ Cervical cancers, less generally, have both squamous cell carcinoma and adenocarcinoma characteristics. These are termed carcinomas of adenosquamous or mixed carcinomas.

Although squamous cell carcinomas or adenocarcinomas are nearly all cervical cancers, other types of cancer can also develop in the cervix. These other types occur more commonly in other parts of the body, such as melanoma, sarcoma, and lymphoma (ACS, 2020).

### **2.2.3 Risk Factors for Cervical Cancer**

A risk factor is fundamentally something that raises the risk that cancer will develop. It may be a disorder, product or behavior. The bulk of cancers are the product of several risk factors. The following causes are credibly proven to raise the risk of cervical cancer: human papillomavirus (HPV) infection, sexual intercourse, smoking, giving birth several times, human immunodeficiency virus (HIV) infection, history of sexually transmitted infections (STIs), oral contraceptives and diethylstilbestrol (DES) (CCS, 2020). Of these, the modifiable factors as identified by the American Cancer Society include HPV infection, sexual history, smoking, weakened immune system, long-term use of oral contraceptives, having multiple full-term pregnancies, socioeconomic status and a diet low in fruits and vegetables (ACS, 2020).

DES is a hormonal treatment that was given to some women to stop miscarriage between 1938 and 1971. Women whose mothers took DES (when they were pregnant) experience vaginal or cervical clear-cell adenocarcinoma more often than would usually be expected. In women who have not been exposed to DES, these forms of cancer are exceedingly rare. In every 1,000 women whose mothers had taken DES during birth, there is around 1 case of vaginal or cervical clear-cell adenocarcinoma. This indicates that these cancers do not grow in about 99.9 percent of "DES daughters" (ACS, 2020).

In women younger than 50 years of age, most cases of cervical cancer exist. Cervical cancer appears to affect women of African descent more frequently than Caucasian women. Women in some sects (Catholic nuns and Amish and Mormon women, for example) also appear to have lower

cervical cancer rates. This is presumably because they have no or less sexual partners, which may reduce their HPV exposure. Lower-income women and less-educated women have a greater chance of cervical cancer. This may be because women do not have routine cervical tests in these categories or have other risk factors, such as higher smoking rates (CCS, 2020).

### **2.3 Synergies (The Triple Target-HPV, HIV and Cervical Cancer) to Save Women's Lives**

Synergies must be leveraged in the relationship between HPV, cervical cancer and HIV, and a concentrated and coordinated approach to sexual and reproductive health and the saving of women's lives must be taken to avoid premature deaths from cervical cancer and to end the AIDS epidemic by 2030. Stakeholders such as the government, multilateral organizations as well as massive and sustainable investment would be needed to do so (UNAIDS, 2016). Invasive Cervical Cancer (ICC) disproportionately impacts women living with human immunodeficiency virus (HIV), and are more likely than HIV-negative women to have recurrent co-infection with high-risk human papillomavirus (HPV) forms to develop precancerous cervical lesions and advance to ICC (Denslow, et al., 2014). Indeed, there is more time for precancerous cervical lesions to grow into ICC as life expectancy improves after beginning antiretroviral therapy (ART), but early initiation of ART tends to lower HPV coinfection rates and improve regulation of precancerous cervical lesions (Kelly, et al., 2018).

Maximization and synergy of HIV response with cervical cancer prevention, diagnosis, HPV vaccination and cervical cancer education for optimum care of patients. In order to collectively handle these two risks, screening and care are very relevant (Ghana Statistical Service, 2014). The WHO recommends integrated HIV care, monitoring and medication, including chemotherapy and/or radiotherapy, in cervical cancer screening programs, sexual and reproductive health services, treatment of precancerous cervical lesions, and advanced stage cervical cancer. To

improve this, integrated HIV/HPV/Cervical cancer service approach, partners from diverse sectors are needed (WHO, 2003). Adolescent or youth-friendly family planning clinics are an important area for combining cervical cancer screening and vaccination (Ghana Statistical Service, 2014).

#### **2.4 Present State of Cervical Cancer Data in Ghana**

The processes for reporting cancer vary from region to region globally and are at least partly dependent on local circumstances, including the extent of implementation of cancer information systems and the resources available to the registry (Bray, et al., 2021). Algeria, Kenya, Seychelles, South Africa, Uganda and Zimbabwe were the only African countries included in the International Agency for Research on Cancer's (IARC) 2021 publication of cancer registry-based incidence in five continents (Bray, et al., 2021). Presently, Ghana has two cancer registries, in Accra and Kumasi.

In 2020, the African Cancer Organization called for support to establish a Ghana National Population-Based Cancer Registry (GPCR) to improve the country's disease prevention (UICC, 2021). The Registry's aim is to gather, archive and interpret data on people with cancer in order to produce the incidence, prevalence, patterns, and mortality and survival rates needed to help Ghana establish a practical, sustainable and systematic strategy for cancer prevention. The data could also help determine the effects of prevention, early diagnosis and surveillance, efficacy of medication, and palliative care services (GBN, 2020).

As part of the National Reproductive Health Agenda, the first national cervical cancer prevention policy was introduced in 2005 (MOH, 2011). It includes screening with acetic acid (VIA) visual examination, treatment of pre-cancerous cryotherapy lesions in women aged 25-45 years, and cytology screening with pap smear in women aged 45 and above. The approach comprises the following: cervical cancer prevention campaign using flyers, leaflets and electronic platforms for

health promotion messages; coordinated screening and opportunistic screening for target populations; and screening incorporated into the current health system, such as maternal health systems (family planning and STI services) (MOH, 2011).

## **2.5 Ghana's Community Health Workers (CHWs)**

The Community-Based Health Planning and Services (CHPS) program was developed by Ghana in 1999. CHPS outlines two separate CHW cohorts. The first generation consists of full-time, paid Community Health Officers (CHOs) delivering, among other programs, maternal and reproductive health, neonatal and child health services, minor health care and health education. Community Health Volunteers (CHVs), the second generation of CHWs, are part-time, unpaid volunteers supporting CHOs in program delivery and community mobilization (Mwinnyaa, et al., 2020).

Baatiema et al., (2016), suggested that CHWs were variously named in Ghana, close to the international pattern, including but not limited to names such as community health volunteers.

Given the strong presence of CHWs in the health sector, in terms of policies, plans and budgeting, they are yet globally and sub-nationally invisible (FHWC, 2014). Given the lack of a national structure to direct CHW practices such as recruiting, credentialing, scope of practice, remuneration, career development, capacity improvement, supervisory frameworks, incorporation into the formal health system, capability development and logistical criteria and implementation, there is a general policy deficiency with regard to CHWs in Ghana (Baatiema, et al., 2016).

Data in many low and middle-income countries (LMICs) shows that substantial declines in infant and maternal mortality may be due in part to the role played by CHWs through health promotion interventions, immunization campaigns and other community-driven initiatives (Singh & Sachs, 2013; Lewin, et al., 2010). It is not possible to overemphasize the potential contributions of CHWs

to resolve the current global threat to health protection posed by Zika virus, yellow fever, Middle East Respiratory Syndrome (MERS) and influenza, especially in surveillance (Baatiema, et al., 2016). Healthcare workers play an integral role in educating women in disease prevention, cervical cancer screening adherence and promotion of wellbeing among women.

## **2.6 Role of Community Health Workers in Cervical Cancer General Awareness Promotion and Preventive Practices in Developing Countries**

Prevention and screening for cervical cancer has been characterized as one of Universal Health Coverage's last frontiers (Tsu, 2017). Community-based cervical cancer screening and role sharing for community health workers (CHWs) have been introduced as a viable means of increasing screening coverage in low- and middle-income countries (LMICs) (O'Donovan, et al., 2019). A recent research by Haby, et al. (2016), indicated that in developing countries visual inspection program using properly qualified CHWs could help eliminate hurdles and improve access to cervical cancer screening'.

CHWs found unscreened women in El Salvador and performed outreach missions to their households. The CHWs presented women with an informative session covering procedures for cervical screening and care, and also investigated the reasons why women were not screened (Alfaro, et al., 2015). CHWs were educated in Iran to provide women with an informative outreach session on the relevance of screening and using a self-administered Pap exam. Over a span of 2 months, this resulted in improved cervical screening rates, from 0 percent to 62.85 percent (Leila, et al., 2016). CHWs have also played a part in women's check following cervical screening. In Peru, with a 90 percent participation rate at 6-month follow-up, CHWs followed women who have been HPV positive on screening to follow-up consultations at a facility (Levinson, et al., 2013`).

Awolude, et al. (2018), found in Nigeria that, CHWs have been prepared to handle screening under guidance using VIA and to connect positive cryotherapy situations. The CHWs screened 848 females following 12 months of initial preparation. In total, 63 of these participants were rescreened by the CHWs, with a team consisting of a consulting gynecologist, a senior resident in gynecology and a specialist cytology nurse providing an 88.1 percent consensus with a professional examination (Awolude, et al., 2018). CHWs play a vital role in cervical cancer care delivery activities in developing countries ranging from community outreach and general awareness raising programs to aiding in or performing screening and follow up

### **2.7 Cognizance of Cervical Cancer among Healthcare workers**

In preventing and educating people on cervical cancer and HPV vaccinations, Health Care Professionals (HCP) play a crucial role (Singh & Baliga, 2021). The most prominent front-line workers delivering health education to patients and the general public are healthcare professionals in clinics and primary health centers (PHCs), including paramedical staff (Chawla, et al., 2016).

A study done between December 2014 to January 2015 to assess the knowledge and attitude of cervical cancer screening offered by Village Health Volunteers (VHVs) or community health workers in four sub-districts in Thailand conclusively stated that knowledge, attitudes and practices of disseminating information of cervical cancer screening among VHVs in the four sub-districts were high but did not commensurate with the cervical screening coverage rates for each district. VHVs had to consider women's socio-cultural attitudes in the target demographic and devise appropriate methods to facilitate greater coverage of cervical screening (Srisuwan, et al., 2015). In the Mudzi District of Zimbabwe also, a study showed low levels of awareness, negative beliefs about the likelihood of contracting cervical cancer and poor screening behaviors among health workers (Tarwireyi, et al., 2003).

Adefuye (2006), performed a cross-sectional study of 187 female health workers in the Remo district of Ogun State to determine their knowledge and use of cervical cancer screening services and found that 78.3 percent were found to have Papanicolaou smear (Pap smear) knowledge and only 16 (8.7 percent) had used the services. The two most important explanations for failure in use were lack of referrals from doctors and misunderstanding of the location of service centers. The research concluded that health care providers should expand patient opportunistic screening and implement alternate screening methods, such as acetic acid visual inspection (VIA), in order to increase the coverage of patients. Continuous education and prevention of cervical cancer by female health professionals would enhance awareness and expand the use of resources (Adefuye, 2006).

At Usmanu Danfodiyo University Teaching Hospital, Sokoto, Nigeria, Oche, et al. (2013), conducted a descriptive cross-sectional research to examine cervical cancer general awareness, attitude and practices of female health workers and found that, the most prevalent explanation for not evaluating Pap smear screening facilities was the belief that the participants were not at risk of the disease. It is advised to inform female health workers about the risks faced by the disease and to reassure them to address any potential obstacles to accepting the screening examination (Oche, et al., 2013).

Similarly, In Uganda, Mutyaba, et al. (2006), reported that, despite general awareness of the severity of cervical cancer and prevention through screening via a Pap smear, there were negative attitudes and behaviors among Mulago Hospital medical workers regarding screening. The medical staff who are responsible for opportunistic monitoring of women they work for are not ready to get tested on their own. The origin of these attitudes and behaviors needs to be explained/understood and potential strategies to counteract them need to be identified. Education

curricula for medical students and nurses need to be reviewed to integrate realistic expertise in cervical cancer screening.

## **2.8 Cervical Cancer Service Delivery Practices among Healthcare Workers**

If we are to achieve the sustainable development target to minimize cancer deaths and provide comprehensive health coverage for critical health care worldwide, innovative approaches for improving the adoption and delivery of cervical care is needed (O'Donovan, et al., 2019). Recognizing the increased risk of cervical cancer in low and middle-income country context, the WHO released recommendations in 2013 proposing that alternate evidence-based cervical screening approaches may be used to screen people in places where accessibility to the Pap smear test, cytology facilities and colposcopy for cervical cancer was not feasible (WHO, 2013).

HPV monitoring and visual examination of the cervix by qualified health care professionals is used in these procedures (Srisuwan, et al., 2015). Access to, and availability of, cervical screening is primarily based on the involvement with skilled health staff and adequate resources, and robust health systems (O'Donovan, et al., 2019). In a survey on Malaysian women, Wong, et al. (2009), stated that during their visits to healthcare providers, most respondents were never consulted for cervical cancer and HPV screening. Many respondents have said that if this was suggested by their healthcare provider, they would consent to be screened (Wong, et al., 2009). Care barriers are close to those for other clinical interventions for cervical cancer screening and care. This includes: conflicting health priorities, lack of political will, inadequate access to facilities, poorly established systems for health care, lack of screening and treatment information, limited financial, equipment and human capital, expenditures, long waits and waiting times, missing referrals and follow-up (Kieti, 2016).

There has been little public screening of cervical cancer in Ghana, except with respect to voluntary health education in rural areas. (Ghana Statistical Service, 2014). Therefore, it is fair that many women can only get or become aware of the information when they go to the hospital to seek medical attention if they have painful symptoms such as bleeding, specifically irregular bleeding, bleeding during cycles, during intercourse, leg pain, and pelvic pain.

## **2.9 Situating the Literature Reviewed Within The Health Belief Model (HBM)**

The literature related to cervical cancer cognition and its service delivery activities by community health nurses has been addressed in this chapter. The analyzed literature, contextualized in the proponents of the HBM, will help to define areas of concern and findings on influences correlated with cervical cancer practices and care.

In response to the challenges faced in deciding to take up prevention programs such as cervical cancer screening, the HBM model offers a precious theoretical basis. The HBM suggests that the sense of being vulnerable to a disease and the belief that it is a significant health issue are motivating variables that raise the possibility of individuals taking steps to diagnose and handle it early on. The model also notes that if you get signs of intervention such as incidents, persons or objects that inspire people to improve their actions, and if obstacles are outweighed by the advantages of the desired action, an action may be expected. Other factors, such as history, schooling, prior knowledge and abilities, change interpretation. Individuals with those perceptions may be favorably motivated to take steps and it is important to anticipate behavioral maintenance (Hayden, 2013). The writer also claimed that the HBM implies that a series of core values are the product of health habits. The model was used to forecast and clarify variations in health habits. The paradigm claims that what people think about a health problem or action determines what they are going to do with it. Individual views of the challenge, vulnerability, intensity, advantages,

inhibitors are driving variables for an individual to conduct health behaviors; modifying factors (demographic, socio-psychological and structural) and the probability of intervention (self-efficacy, indicators of action) lead to achieving the target (Hayden, 2013).

## **2.10 Chapter Summary**

Literature relating to cervical cancer, its etiology, forms and risk factors has been outlined in this chapter. Study findings were reviewed on cervical cancer cognition and related service delivery activities. The HBM offers a structure for the study of demographic, socio-psychological and systemic, perceived susceptibility, perceived intensity, perceived advantages, perceived obstacles and signs of intervention in relation to health habits. An analysis of factors related to the use of screening for cervical cancer was provided and framed within the HBM's principles. In Chapter 3, the methods of analysis are discussed.

## **CHAPTER THREE**

### **METHODOLOGY**

#### **3.0. Introduction**

This chapter discusses the methods used in addressing the research questions. The chapter describes the study design, study variables, population, sample size calculation and sampling, data collection tool and procedures, and pretesting of questionnaires. It also presents how data obtained was analyzed as well as data management strategy. Finally, it presents how ethical issues were handled in the study. Limitations and assumptions were also outlined.

#### **3.1 Research Methods and Design**

A quantitative, cross-sectional descriptive design was used to assess the cognizance of cervical cancer and its service delivery practices amongst community health nurses at the Krobo Enclave in the Eastern Region of Ghana. A cross-sectional study is a type of research in which data is obtained from a portion of the population to help address research questions of interest, and the data is collected at a single point in time (Oslen & St. George, 2004). When a researcher tries to establish context by empirical measurement of the situation and numerically presents the study's conclusions, he or she uses a quantitative research methodology (Apuke, 2017). The quantitative approach was chosen because it enabled the researcher to sample a cross-section of community health nurses to participate in this study where the cognizance of cervical cancer and its service delivery practices were assessed and the findings used to infer the situation across community health nurses in the study area.

### **3.2 Data Collection Techniques and Tools**

Data was collected through a survey. A structured questionnaire containing both open and closed ended questions was designed and used for the data collection. The questionnaire was divided into five (5) different sections. Section A of the questionnaire collected data on the socio-demographic and professional background of the respondents. Section B elicited information on the participants' general awareness of cervical cancer. Section C, seeking to assess the comprehensive knowledge of cervical cancer among participants was divided into four sub-sections: knowledge on risk factors for cervical cancer, knowledge on prevention of cervical cancer, knowledge on presentation of cervical cancer, and knowledge on treatment of cervical cancer. Section D of the questionnaire was divided into three parts and also elicited information on cervical cancer service delivery practices, treatment practices, and rehabilitation practices. The last section, E, elicited information on participants' interest in continuous education of cervical cancer.

The data was collected among community health nurses at the Lower Manya, Upper Manya and Yilo Krobo areas in the eastern region of Ghana. Each participant was engaged for approximately 20 minutes within which period the data was collected. The questionnaire was administered by trained research assistants.

### **3.3 Study Population**

Community health nurses at the Krobo Enclave in the Eastern Region of Ghana delivering, among other programs, maternal and reproductive health, neonatal and child health services, minor health care, health education and community mobilization.

### 3.3.1 Inclusion criteria

All full-time community health nurses delivering maternal and reproductive health, neonatal and child health services, minor health care, health education and community mobilization were included.

### 3.3.2. Exclusion criteria

Community health nurses who were directly involved in delivering maternal and reproductive health, neonatal and child health services, minor health care, health education and community mobilization but were not present during the time of data collection were excluded from the study.

Participants who also failed to give their consent were not included in the study.

### 3.4 Study Variable

**Table 3.1 Study Variables**

<b>Variable</b>	<b>Operational Definition</b>	<b>Scale of Measurement</b>
Age	Age at last birthday of community health nurse (in years)	Numeric (Discrete)
Gender	Sex of health worker	Binary (male or female)
Ethnicity	Affiliation of participant to a group resulting from cultural ties	Categorical (nominal)
Education	Highest level of educational qualification obtained by the participant	Categorical (Ordinal)
Marital Status	The current spousal relationship of health worker	Categorical (nominal)

Duration of work	The number of years the participant has worked as a community health nurse	Numeric (Discrete)
Level of General awareness	Community health nurses' general awareness of cervical cancer <b>HIGH</b> (above average score on general awareness) <b>LOW</b> (average or lower scores on general awareness)	Binary (high or low)
Level of Knowledge	Community health nurses' knowledge of cervical cancer <b>HIGH</b> (above average score on knowledge) <b>LOW</b> (average or lower scores on knowledge)	Binary (high or low)
Service Delivery Practices	Service delivery, treatment and rehabilitation practices among participants <b>HIGH</b> (above average score on knowledge) <b>LOW</b> (average or lower scores on knowledge)	Binary (high or low)
Continuous Education	Interest and willingness of participant to learn about cervical cancer	Binary (Yes/No)

### 3.5 Sampling size and sampling procedures

The Krobo enclave consist of Upper Manya Krobo, Lower Manya Krobo and Yilo Krobo. Records from the District Health Directorates revealed 177 Community Health Nurses at the time of the study. Upper Manya had 46 Community Health Nurses, Lower Manya had 68 Community Health Nurses and Yilo krobo had 63 Community Health Nurses.

The census method was employed and thus the 177 community health nurses within the various municipalities Upper Manya, Lower Manya and Yilo was the study size.

### **3.6 Pre-testing**

Questionnaires were pretested in the Asuogyaman district, one with similar characteristics as the Lower Manya, Upper Manya and Yilo Krobo Municipalities. The pretesting sought to determine the time frame per questionnaire per respondent, reliability of the questionnaire, assessment of respondents' understanding of the questionnaire and to make necessary adjustments and corrections before the actual commencement of the data collection. At the end of the pretesting, some questions were rephrased and others eliminated as deemed appropriate.

### **3.7 Data Handling**

The ability to realize good findings for any research is the ultimate goal of the research and it is hinged on appropriate handling of data. The researcher ensured that such high standards were met in order to make the findings of this researcher serve the significant purpose for which it was set out to.

The completed questionnaires were manually examined for completeness, then hand-coded and entered into Microsoft Excel. To ensure data quality, the data was doubly-entered into excel by a research assistant and the principal researcher. The principal researcher then compared the two data entries. Errors and inconsistencies were detected and discussed and resolved before the data was then exported into Stata 14 version software for further cleaning. Cleaning of the data was done by running frequencies on each variable. This helped check inconsistently coded data. All inconsistently coded data was double checked with raw data from the questionnaire, and then resolved.

### **3.8 Data Analysis**

All analyses were conducted using STATA statistical software package (StataCorp. 2015. *Stata Statistical Software: Release 14*. StataCorp LP, College Station, TX, USA) and Microsoft excel.

A univariate analysis of participants' demographic data and some selected variables were reported. After the analysis at the individual variable levels, sections and items (questions) assessing cervical cancer general awareness, knowledge, service delivery practices were crosschecked for correct and incorrect responses. The responses were categorized as "Yes", for correct answers "No" for incorrect answers, and "don't know" for those who indicated so. All correct and incorrect responses for each section (general awareness, knowledge, service delivery) were calculated into percentages and frequencies. The mean score with standard deviation, minimum score and maximum obtainable score were computed with their respective percentages for general awareness, knowledge and service delivery practices. To assess levels of general awareness, knowledge and service delivery practices, a numeric scoring pattern was used, and the variables were further categorized into binary (low or High) based on the cut-off mean score marks table 4.1. Respondents receiving scores greater than the mean score for general awareness ( $6.0 \pm 1.3$ ), total knowledge ( $27. \pm 5.6$ ), service delivery ( $8.0 \pm 1.2$ ) were deemed to be high response and vice versa. Bivariate analyses of socio-demographic factors of respondents and service delivery practices, general awareness and overall knowledge of cervical cancer were tested for associations. Based on the outcome of the bivariate analyses, a multivariate (logistic regression) analysis was conducted to ascertain the effect of some selected variables on cervical cancer service delivery practices and general awareness level of cervical cancer.

Correlation analysis was used to investigate the strength and direction of association between cognizance of cervical cancer and service delivery practices amongst the community health nurses. To do this, all answers to questions on general awareness, overall knowledge and service delivery practices were coded as 1 (for chosen responses that corresponded to answers known in current literature on cervical cancer) or 0 (for responses which vary from answers known in the literature

and for “don’t know). The scores on general awareness and knowledge of cervical cancer were then added to generate a discrete variable called “cognizance”. Similarly, the scores on items measuring service delivery practices were used to generate a discrete variable. A spearman’s rank correlation analysis was used to establish the association between cognizance of cervical cancer and service delivery practices.

### **3.9 Ethical Consideration**

Ethical approval for the study was obtained from the Ethical Review Committee of Ensign College of Public Health and administrative permission sought from the Municipal Health Directorates of Ghana Health Service (GHS). Respondents were duly informed about the purpose of the study. The right to privacy and confidentiality was maintained throughout the period of interaction with the respondents. Anonymity was ensured by labeling the questionnaires with numbers instead of the names of respondents. Written consent was also sought from respondents and they were informed that participation is voluntary and could opt-out of the process any time they so wished.

### **3.10 Limitations of Study**

The research work was limited to the three municipalities and was not intended for the Eastern region as a whole and so therefore, generalizability could not be established from the findings because of that.

### **3.11 Assumptions**

It was assumed in this study that all responses elicited from participants were given in all honesty and truthfulness. More so, all conditions required of the statistical models to be used in this research would be ensured, to improve the internal validity of the findings.

### **3.12. Chapter Summary**

This chapter discussed the methods used to carry out the study. It comprised of the study design, the study area, study population, sampling method, data collection, and analysis as well as ethical consideration. The next chapter presents the results.

## CHAPTER FOUR

### RESULTS

#### 4.1 Introduction

This chapter presents the findings of data assessing the cognizance of cervical cancer and its associated service delivery practices amongst community health nurses at the Krobo enclave. These findings are presented in tables, figures and graphs. The chapter is further segmented into six sections. Section one presents the results on the socio-demographic characteristics of the respondents. Section two presents description of scores obtained by the respondents. Section three represents summary responses to items assessing the general awareness of cervical cancer. Section four presents summary of responses to items concerning knowledge on cervical cancer. Section five presents information on service delivery practices. Section six presents bivariate analysis of socio-demographic factors and cervical general awareness, socio-demographic factors and service delivery practices, socio-demographic factors and overall knowledge. Also, Logistic Regression Analysis of factors associated with service delivery practices was done. Section seven presents a correlation matrix of the cognizance and service delivery practices. The last section summarizes the chapter. All the data were entered into STATA and a series of tests were run.

#### 4.2 Socio-Demographic characteristics of respondents

Data was gathered mainly through the usage of questionnaires. A total of 177 questionnaires were administered and 145 respondents completed and returned, yielding a response rate of 82.3%. Post data collection 46, 68, & 63 respondents were from Upper Manya, Lower Manya and Yilo Krobo respectively.

From Table 4.0 below, the respondents included 21% males and 79% females with majority (about 95%) between ages 20 and 39 years. About 95% reported being Christians. Most respondents also reported being culturally or ethnically affiliated to the Akan (43%), Dangme (26%), Ga (6.9%), and Ewe (22%) ethnic groups. The highest level of educational qualification obtained by the

respondents were certificate (74%) and diploma levels (21%). Most respondents reported having worked as community health nurses for less than 5 years (63%) or between 5 and 10 years (30%). Finally, respondents from Upper Manya, Lower Manya and Yilo Krobo were 24.83%, 38.62% and 36.55% respectively.

**Table 4.0 Socio-Demographic Characteristics of Respondents**

<b>Variable</b>	<b>Category</b>	<b>Frequency</b>	<b>Percent</b>
Age	20-29	71	48.28
	30-39	69	47.59
	40-49	2	1.38
	50-59	3	2.07
Gender	Female	115	79.31
	Male	30	20.69
Religion	Christianity	138	95.17
	Islam	5	3.45
	Other	2	1.38
Ethnicity	Akan	62	42.76
	Dangme	39	26.90
	Ewe	31	21.38
	Ga	10	6.90
	Other	3	2.07

Highest Educational Level	Certificate	107	73.79
	Diploma	30	20.69
	Advanced Diploma	2	1.38
	Degree	6	4.14
Marital Status	Single	88	60.69
	Married	56	38.62
	Cohabiting	1	0.69
Working Duration	Less than 5 years	92	63.45
	5 – 10 years	43	29.66
	11 – 15 years	7	4.83
	16 years or more	3	2.07
Municipality	Upper Manya	36	24.83
	Lower Manya	56	38.62
	Yilo Krobo	53	36.55

Source: Field Survey data (2021)

#### **4.2.1 General Awareness, Total Knowledge and Service Delivery Practices**

From table 4.1, the mean general awareness score was  $6.0 \pm 1.3$ , from a maximum obtainable score of 10. Most of the respondents (62.8%,  $n=91/145$ ) had low general awareness on cervical cancer. For service delivery practices, the mean score was  $8.0 \pm 1.2$ , from a maximum obtainable score of 11. Most of the respondents (67.6%,  $n=98/145$ ) had low service delivery practices. The total knowledge mean score was  $27 \pm 5.6$ , from a maximum obtainable score of 36. Lastly (55.9%,  $n=81/145$ ) had a high percentage of total knowledge as well.

**Table 4.1 Description of Scores Obtained by Respondents (n=145)**

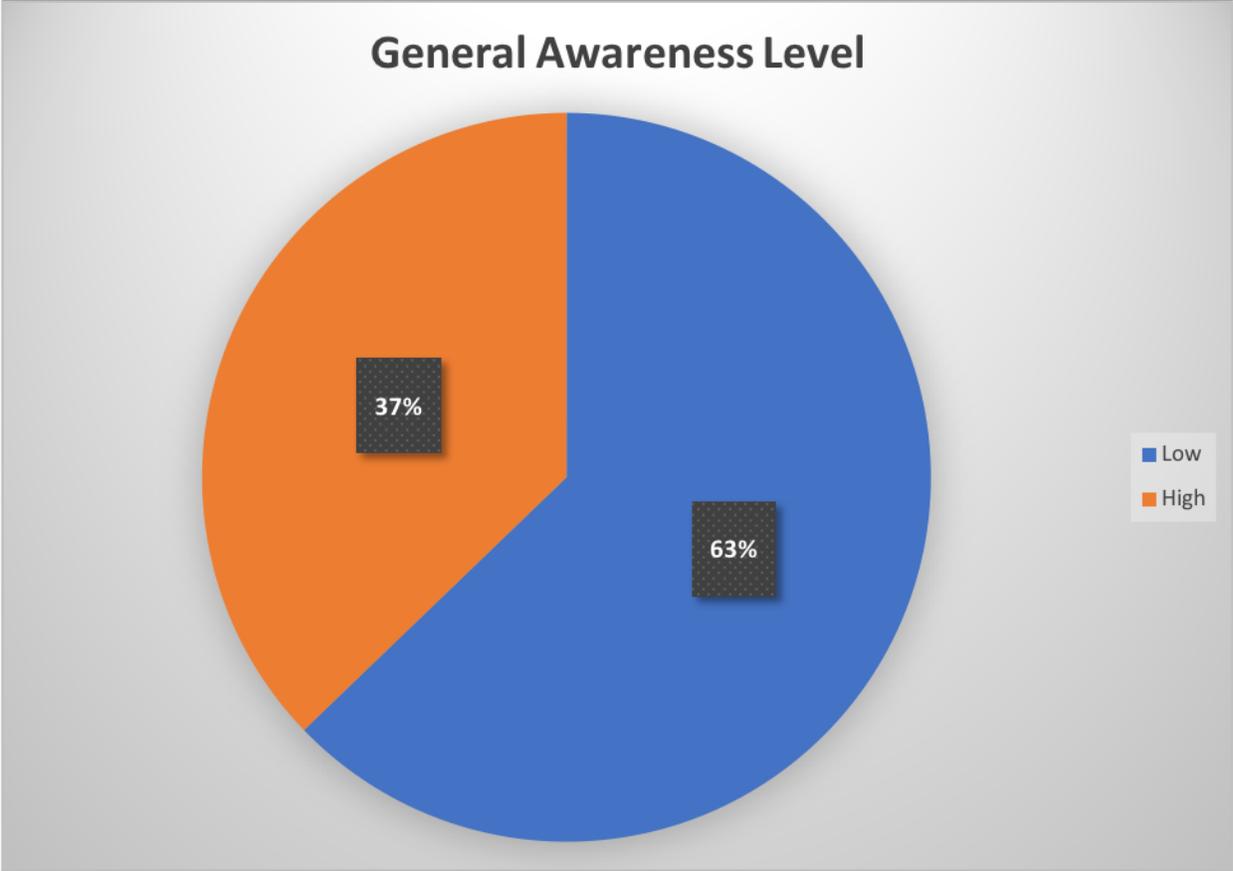
Variables	Maximum Obtainable Score	Score Received by Respondents		Mean±SD	Low n(%)	High n(%)
		Min. Score	Max. Score			
General Awareness	10	4	9	6.0±1.3	91(62.8)	54(37.2)
Total Knowledge	36	5	36	27±5.6	64(44.1)	81(55.9)
Service Delivery Practices	11	6	11	8.0±1.2	98(67.6)	47(32.4)

Cut-off marks- mean scores i.e., General Awareness- 6.0, Service Delivery Practices- 8.0 and Total Knowledge- 27;

Low scores- scores < mean; SD- Standard Deviation.

### 4.3 General Awareness Level of Cervical Cancer

The proportion of respondents scoring low on the items measuring general awareness of cervical cancer were almost sixty-three (62.8) %. This proportion was almost twice as much as those who reported high level of general awareness with scores of 37.2%, as shown in the pie chart below.



*Figure 4.1 General Awareness of Cervical Cancer*

Table 4.2 below presents a detailed description of the items used to measure respondents’ level of general awareness of cervical cancer.

**Table 4.2 General Awareness of Cervical Cancer**

Item	Category	Frequency	Percentage
Heard of Cervical Cancer?	Yes	144	99.31
	No	1	0.69
Seen Cervical Cancer Patient Before	Yes	20	13.79
	No	125	86.21

Main Sources of Cervical Cancer Information	Mass Media	18	12.50
	School	38	26.39
	Others	88	61.11
Ever Attended training Workshop	Yes	6	4.14
	No	139	95.86
Rank of Cervical Cancer in causes of morbidity and mortality in women	Yes	25	17.24
	No	58	40
	don't Know	62	42.76
Cervical Cancer General Awareness Month	Yes	55	37.93
	No	50	34.48
	Don't Know	40	27.59
Respondent or Relative ever been Diagnosed with Cervical Cancer	Yes	1	0.69
	No	144	99.31

Source: Field Survey data (2021)

From table 4.2 about 99% of the respondents had heard of cervical cancer but 86% had never seen a patient with cervical cancer before. Interestingly, the main source of cervical cancer information was from school with a percentage of 26%, followed by mass media with a percentage of 12.5%. The other sources of information were from church, friends, family, public gatherings (61%). Most of the respondents had never attended a workshop or seminar on cervical cancer (96%). About 37% of respondents knew the correct month cervical general awareness is created worldwide which is the month of January. About 62% of respondents did not know where cervical cancer was ranked worldwide with respect to mortality among women, cervical cancer being the second leading cause of death among women.

#### 4.4 Knowledge on Cervical Cancer

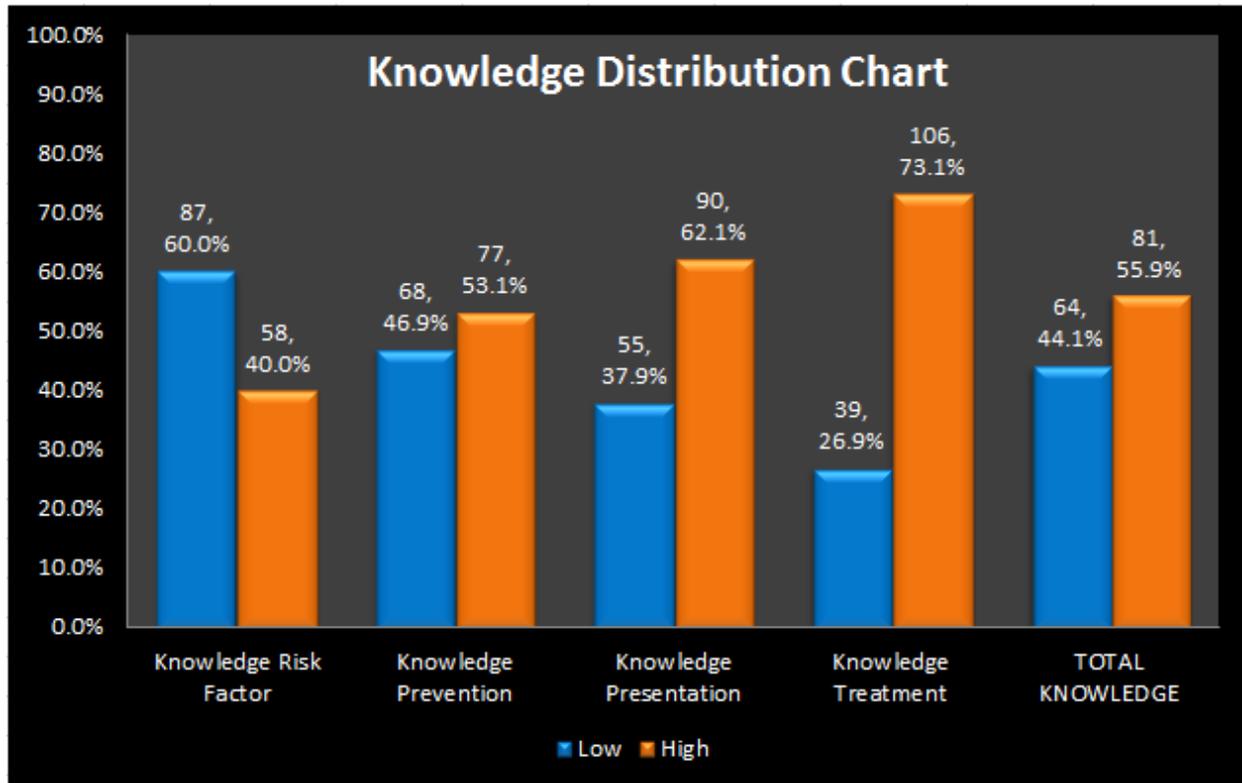


Figure 4.2 Knowledge on Cervical Cancer

Table 4.3 Knowledge Distribution on Cervical Cancer

VARIABLE	LOW n(%)	HIGH n(%)
Knowledge on Risk Factor	87(60.0)	58(40.0)
Knowledge on Prevention	68(46.9)	77(53.1)
Knowledge on Presentation	55(37.9)	90(62.1)
Knowledge on Treatment	39(26.9)	106(73.1)
Total Knowledge	64(44.1)	81(55.9)

Overall knowledge levels on cervical cancer as shown in figure 4.2 above, was derived from the four sub-constructs, namely; knowledge on risk factors, knowledge on prevention, knowledge on presentation of the disease, and knowledge on treatment.

As shown in Tables 4.3, knowledge on risk factors were low for the respondents with a percentage of 60 using a cut off mean score of  $5.6 \pm 1.9$ . Also, about 53.1% scored high on knowledge on prevention with a cut off mean score of  $3.5 \pm 0.6$ . Responses on knowledge on presentation scored high with a percentage of 62.1% and a cut off mean score of  $11.4 \pm 4.1$ . Finally, the responses for knowledge of treatment were high (73.1%) with a cut off mean score of  $6.6 \pm 1.4$ . Response for total knowledge was high with a percentage of 55.9% and a cut-off mean score at  $27 \pm 5.6$ .

**Table 4.4 Knowledge on Risk Factors for Cervical Cancer**

<b>Item</b>	<b>Category</b>	<b>Frequency (N=145)</b>	<b>Percentage</b>
Risk Factors	Yes	62	42.75
	No	46	31.72
	Don't Know	37	25.52
Age range most likely to develop cervical cancer	Yes	78	53.79
	No	37	25.51
	Don't Know	30	20.69
HPV is strongly associated with Cervical Cancer	Yes	114	78.62
	No	7	4.83
	Don't Know	24	16.55
Male acquisition of HPV infection	Yes	95	65.52
	No	24	16.55

	Don't Know	26	17.93
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Source: Field Survey data (2021)

The proportion of respondents who answered correctly (“Yes”) to questions regarding risk factors for cervical cancer (figure 4.4) were higher than those who answered incorrectly (“No”) or had no knowledge on the factors (“Don’t Know”).

From Table 4.4 concerning the knowledge on risk factors for cervical cancer, 42.8% of the respondents scored high. It was observed from the supplementary Table 4.4.1 below, that 49.7% of the respondents knew that cervical cancer can be acquired through multiple sexual partners. Also 40.69% knew early coitarche was a risk factor for cervical cancer. The percentage of respondents who knew HPV virus was a risk factor for cervical cancer was 52.41%. About two-thirds of the respondents knew that a male partner with HPV infection can put a person at risk of cervical cancer.

**Supplementary Table 4.4.1 Knowledge on Risk Factors for Cervical Cancer**

<b>Risk Factors</b>	<b>Yes (%)</b>	<b>No (%)</b>	<b>Don't Know (%)</b>
Early coitarche (sex)	59 (40.69%)	49 (33.79%)	37 (25.52%)
Early childbirth	61 (42.07%)	51 (35.17%)	33 (22.76%)
Multiple childbirth (High parity)	73 (50.34%)	38 (26.21%)	34 (23.45%)
HPV Infection	76 (52.41%)	38 (26.21%)	31 (21.38%)
Multiple sexual partners	72 (49.66%)	36 (24.83%)	37 (25.52%)
Male partner with HPV infection	68 (46.90%)	45 (31.03%)	32 (22.07%)
Smoking	48 (31.10%)	44 (30.34%)	53 (36.55%)

Combined Oral Contraceptive use (more than 5 years)	53 (36.55%)	51 (35.17%)	41 (28.28%)
Drinking alcohol	35 (24.14%)	61 (42.07%)	49 (33.79%)
HIV infection coinfection	58 (40.00%)	51 (35.17%)	36 (24.83%)
Family history of cervical cancer	79 (54.48%)	42 (28.97%)	24 (16.55%)

**Table 4.5 Knowledge on Prevention**

Item	Category	Frequency	Percentage
General Awareness of HPV vaccine	Yes	85	58.62
	No	60	41.3
Ways of Prevention	Yes	134	92.41
	No	11	7.59

Source: Field Survey data (2021)

With reference to Table 4.5 above on the knowledge on prevention of cervical cancer it could be gleaned that close to an even number of the respondents (58.62%: 41.3%) are aware of the use of the HPV vaccine and considering the general knowledge on prevention a greater number of them had good knowledge with 92.41%.

**Supplementary Table 4.5.1 Knowledge on Ways of Prevention of Cervical Cancer**

<b>Ways of Prevention</b>	<b>Yes (%)</b>	<b>No (%)</b>
Vaccinating girls between 9 & 13 years with 3 doses of HPV Vaccine prior to sexual activity	127 (87.59%)	18 (12.41%)
Recently, Vaccination is also beneficial to adults	131 (90.34%)	14 (9.66%)
Screening all sexually active women and those 30 yrs. And above	141 (97.24%)	4 (2.76%)
Treatment of precancerous lesion which may develop into cervical cancer	137 (94.48%)	8 (5.52%)
Vaccination of boys	134 (92.41%)	11 (7.59%)

A greater proportion of the respondents (141 out of 145) had knowledge on screening all sexually active women and those 30years and above being a preventive way for cervical cancer. Additionally, about 93% knew that vaccination is not restricted to girls only but boys inclusive. These and other information as knowledge on vaccination also being beneficial to adults denotes that a greater percentage of respondents have knowledge on ways of prevention of cervical cancer, as presented in Supplementary Table 4.4.1 above.

**Table 4.6 Knowledge on Presentation of Cervical Cancer**

<b>Presentation of Cervical Cancer</b>	<b>Yes (%)</b>	<b>No (%)</b>	<b>Don't Know (%)</b>
Asymptomatic	57 (39.31%)	71 (48.97%)	17 (11.72%)
Offensive vaginal bleeding	113 (77.93%)	31 (21.38%)	1 (0.69%)
Irregular bleeding	97 (66.90%)	48 (33.10%)	0
Bleeding after douching	83 (57.24%)	59 (40.69%)	3 (2.07%)
Intermenstrual bleeding	103 (71.03%)	42 (28.97%)	0
Bleeding after sex	107 (73.79%)	38 (26.21%)	0
Postmenopausal bleeding	81 (55.86%)	64 (44.14%)	0
Urinary symptoms	79 (54.48%)	63 (43.45%)	3 (2.07%)

Concerning the knowledge on presentation from Table 4.6 most of the community health nurses (60%) responded 'No' and 'Don't know' that cervical cancer can be asymptomatic. About 77% of the community health nurses knew that an offensive vaginal bleeding is a sign of cervical cancer. Most of the respondents (57%) chose bleeding after douching as a sign for cervical cancer. Most of the community health nurses also knew that post-menopausal bleeding is a sign for cervical cancer (55%).

**Table 4.7 Knowledge on Cervical Cancer Treatment**

Item	Category	Number	Percentage
Diagnosis of Cervical Cancer	Yes	41	28.28
	No	99	68.28
	Don't know	5	3.45
Cervical Cancer can be treated	Yes	125	86.21
	No	10	6.90
	Don't Know	10	6.90
Cervical cancer can kill	Yes	126	86.90
	No	9	6.21
	Don't Know	10	6.90
Frequency of doing pap smear	Yes	121	83.45
	No	8	5.52
	Don't Know	16	11.03

Source: Field Survey data (2021)

**Supplementary Table 4.7.1 Knowledge on Diagnosis of Cervical Cancer**

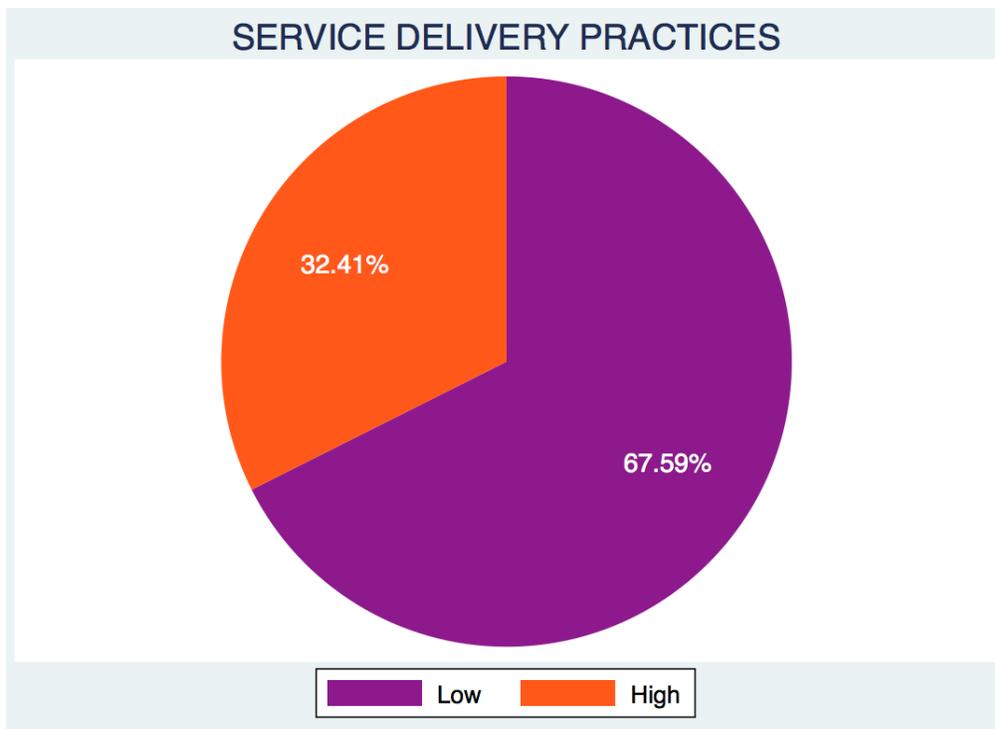
Diagnosis of Cervical Cancer	Yes (%)	No (%)	Don't Know (%)
Pap Smear	52 (35.86%)	90 (62.07%)	3 (2.07%)
HPV Testing	47 (32.41%)	93 (64.14%)	5 (3.45%)
VIA	24 (16.55%)	114 (78.62%)	7 (4.83%)

Looking at Table 4.7, 28.3% of the respondents knew the method that was used to diagnose or screen for cervical cancer. Most of them (35.86%) from supplementary Table 4.7.1 knew the pap

smear was used for screening. Most of the participants (83.45%) responded ‘No’ and ‘Don’t know’ to VIA which is the cheapest way to screen for cervical cancer. About 32% knew about HPV testing which is the modern method of screening for cervical cancer. Most (83.45%) of the respondents knew that pap smear is recommended at least once or twice a year. Also, 86% knew that cervical cancer can really be treated if diagnosed early.

#### 4.5 Service Delivery Practices

From Table 4.1, service delivery practices had cut off mean score of  $8.0 \pm 1.2$ , with a maximum obtainable score of 11. The response for service delivery practices was low with a percentage of 67.6 which is twice the response for high service delivery practices (32.4%).



*Figure 4.4 Service Delivery Practices*

Like knowledge on cervical cancer, the number of correct responses on items measuring service delivery practices were categorized as “Yes” and “No” for incorrect answers. Respondents in the

“Yes” categories were deemed as demonstrating good service delivery practices, whilst those in the “No” categories were deemed to be demonstrating poor service delivery.

**Table 4.8 Cervical Cancer Service Delivery Practices**

<b>Item</b>	<b>Category</b>	<b>Number</b>	<b>Percentage</b>
Knowledge of a Visual Inspection with Acetic Acid (VIA) of the Cervix	Yes	16	11.03
	No	129	88.97
Performed VIA on a person in the community	Yes	1	0.69
	No	144	99.31
Have knowledge on performing pap smear	Yes	17	11.72
	No	128	11.72
Performed pap smear on a person in the community	Yes	3	2.07
	No	142	97.93
Cervical cancer education at Antenatal and Child welfare Clinic (ANC/CWC)	Yes	81	55.86
	No	64	44.14
Reach out to women six weeks post-partum during post-natal care	Yes	33	22.76
	No	112	77.24
Creating cervical cancer general awareness during field visits	All the time	16	11.03
	Sometimes	101	69.66
	Not at all	28	19.31

Source: Field Survey data (2021)

From Table 4.8 it was obvious that 99% of respondents had never performed VIA for a person in a community before, neither had they performed a pap smear in their community before (97%).

Most of the community health nurses do give education on cervical cancer during their antenatal clinics and child welfare clinics (55.9%) and 77.2% do not reach out to women who are six weeks post-partum. Also, about 101 out of 145 sometimes create general awareness on cervical cancer during field visits.

**Table 4.9 Treatment Practices**

<b>Item</b>	<b>Category</b>	<b>Number</b>	<b>Percentage</b>
Identifying Cervical cancer in patients	Not at all confident	31	21.38
	Not very Confident	48	33.10
	Fairly Confident	51	35.17
	Very Confident	15	10.34
Advice to suspected cervical cancer case	Within a week	124	85.52
	Within a month	6	4.14
	Within a few months	12	8.28
	Within a few years	3	2.07

Source: Field Survey data (2021)

From the Treatment Practices table (Table 4.9) under the item “Identifying Cervical Cancer in patients”, 35.17% of the respondents are fairly confident to identify a patient with cervical cancer and close to the same numbers (33.10%) are not very confident. On the other hand, to the extremes just 10.34% are very confident and 21.38% are not at all confident. Considering advising suspected patients on actions to be taken, a good majority of 124 from the 145 respondents advised that one seeks immediate medical assistance within a week. Six out of the remaining advising within a month and the rest placing less urgency on the medical condition in that some (3) even suggested years of no medical attention.

**Table 4.10 Rehabilitation Practices**

<b>Item</b>	<b>Category</b>	<b>Number</b>	<b>Percentage</b>
Active Search and follow up on patients with cervical cancer	Yes	46	31.72
	No	99	68.28
Counselling services offered to patients and relatives	Yes	39	26.89
	No	106	73.11

Source: Field Survey data (2021)

From Table 4.10 most of the rehabilitation practices for cervical cancer was not practiced, 68.28% did not actively search for patients with cervical cancer and follow up on them. Counselling services offered to patients with cervical cancer and their relatives were largely not provided in the community.

#### **4.6 Socio Demographic Factors Associated with Service Delivery Practices and Level of General Awareness of Cervical Cancer**

The relationship between sociodemographic characteristics of respondents and cervical cancer service delivery practices as well as respondents' level of general awareness were assessed using the Pearson chi<sup>2</sup> and Fisher's exact association tests. The Fisher's exact test was used in lieu of Pearson Chi<sup>2</sup> test when the independent sociodemographic characteristic had empty cells and/or cells with small frequencies, which violates the "minimum expected cell frequency" assumption underpinning Chi-squared tests.

**Table 4.11 Bivariate Analysis of Socio-demographic Characteristics of Participants and Cervical Cancer General Awareness**

Variables	Cervical Cancer General Awareness		P-value
	Low N (%) (n=91)	High N (%) (n=54)	
<b>Age (n=145)</b>			0.297
20-29 years	47(66.20)	24(33.80)	
30-39 years	42 (60.87)	27(39.13)	
40-49 years	0(0.00)	2 (100.0)	
50-59 years	2 (66.67)	1 (33.33)	
<b>Sex (n=145)</b>			0.289
Female	75 (65.22)	40 (34.78)	
Male	16 (53.33)	14 (46.67)	
<b>Marital Status (n=145)</b>			0.747
Single	53(60.23)	35(39.77)	
Married	37 (56.07)	19 (33.93)	
Cohabiting	1 (100.00)	0 (0.00)	
<b>Religion (145)</b>			0.355
Christianity	87 (63.04)	51 (36.96)	
Islam	2 (40.00)	3 (60.00)	
Other	2 (100.00)	0 (0.00)	
<b>Municipality (n=145)</b>			0.087
Yilo Krobo	31 (60.78)	20 (39.22)	
Lower Manya	18 (50.00)	18(50.00)	

Upper Manya	42 (72.41)	16(27.59)	
<b>Highest Level of Education (145)</b>			0.015**
Certificate	74 (69.16)	33 (30.84)	
Diploma	15 (50.00)	15(50.00)	
Advanced Diploma	0 (0.00)	2 (100.0)	
Degree	2(33.33)	4 (66.67)	
<b>Working duration at Facility (n=145)</b>			0.345
Less than 5 years	62 (67.39)	30 (42.61)	
5 – 10 years	24 (55.81)	19(44.19)	
11 – 15 years	3(42.86)	4(57.14)	
16 years or more	2 (66.67)	1 (33.33)	

*Significant at 0.05 level \*\**

*NB: Two-tailed Fisher's exact test used in place of Chi-squared test for all variables but "Municipality" and "Sex" because they had empty cells and/ or cells with small frequencies.*

The bivariate examination of the level of cervical cancer general awareness and respondent's socio-demographic characteristics (table 4.11 above) showed a statistically significant relationship for highest level of education of respondents ( $P = 0.015$ , Fisher's exact test).

Table 4.14 further provides information on multivariable logistic regression analyses that were performed on variables that were statistically associated with cervical cancer service delivery practices.

**Table 4.12 Bivariate Analysis of Socio-demographic Characteristics of Participants and Knowledge**

Variables	Knowledge		P-value
	low N (%) (n=64)	High N (%) (n=81)	
<b>Age (n=145)</b>			0.188
20-29 years	36(50.70)	35(49.30)	
30-39 years	26 (37.68)	43(62.32)	
40-49 years	0 (0.00)	2(100.00)	
50-59 years	2 (66.67)	1 (33.33)	
<b>Sex (n=145)</b>			0.837
Female	50(46.70)	65(53.33)	
Male	14(56.21)	16(43.47)	
<b>Marital Status (n=145)</b>			0.303
Single	36(40.90)	52(59.10)	
Married	27(48.20)	29(51.79)	
Cohabiting	1 (100.0)	0 (0.00)	
<b>Religion (145)</b>			0.395
Christianity	60 (43.49)	78(56.51)	
Islam	2 (40.00)	3 (60.00)	
Other	2 (100.00)	0 (0.0)	
<b>Municipality (n=145)</b>			0.225
Upper Manya	25 (43.10)	32(56.90.)	
Lower Manya	20(55.56)	16(44.44)	
Yilo Krobo	19(38.00)	33(62.00)	

<b>Highest Level of Education (145)</b>			0.863
Certificate	46 (42.99)	61(57.01)	
Diploma	15(50.00)	15 (50.00)	
Advanced Diploma	1(50.00)	1(50.00)	
Degree	2(33.33)	4 (66.67)	
<b>Working duration at Facility (n=145)</b>			0.174
Less than 5 years	45(48.91)	47(51.09)	
5 – 10 years	16 (37.21))	27(62.79)	
11 – 15 years	1(14.29)	6 (85.72)	
16 years or more	2(66.67)	1(33.33)	

*Significant at 0.05 lev*

*NB: Two-tailed Fisher’s exact test used in place of Chi-squared test for all variables but “Municipality” and “Sex” because they had empty cells and/ or cells with small frequencies.*

Examination of the relationship between socio-demographic characteristics and knowledge (table 4.12 above) showed statistically insignificant differences in the distribution of knowledge (low& high) among the various categorical levels of each characteristic.

**Table 4.13 Bivariate Analysis of Socio-demographic Characteristics of Participants and Service Delivery Practices**

Variables	Service Delivery Practices		P-value
	low N (%) (n=98)	High N (%) (n=47)	
<b>Age (n=145)</b>			0.095
20-29 years	45 (63.38)	26(36.62)	
30-39 years	50 (72.46.)	19(27.54)	
40-49 years	0 (0.00)	2(100.00)	
50-59 years	3 (100.00)	0 (0.00)	
<b>Sex (n=145)</b>			0.517
Female	76(66.09)	39 (33.91)	
Male	22(73.33)	8 (26.67)	
<b>Marital Status (n=145)</b>			0.094
Single	54 (61.36)	34 (38.64)	
Married	43 (76.79)	13 (23.210)	
Cohabiting	1 (100.00)	0 (0.00)	
<b>Religion (145)</b>			0.399
Christianity	94 (68.11)	44 (31.89)	
Islam	2 (40.00)	3 (60.00)	
Other	2 (100.00)	0 (0.0)	
<b>Municipality (n=145)</b>			0.949
Upper Manya	34 (66.67)	17 (33.33)	
Lower Manya	24(66.67)	12(33.33)	
Yilo Krobo	40 (68.97)	18(31.03)	

<b>Highest Level of Education (145)</b>			0.241
Certificate	73 (68.22)	34(31.78)	
Diploma	20(66.67)	10 (33.33)	
Advanced Diploma	0(0.00)	2(100.00)	
Degree	5 (83.33)	1 (16.67)	
<b>Working duration at Facility (n=145)</b>			0.694
Less than 5 years	63 (68.48)	29 (31.52)	
5 – 10 years	28 (65.12)	15(34.88)	
11 – 15 years	4(57.14)	3 (42.86)	
16 years or more	3 (100.00)	0 (0.00)	

*Significant at 0.05 lev*

*NB: Two-tailed Fisher’s exact test used in place of Chi-squared test for all variables but “Municipality” and “Sex” because they had empty cells and/ or cells with small frequencies.*

Examination of the relationship between socio-demographic characteristics and service delivery practices (table 4.13 above) showed statistically insignificant differences in the distribution of service delivery practices (low& high) among the various categorical levels of each characteristic.

**Table 4.14 Logistic Regression Analysis of factors Associated with Cervical Cancer Service Delivery Practices**

<b>Variables</b>	<b>Adjusted OR (CI)</b>	<b>P-value</b>
<b>Age</b>		
Ref: 20-29 years		
30-39 years	0.39(0.12, 1.27)	0.118
40-49	1	
50-59	1	
<b>Sex</b>		
Ref: Male		
Female	1.18(0.39, 3.55)	0.767
<b>Marital Status</b>		
Ref: Single		
Married	0.39 (0.15, 1.04)	0.060
<b>Religion</b>		
Ref: Christianity		
Islam	2.28 (0.30, 17.16)	0.425
Other		
<b>Highest Level of Education</b>		
Ref: Certificate		
Diploma	1.14(0.41,3.2)	0.25
Advanced diploma	1	
Degree	0.22(0.02, 2.77)	0.240
<b>Working duration at Facility</b>		

Ref: Less than 5 years		
5 – 10 years	3.30 (0.88, 12.32)	0.076
11 – 15 years	2.27 (0.25, 20.28)	0.464
16 years or more	1	
<b>Total knowledge</b>		
Ref: low		
High	1.36 (0.62, 3.01)	0.442

*\*\*P-value<0.05; OR=odds ratio; CI= confidence interval; ref= reference group of the categories*

After adjusting for sociodemographic characteristics such as age, sex, marital status, religion, highest level of education and work duration at the facility (table 4.14 above), respondents who scored high on total knowledge are 1.36 times likely to engage in good service delivery practices. (AOR = 1.36; 95% CI:0.62 – 3.01; p<0.05).

Also adjusting all socio-demographic variables it was found out that people who have worked for 5 – 10 years at a facility were 3.3 times more likely to engage in good service delivery practices. (AOR = 3.33; 95% CI:0.88– 12.32; p<0.05).

**Table 4.25 Logistic Regression Analysis of factors Associated with General Awareness on Cervical Cancer**

Variables	Adjusted OR (CI)	P-value
<b>Age</b>		
Ref: 20-29 years		
30-39 years	0.68(0.23, 1.99)	0.480

40-49 years	1	
50-59 years	8.53	0.99
<b>Sex</b>		
Ref: Male		
Female	0.61(0.21, 1.77)	0.360
<b>Marital Status</b>		
Ref: Single		
Married	0.79 (0.30, 2.12)	0.64
<b>Religion</b>		
Ref: Christianity		
Islam	1.94 (0.23, 16.33)	0.543
Other	1	
<b>Highest Level of Education</b>		
Ref: Certificate		
Diploma	2.8(1.02,8.03)	1.99
Advanced Diploma	1	
Degree	2.99(0.42, 21.24)	0.272
<b>Working duration at Facility</b>		
Ref: Less than 5 years		
5 – 10 years	1.94(0.57, 6.59)	0.286
11 – 15 years	1.01 (0.12, 8.02)	0.992
<b>Total knowledge</b>		
Ref: low		
High	4.13 (1.77, 9.62)	0.001**

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*\*\*P-value<0.05; OR=odds ratio; CI= confidence interval; ref= reference group of the categories*

Logistic regression analysis of factors associated with general awareness on cervical cancer showed a statistically significant relationship between general awareness and total knowledge where the p value was 0.001 which is less than the alpha level of 0.05 at 95% confidence interval.

After adjusting for sociodemographic characteristics such as age, sex, marital status, religion, highest level of education and work duration at the facility (table 4.15 above), respondents who scored high on total knowledge are 4.13 times likely to have a good level of general awareness on cervical cancer.

(AOR = 4.13; 95% CI:1.77 – 9.62; p<0.05).

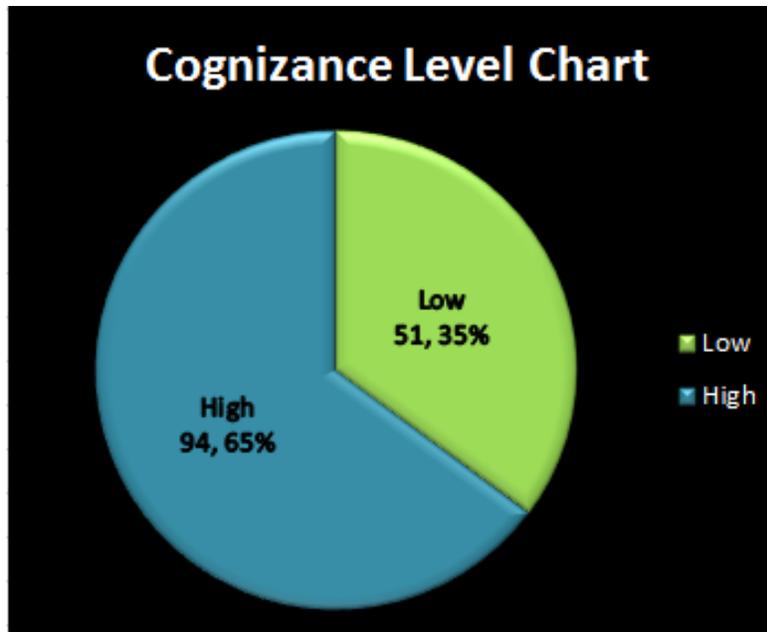
Also adjusting all socio-demographic variables it was found out that people who have worked for 5 – 10 years at a facility were 1.94 times more likely to have a good level of general awareness on cervical cancer.

(AOR = 1.94; 95% CI:0.57– 6.59; p<0.05).

#### **4.7 Cognizance of Cervical Cancer**

Cognizance of cervical cancer was derived by summing overall total knowledge and general awareness levels of cervical cancer and the cut off mean score was generated with a value of  $2.93 \pm 0.80$  with a minimum score of 2 and maximum score of 4.

From figure 4.5 below, about 64.8% of respondents had high cognizance scores as compared with about 35.1 % of respondents who had low cognizance of cervical cancer.



*Figure 4.5 Cognizance of Cervical Cancer*

#### **4.8 Correlation**

It was the study's objective to investigate the association between cognizance of cervical cancer and service delivery practices amongst the community health nurses at the Krobo Enclave. To achieve this, all incorrect answers to questions on general awareness, overall knowledge and service delivery practices were coded as zero "0" whilst correct answers were coded as "1". Raw scores of general awareness and knowledge of cervical cancer were then added to generate a continuous variable called "cognizance". Likewise, the scores on items measuring service delivery practices were summed and a continuous variable called "service delivery" was generated. Because the distribution of these two new continuous variables were not perfectly normal and the scores were also ranked, a spearman's rank correlation analysis was used to establish the

association between cognizance of cervical cancer and service delivery practices. A spearman rank correlation is the suitable non-parametric version of the Pearson's r correlation test.

#### 4.7.1 Correlation Results

The table measures the correlations between the cognizance and service delivery practices constructs of this study. The correlation measures the strength and direction of the relationship that exist between the two constructs. The outcomes of the correlation analysis on the relationships among the variables are presented in Table 4.16 below;

**Table 4.16 Correlation**

		Cognizance	Service Delivery	
Spearman's Rho	Cognizance	Correlation Coefficient	1.000	**0.20
		Sig. (2-tailed)		0.015
		N	145	145
	Service Delivery	Correlation Coefficient	**0.20	1.000
Sig. (2-tailed)		0.015		
N		145	145	

Correlation is significant at the Bonferroni-adjusted 0.05 level (2-tailed)

Table 4.14 shows that the Bonferroni-adjusted Sig. (2-tailed) = 0.015. This value is lower than the 0.05 significant level, indicating that there is a significant relationship between cognizance of cervical cancer and service delivery practices amongst the community health nurses at the Krobo Enclave. Spearman's rho (r) was found to be 0.2. This value indicates a weak positive association.

#### 4.9 Chapter Summary

This Chapter presented the findings obtained in this study. It showed the general awareness and knowledge levels of cervical cancer amongst community health nurses in the Krobo enclave. The

strength and direction of association between cognizance of cervical cancer and associated service delivery practices were also shown in this chapter. The next chapter discusses these findings in relation to other relevant literature.

## **CHAPTER FIVE**

### **DISCUSSION**

#### **5.1 Introduction**

This chapter discusses the results of the study in relation to the objectives and key variables of the research, consistency of the major findings with existing research, explanation of the findings and its implications for policy and research. The purpose of this study was to assess the cognizance of cervical cancer and its associated service delivery practices amongst community health nurses at the Krobo enclave.

#### **5.2 Overview of Major Findings**

##### **5.2.1 Demographic Characteristics of Respondents**

## **Age Distribution**

About 90% of the respondents who participated in the study were in the youthful brackets (20-29 and 30-39 respectively). Awolude, et al., (2018) found in his similar work in Nigeria that out of the 848 respondents that were interviewed, 90% were in the youthful age group category ranging from 25 years to less than 40 years of age. Also, about 93% of respondents in the cross-sectional study by Adefuye (2006) in the Remo District of Ogun State were in the (20-49) age bracket. Obviously, this age group has been highlighted to be a major risk factor for the development of cervical cancer. The majority of community health nurses at the Krobo Enclave being youthful implies that they can serve as good advocates to the youth on issues of cervical cancer. Also, it suggests that they have longer years of work service ahead with the Ghana Health Service and can make long term contributions in service care delivery.

## **Sex Distributions**

In this current study, the results show that the female group showed dominance representing (79%) over the male group. Likewise, a cross-sectional study conducted in Thailand reported 95% respondents from the female group (Srisuwan, et al., 2015). A previous study by Adefuye (2006), recruited community health workers for interview who were largely females (98%). In Ghana and like other Sub-Saharan African countries, the females have predominantly occupied the nursing profession. Since the inception of the CHPS Community-Based Health Planning and Services (CHPS) program in 1992, most of the health workers from the nursing educational institutions have been females compared to the male counterpart (Baatiema et al., 2016; Mwinnyaa et al., 2020).

## **Cultural and Religious Background**

Respondents from this current study mostly belonged to the Christian religion (95%), followed by very few percentages from the other religions. About one-third of the respondent (42.76%) reported origin from the Akan tribe, followed by the Dangme (26.9%) and Ewe (21.38%). These results are expected as the setting of the study is massively inhabited by the Akans who are mostly Christians.

### **Educational Background**

The highest educational level reported in the findings was at the degree level. A very minimum percentage of the respondents have attained that level (4.5%) and bulk of the community healthcare workers were certificate holders (73.79%). Elsewhere in Thailand, Srisuwan, et al., (2015) reported a finding which is incongruent with these current findings. The authors on the other hand, found about ninety percent of the respondents rising to the degree level of education. This disparity could be attributed to the fact that most of the community health workers trained in that country enter community work primarily as a degree holder which is seldom observed in the nursing profession in Ghana in recent years.

Singleness was majorly reported by the participants (60.69%) and the rest were married couples (38.62%). Most respondents who worked as community health nurses reported having work experience for less than 5 years (63%), while one-third (30%) have worked further to 10 years.

In terms of the geographical representation in the Municipality, the participants were dispersed among Upper Manya (24.83%), Lower Manya (38.62%) and Yilo Krobo (36.55%).

### **5.2.2 General Awareness of Cervical Cancer**

The results of the study revealed a low (62.8%) general awareness level of cervical cancer amongst majority of community health nurses in the Krobo enclave. About 86.2% of the total respondents had never seen a case of cervical cancer before. In a similar study conducted by Getahun et al., (2013) in North West Ethiopia where a total of 633 women aged 15 and above years were included in the study only one hundred and forty-eight (23.5%) of the respondents knew someone who had cervical cancer, thus the remaining 76.5% did not. The target population within that study was different in that, this research focuses on health workers and not the general populace. For health workers in particular, it is beneficial for them to have exposure to cervical cancer cases so to improve their practice. Mass media and cervical cancer education from school were the leading sources of cervical cancer information for CHNs in the enclave, however, they were oblivious of the cervical cancer awareness month worldwide, as well as the rank of cervical cancer in the causes of morbidity and mortality in Ghanaian women. This may have been compounded by the fact that about 95.8% of them had never attended training workshops before on cervical cancer related issues. Although the findings from this current study showed an overall low awareness score, majority of the respondents in this current study had heard about cervical cancer (90.3%). This was in contrast to a similar study by Jansirani Siddharthar et al., (2014), where less than half of the study population (178, 44.5%) knew about cervical cancer. The low awareness within the Krobo enclave could be attributed to the majority of participants who did not know about the ranking of cervical cancer in causes of morbidity and mortality in women and the month (January) within the year delegated for celebrating World Cervical Cancer day. This was inconsistent with findings reported by Siriwan et al., (2014) in a similar research on village health volunteers in their

4 district towns in Thailand who obtained a high mean score on each awareness item and thus a general high awareness of cervical cancer.

A research study from Nigeria showed that a vast majority of the community health workers (85%) recruited had not attended any workshop for the past years (Adefuye, 2006; Awolude, et al., 2018). This finding is quite similar to this present study in which a large percentage (96%) had not even attended any Cervical Cancer workshops before. This sub-optimal exposure and participation in workshops and seminars on cervical cancer and other major public health outcry can be attributed to inadequate organized national screening programs in developing countries (Srisuwan, et al., 2015). This study captured some common sources of information about cervical cancer which include: mass media and taught lesson in school. Although, it can be inferred that similar results were seen in the other studies, Srisuwan et al., (2015) and Awolude et al., (2018) failed to include sources of information about cervical cancer. It is needful to state that when community health nurses are given exposure and participation in workshops on cervical cancer, the benefit can be observed in their willingness and confidence to screen voluntarily.

### **5.2.3 Knowledge on Cervical Cancer**

Contrary to the low level of general awareness, the proportion of community health nurses who scored higher on the overall knowledge as well as sub-constructs were more than those scoring low. From the results, it was realized that most (about 60%) community health nurses could answer correctly, the risk factors for cervical cancer, the age range of women most likely to develop cervical cancer in Ghana, association of HPV infection with cervical cancer, and whether or not males could also be infected by HPV. Knowledge on prevention and how cervical cancer presents itself in suspected cases were also prevalent, about 76% and 62% respectively. This is consistent with a recent study by Dulla et al., (2017) among female health workers in all hospitals in Hawassa

city administration and Sidama zone of Southern Ethiopia, in which a significant number of health care workers were shown to be knowledgeable on cervical cancer. About 329 (89.6%), 321 (87.5%), and 295 (80.4%), knew about the risk factors, symptoms, and outcomes of cervical cancer, respectively. Additionally, more than two-thirds of the respondents (77.1%), knew the procedure done in the study facilities to screen for cervical cancer. Furthermore, 37.6 % of the respondents mentioned visual inspection with acetic acid as a screening method. The findings are however in contrast to this study where only 28.3% of respondents knew how cervical cancer is diagnosed and 11.3% had knowledge on the visual inspection with acetic acid. Concerning the knowledge results of this study, majority of the respondents knew about risk factors, treatment options, and prevention of cervical cancer. The results of this study and other studies compared so far, have the same outcome of high knowledge level among community health nurses. This could be because they may have received some education in school about cervical cancer. It should however be noted that, even though there were generally high knowledge responses obtained from the majority of CHNs, within the knowledge sub-constructs, some knowledge gaps still exist which need to be addressed.

Some of the findings of this study compare favorably with a study by Srisuwan et al., (2015) on the assessment of the knowledge and attitude and Practices of cervical cancer screening offered by Village Health Volunteers (VHVs) or community health workers in four sub-districts in Thailand. Like the findings on the overall knowledge scores of this study, the community health workers had a high level of overall knowledge about cervical cancer screening. They conclusively stated that knowledge, attitudes and practices of disseminating information on cervical cancer screening among community health workers in the four sub-districts were high but did not commensurate with the cervical screening coverage rates for each district.

Furthermore, a study among female health workers in Sokoto, Nigeria by Oche et al., (2013), indicated that almost all [217 (98.6%)] of the respondents had good knowledge ( $\geq 50\%$ ) about cancer of the cervix. They also mentioned that a higher percentage of their respondents received knowledge about cervical cancer through lectures and seminars (76%) at school. This is also in agreement with the findings of this study, where school was the leading source of cervical cancer education for most respondents.

Adageba et al., (2011), in a research conducted among female health workers at the Komfo Anokye Teaching Hospital (KATH) also obtained good knowledge on the risk factors and signs of cervical cancer as in this present study. However, it is worth noting that, his study was carried out at a teaching hospital setting whilst this current study engaged community health nurses at CHPS compounds in the Krobo enclave. Despite the fact that the educational qualifications of nurses at the tertiary hospital could be greater, the findings were similar.

This study and other studies show that knowledge level of cervical cancer is high among community health nurses which buttress the point that the stakeholders of the country are doing a good job when it comes to cervical cancer education in nursing school but they are not putting the same effort at the community level by organizing workshops, seminars and teaching sessions on cervical cancer for community health workers to boost up their general awareness level. The general awareness refers to the current trends in relation to cervical cancer. For example, in the aspect of general awareness level concerning this study about 90 out of 145 participants did not know that January was cervical cancer awareness month.

#### **5.2.4 Service Delivery Practices**

Service delivery practices were found to be poor among the community health nurses in the Krobo enclave. This was found in about 83% of respondents who poorly answered the questions on the

know how in performing a Visual Inspection with Acetic Acid (VIA) of the cervix, performing a pap smear of the cervix, ever performing VIA or pap smear on a person in the community, offering cervical cancer education at Antenatal and Child welfare Clinic (ANC/CWC), reaching out to women who were six weeks post-partum to do their VIA/pap smears, and also frequency of the creation of general awareness on cervical cancer during field visits.

On treatment practices, just about 10% were very confident in themselves to identify a case (cervical cancer).

Finally, the proportion of community health nurses who do not actively look for and follow up on patients with cervical cancer in the community and who do not also offer counselling services to identified treated cervical cancer patients and their relatives (rehabilitation practices) were very low with results of 68.3% and 73.1% respectively.

This study found that community health nurses were not adequately offering cervical cancer education at ANC/CWC, reaching out to women who were six weeks post-partum to do VIA/pap smears, and also infrequently created general awareness on cervical cancer during community field visits and this was consistent with findings from a survey conducted in Malaysia. Wong, et al. (2009), stated that during their visits to healthcare providers, most respondents (women) were never consulted for cervical cancer and HPV screening. Many respondents had said that if this had been suggested by their healthcare provider, they would have consented to be screened.

In conjunction with this study, a study done by Tarwireyi., et al. (2003), in the Mudzi District in Zimbabwe showed low levels of general awareness, lower knowledge levels for many of the predisposing factors of cervical cancer and treatment options, and poor screening behaviors among

health workers. Most of the respondents together with their relatives (81.7%) had not undergone any form of cervical cancer screening.

Continuous education and prevention of cervical cancer by female health professionals would enhance general awareness and expand the use of resources (Adefuye, 2006). The observed poor service delivery practices in this study portends a dangerous sign as this might have a negative effect on the attitude of the general population towards utilization of the screening and treatment options. Community health workers in the Krobo enclave in the eastern region of Ghana must be vigilant and at the forefront of the battle against cervical cancer, and anything less would further heighten the plight of rural women and deepen an already existing disparity in access and utilization of healthcare service between the rich and the poor.

#### **5.2.5 Relationship between Sociodemographic Characteristics of Respondents and level of General Awareness**

Examination of the relationship between socio-demographic characteristics and general awareness from table 4.11 showed statistically insignificant differences in the distribution of general awareness (high & low) among the various categorical levels of each characteristic except for level of education which showed a p value of 0.015 which is lower than the alpha level of 0.05 at 95% confidence interval. Hence the level of education is deemed important to help create general awareness of cervical cancer in the community.

#### **5.2.6 Relationship between Sociodemographic Characteristics of Respondents and Total Knowledge**

Examination of the relationship between socio-demographic characteristics and total knowledge from table 4.12 showed statistically insignificant differences in total knowledge (high & low) among the various categorical levels of each characteristic.

### **5.2.6 Relationship between Sociodemographic Characteristics of Respondents and Service Delivery Practices**

Also, examination of the relationship between socio-demographic characteristics and service delivery practices from table 4.13 showed statistically insignificant differences in the distribution of service delivery practices (high & low) among the various categorical levels of each characteristic.

### **5.2.7 Relationship between cognizance of cervical cancer and service delivery practices**

The results also found a weak positive (Spearman's rho ( $r$ ) = 0.2) relationship between cognizance of cervical cancer and service delivery practices amongst the community health nurses at the Krobo enclave. This implied that as community health nurses' general awareness and knowledge levels of cervical cancer is improved through continuous education such workshops, training sessions, symposia, this will lead to a corresponding improvement in the cervical cancer service delivery practices

## **5.3 Strengths and Limitation of the Study**

The results of this study have presented the most up-to-date information on cervical cancer knowledge, general awareness, and service delivery practices among community health nurses in the Krobo enclave in Ghana's eastern region. Furthermore, the results will provide valuable insight about the need for continuous education such as cervical cancer training workshops, seminars, symposia etc. among community health nurses. This will help to inform policy changes at both the

state and institutional levels in order to improve the overall performance of the cervical cancer initiative, which is a global problem.

Since this was a cross sectional study design, cause and effect relationship could not be assessed. In view of this, the barriers to service delivery practices could not be explored in detail.

#### **5.4 Chapter Summary**

This chapter discussed results of the study. The discussion illustrated that while service delivery practices were found to be poor, and general awareness levels low, the proportion of community health workers in the Krobo enclave with good knowledge of cervical cancer were higher than those with poor knowledge. This was reviewed in the context of published literature to test for consistency of the findings. Also, the strengths and limitations were discussed.

## **CHAPTER SIX**

### **CONCLUSIONS AND RECOMMENDATIONS**

#### **6.1 Introduction**

The study sought to assess the cognizance of cervical cancer and its associated service delivery practices amongst community health nurses at the Krobo Enclave in the Eastern Region of Ghana. Additionally, it sought to investigate the association between cognizance of cervical cancer and service delivery practices. A cross-sectional study was designed and implemented to achieve this objective. This chapter details conclusions and recommendations based on the finding from the study.

## **6.2 Conclusions**

Based on the results of the study, the following conclusions were drawn:

- i. The general awareness in relation to the current trends concerning cervical cancer amongst community health nurses in the Krobo enclave was low.
- ii. The knowledge level amongst community health nurses in the Krobo enclave was high.
- iii. The service delivery practices amongst community health nurses in the Krobo enclave was low.
- iv. The cognizance level amongst community health nurses in the Krobo enclave was high.
- v. There was an established weak positive correlation between cognizance and service delivery practices.

## **6.3 Recommendations**

Based on the findings presented in this study, the following recommendations are made for policy, clinical practice and further research.

### **6.3.1 Policy Recommendations**

- i. Regular cervical cancer workshops and continuous development training programs (CPDs) should be organized for the community level health nurses with the support of Government and other stakeholders. This would increase their general awareness on cervical cancer as well as equip them with the necessary practical skills needed to provide good service care delivery.

- ii. The CHPS should adopt policies whereby community health nurses are encouraged to engage the community members in cervical cancer education, counselling and follow up visits so as to improve good cervical cancer delivery practices.

### **6.3.2 Clinical Practice Recommendations**

- The opportunity must be provided at the district level for trained cervical cancer care providers to interact and share experiences with untrained community health nurses to boost their confidence in case identification.
- Clinical meeting presentations at the health facilities should include cervical cancer refresher materials. The community health nurses should be the target of this experiential sharing and learning to increase cognizance of cervical cancer and improve service delivery. Targeting the younger group of community health nurses with cervical cancer workshop trainings will contribute to improving service delivery practices.

### **6.3.3 Recommendation for further Research**

- Further studies (Observational) should also be undertaken to assess cervical cancer service delivery practices by observing community health workers providing care rather than using self-administered questionnaires, to estimate service delivery practices more precisely.
- Cognizance of cervical cancer was observed to have a weak positive correlation with service delivery practices implying that being aware of cervical cancer and having high knowledge of it does not necessarily lead to good service delivery practices in the

community, other factors come to play. Hence, it is highly recommended to conduct further research to investigate the factors that strongly correlate with good service delivery practices.

## REFERENCES

Daniyan, B. C., Ekwedigwe, K. C., Yakubu, . E. & Mbamara, . S., 2019. Assessment of Knowledge, Attitudes and Practice of Cervical Cancer Screening Among Female Health Workers in a Tertiary Health Facility in South-East Nigeria. *Journal of Integrative Oncology*, 8(1).

ACS, 2020. *American Cancer Society (ACS)*. [Online]

Available at: <https://www.cancer.org/cancer/cervical-cancer/about/what-is-cervical-cancer.html>

[Accessed 21 February 2021].

Adageba, P., Danso, K., Zawumya, D. & Ankobea, F., 2011. Knowledge of cervical cancer and patronage of cervical cancer screening services among female health workers in Kumasi, Ghana. *African Journal of Hematological Oncology*, 2(1), pp. 157-161.

Adefuye, P. O., 2006. Knowledge and practice of cervical cancer screening among female professional health workers in a sub-urban district of Nigeria. *Nigerian Medical Practitioner*, 50(1), pp. 19-22.

- Alfaro, K., Gage, J., Rosenbaum, A. J. & Ditzian, L. R., 2015. Factors affecting attendance to cervical cancer screening among women in the Paracentral Region of El Salvador: a nested study within the CAPE HPV screening program. *BMC Public Health*, 1058(15).
- Anorlu, R., 2006. *Tumours of the cervix uteri. In: text book of Obstetrics and Gynaecology for Medical Students*. 2 ed. Ibadan: Heinemann Educational Books .
- Apuke, O. D., 2017. Quantitative Research Methods : A Synopsis Approach. *Kuwait Chapter of Arabian Journal of Business and Management Review*, 6(11), pp. 40-47.
- Atienza-Amores, M., Guerini-Rocco, E., Soslow, R. A. & Park, K. J., 2014. Small cell carcinoma of the gynecologic tract: A multifaceted spectrum of lesions. *Gynecologic Oncology*, 134(2), pp. 410-418.
- Aweke, Y. H., Ayanto, S. Y. & Ersado, T. L., 2017. Knowledge, attitude and practice for cervical cancer prevention and control among women of childbearing age in Hossana Town, Hadiya zone, Southern Ethiopia: Community-based cross-sectional study. *PloS One*, 12(7).
- Awolude, O., Oyerinde, S. O. & Akinyemi, J. O., 2018. Screen and Triage by Community Extension Workers to Facilitate Screen and Treat: Task-Sharing Strategy to Achieve Universal Coverage for Cervical Cancer Screening in Nigeria. *Journal of Global Oncology*, Volume 4, pp. 1-10.
- Awua, A. K., Severini, A., Wiredu, E. K. & Afari, E. A., 2020. Self-Collected Specimens Revealed a Higher Vaccine- and Non-Vaccine-Type Human Papillomavirus Prevalences in a Cross-Sectional Study in Akuse. *Advances in Preventive Medicine*, Volume 2020, p. 13.
- Baatiema, L., Sumah, A., Tang, P. N. & Ganle, J. K., 2016. Community health workers in Ghana: The need for greater policy attention. *British Medical Journal (BMJ) Global Health*, 1(4).
- Bakari, M., Takai, . U. I. & Bukar, . M., 2015. Awareness and utilization of Papanicolaou smear among health care workers in Maiduguri, Nigeria. *Nigerian Journal of Basic and Clinical Sciences*, 12(1), pp. 34-38.
- Binka, C., Doku, D. T. & Awusabo-Asare, K., 2017. Experiences of cervical cancer patients in rural Ghana: An exploratory study. *PLoS ONE*, 12(10).
- Bray, F., Colombet, M., Mery, L. & Piñeros, . M., 2021. *Cancer Incidence in Five Continents*. Lyon: IARC Scientific Publications No. 166.
- Brinton, L. A., 2000. *Introduction to Cancer*. s.l.:Academic Press.
- Bruni, L., Barrionuevo-Rosas, L. & Albero, G., 2015. "Human papillomavirus and related diseases in Ghana. summary report.", s.l.: ICO information centre on HPV and cancer (HPV information center).
- Catarino, R., Petignat, P., Dongui, G. & Vassilakos, P., 2015. Cervical cancer screening in developing countries at a crossroad: Emerging technologies and policy choices. *World Journal of Clinical Oncology*, 6(6), pp. 281-290.
- CCS, 2020. *Canadian Cancer Society (CCS)*. [Online]  
Available at: <https://www.cancer.ca/en/cancer-information/cancer-type/cervical/risks/?region=on#:~:text=Infection%20with%20the%20human%20papillomavirus%20%28>

HPV%29%20is%20the,in%20women%20younger%20than%2050%20years%20of%20age.  
[Accessed 1 February 2021].

CDC, 2019. *Cervical Cancer: What are the Risk Factors?*. [Online]  
Available at: [https://www.cdc.gov/cancer/cervical/basic\\_info/risk\\_factors.htm](https://www.cdc.gov/cancer/cervical/basic_info/risk_factors.htm)  
[Accessed 20 January 2021].

CDC, 2020. *HPV and Cancer: Basic Information*, s.l.: Centers for Disease Control and Prevention.

Chawla, P. C., Chawla, A. & Chaudhary, S., 2016. Knowledge, attitude & practice on human papillomavirus vaccination: A cross-sectional study among healthcare providers. *Indian Journal of Medical Research*, 144(5), pp. 741-749.

Clifford, G., Franceschi, S., Diaz, M. & Muñoz, N., 2006. Chapter 3: HPV type-distribution in women with and without cervical neoplastic diseases,. *Vaccine*, 24(0264-410X), pp. S26-S34.

Colditz, G. A., 2019. *Cancers as Ecosystems: From Cells to Population*. 3rd ed. s.l.:Academic Press.

Cudjoe, J., 2020. *Modern Ghana*. [Online]  
Available at: <https://www.modernghana.com/news/982142/ending-cervical-cancer-in-ghana-a-call-to-action.html>  
[Accessed 26 January 2021].

Cunningham, M., Skrastins, E., Fitzpatrick, R. & Jindal , P., 2015. Cervical cancer screening and HPV vaccine acceptability among rural and urban women in Kilimanjaro Region, Tanzania.. *BMJ Open*, 5(3).

Denslow, S. A., Rositch, A. F., Firnhaber, C. & Ting, J., 2014. Incidence and progression of cervical lesions in women with HIV: a systematic global review. *Int. J STD AIDS*, 25(3), pp. 163-77.

Dulla, D., Daka, D. & Wakgari, N., 2017. Knowledge about cervical cancer screening and its practice among female health care workers in southern Ethiopia: a cross-sectional study. *International Journal of Women's Health*, Volume 9, p. 365—372.

ERCC, 2016. *Eastern Regional Co-ordinating Council (ERCC)*. [Online]  
Available at: <http://www.easternregion.gov.gh/>  
[Accessed 1 February 2021].

Ferlay , J., Soerjomataram, . I., Dikshit, R. & Eser, S., 2012. Cancer incidence and mortality worldwide: sources, methods and major patterns in GLOBOCAN 2012. *Int J Cancer*, 26(5), pp. 59-86.

FHWC, 2014. *A Commitment to Community Health Workers: Improving Data for Decision Making.*, USA: The Frontline Health Workers Coalition (FHWC).

Gbojoo, N. A., 2016. *The GaDangme*. [Online]  
Available at: <https://thegadangme.com/history-of-the-krobo/>  
[Accessed 1 February 2021].

GBN, 2020. *Ghana Business News (GBN)*. [Online]  
Available at: <https://www.ghanabusinessnews.com/2020/02/04/ngo-to-establish-cancer-registry-in-ghana/>  
[Accessed 2 February 2021].

Ghana Statistical Service, 2014. *Ghana Statistical Service, Yilo Krobo Municipal*. [Online]  
Available at: <https://images.app.goo.gl/Sq5K4DrBqTrMzxqm8>

GSS, 2014a. *2010 Population & Housing Census - District Analytical Report - Lower Manya Krobo Municipality*, Accra: Ghana Statistical Service.

GSS, 2014b. *2010 Population & Housing Census - District Analytical Report - Upper Manya Krobo District*, Accra: Ghana Statistical Service (GSS).

GSS, 2014c. *2010 Population & Housing Census - District Analytical Report - Yilo Krobo Municipal*, Accra: Ghana Statistical Service (GSS).

Haby, M., Chapman, E., Clark, R. & Barreto, J., 2016. What are the best methodologies for rapid reviews of the research evidence for evidence-informed decision making in health policy and practice: a rapid review. *Health Research Policy and Systems*, 83(14).

Hayden, J., 2013. *Health Behaviour Theory*. 2nd ed. s.l.: Jones & Bartlett Publishers.

Heena, H., Durrani, S., AlFayyad, I. & Riaz, M., 2019. Knowledge, Attitudes, and Practices towards Cervical Cancer and Screening amongst Female Healthcare Professionals: A Cross-Sectional Study. *Journal of Oncology*, Volume 2019, pp. 1-9.

IARC & WHO, 2012. *GLOBOCAN 2012: Estimated cervical cancer incidence, mortality and prevalence worldwide in 2012*. [Online]

Available at: [http://globocan.iarc.fr/Pages/fact\\_sheets\\_population.aspx](http://globocan.iarc.fr/Pages/fact_sheets_population.aspx).  
[Accessed 27 December 2020].

IARC & WHO, 2020. *Global Cancer Observatory (GCO 2020: Cancer Today*. [Online]

Available at: <https://gco.iarc.fr/>  
[Accessed 29 January 2021].

ICO/IARC, 2019. *Ghana - Human Papillomavirus and Related Cancers, Fact Sheet 2018*, s.l.: ICO/IARC Information Centre on HPV and Cancer.

Kelly, H., Weiss, H. A., Benavente, Y. & Sanjose, S. D., 2018. Association of antiretroviral therapy with high-risk human papillomavirus, cervical intraepithelial neoplasia, and invasive cervical cancer in women living with HIV: a systematic review and meta-analysis. *Lancet HIV*, 5(1), pp. e45-e58.

Kieti, S. N., 2016. *Knowledge, Attitude and Practices on Cervical Cancer Screening and Prevention Methods Among Nurses at two Nairobi Hospitals in Kenya*, s.l.: University of South Africa.

Leila, G., Khiyali, H. Z., Hossein, k. M. & Sareh, k., 2016. Investigation of the Role of Training Health Volunteers in Promoting Pap Smear Test Use among Iranian Women Based on the Protection Motivation Theory. *Asian Pacific Journal of Cancer Prevention*, 17(3), pp. 1157-1162.

Levinson, K., Abuelo, C., Chyung, E. & Salmeron, J., 2013. The Peru Cervical Cancer Prevention Study (PERCAPS): Community-Based Participatory Research in Manchay, Peru. *International Journal of Gynecological Cancer*, 23(1), p. 141.

- Lewin, S., Munabi-Babigumira, S., Glenton, C. & Daniels, K., 2010. Lay health workers in primary and community health care for maternal and child health and the management of infectious diseases. *Cochrane Database of Systematic Reviews*.
- Manaf, R. A., Ismail, S. & Cecilia, N. C., 2017. Global Burden of Cervical Cancer: A Literature Review. *International Journal of Public Health and Clinical Sciences*, 4(2).
- McGaghie, William, . C., Bordage & Georges, 2001. Problem Statement, Conceptual Framework, and Research Question. *Academic Medicine*, 76(9), pp. 923-924.
- Mckellar, K. & Sillence, E., 2020. Teenagers, Sexual Health Information and the Digital Age. *Academic Press*, pp. 5-23.
- Mensah, A., 2016. *Awareness of Cervical Cancer Screening among Nurses in the Korle Bu*, Accra: University of Ghana. Legon.
- MOH, 2011. *National Strategy For Cancer Control In Ghana: 2012 - 2016*, Accra: Ministry of Health.
- Mutyaba, T., Mmiro, F. A. & Weiderpass, E., 2006. Knowledge, attitudes and practices on cervical cancer screening among the medical workers of Mulago Hospital, Uganda. *BMC Medical Education*, 6(13).
- Mwinnyaa, G., Jones, T. C., Antwi, P. & Chan, E., 2020. *CHWCentral: A global resource for and about Community Health Workers*. [Online]  
Available at: <https://chwcentral.org/ghanas-community-health-officers-and-community-health-volunteers/>  
[Accessed 23 January 2021].
- Naber, S. .. K., Matthijse, S. M., Rozemeijer, K. & Penning, C., 2019. Cervical Cancer Screening in Partly HPV Vaccinated Cohorts – A Cost-Effectiveness Analysis. *PLOS ONE*.
- O’Donovan, J., O’Donovan, . C. & Nagraj, S., 2019. The role of community health workers in cervical cancer screening in low-income and middle-income countries: a systematic scoping review of the literature. *BMJ Global Health*.
- Oche, O. M., Kaoye, U. M. & Gana, G., 2013. Cancer of the cervix and cervical screening: Current knowledge, attitude and practices of female health workers in Sokoto, Nigeria. *International Journal of Medicine and Medical Sciences*, 5(4), pp. 184-190.
- Oslin, C. & St. George, D., 2004. *Cross-Sectional Study Design and Data Analysis*, New York: College Entrance Examination Board.
- Pieterse, K., 2017. *Knowledge and screening practices of cervical cancer among female health workers at Greater Accra Regional Hospital, Accra.*, ACCRA: School of Public Health - College of Health Sciences - University of Ghana.
- Singh, J. & Baliga, S. S., 2021. Knowledge regarding cervical cancer and HPV vaccine among medical students: A cross-sectional study. *Clinical Epidemiology and Global Health*, Volume 9, pp. 289-292.
- Singh, P. & Sachs, J. D., 2013. 1 million community health workers in sub-Saharan Africa by 2015. *The Lancet*, 382(9889), pp. 363-365.

Srisuwan, S., Puapornpong, P., Srisuwan, S. & Bhamarapratana, K., 2015. Knowledge, Attitudes and Practices Regarding Cervical Cancer Screening Among Village Health Volunteers. *Asian Pacific journal of cancer prevention: APJCP*, 16(7).

Tarwireyi, F., Chirenje, Z. & Rusakaniko, S., 2003. Cancer of the cervix: knowledge, beliefs and screening behaviours of health workers in Mudzi District in Mashonaland East Province, Zimbabwe. *Central African Journal of Medicine*, 49(7), pp. 83-86.

Tsu, V. D., 2017. Cervical cancer prevention for all women: Why now?. *International Journal of Gynecology & Obstetrics*, 138(S1), pp. 1-3.

UICC, 2021. *Union for International Cancer Control (UICC)*. [Online]  
Available at: <https://www.uicc.org/>  
[Accessed 3 February 2021].

UNAIDS, 2016. *The Global Coalition on Women and AIDS (GWCA)*. [Online]  
Available at: <https://gcwa.unaids.org/issue-brief/world-health-organization-who/hpv-hiv-and-cervical-cancer-leveraging-synergies-save-0>  
[Accessed 23 January 2021].

WHO, 2003. *HIV Testing and counselling: the gateway to treatment, care and support*, s.l.: WHO/HIV.

WHO, 2013. *WHO GUIDANCE NOTE - Comprehensive cervical cancer prevention and control: a healthier future for girls and women*, Geneva: WHO Press.

WHO, 2014a. *Attaining the nine global non-communicable diseases targets; a shared responsibility. Global Status Report on non-communicable diseases.*, Geneva: World Health Organization.

WHO, 2014b. *Comprehensive Cervical Cancer Control - A guide to essential practice*, Geneva: World Health Organization.

WHO, 2018. Elimination of cervical cancer as a global health problem is within reach. *Sexual and reproductive health: Cervical cancer*, 19 May.

WHO, 2019. *Noncommunicable diseases and their risk factors: New toolkit to improve collection and use of data in cervical cancer programmes*, Geneva: World Health Organization.

WHO, 2020. *Key facts: Human papillomavirus (HPV) and cervical cancer*. [Online]  
Available at: [https://www.who.int/en/news-room/fact-sheets/detail/human-papillomavirus-\(hpv\)-and-cervical-cancer](https://www.who.int/en/news-room/fact-sheets/detail/human-papillomavirus-(hpv)-and-cervical-cancer)  
[Accessed 29 January 2021].

Williams, M. S., 2012. Knowledge and beliefs about cervical cancer screening among men in Kumasi, Ghana. *Ghana Medical Journal*, 46(3).

Wong, L. P., Wong, L. Y., Low, W. Y. & Khoo, E., 2009. Knowledge and awareness of cervical cancer and screening among Malaysian women who have never had a Pap smear: a qualitative study. *Singapore Medical Journal*, 50(1), pp. 49-53.

Yamane, T., 1967. *Statistics: An Introductory Analysis*. 2nd ed. New York: Harper and row.

## **APPENDICES**

### **APPENDIX I: PARTICIPANT INFORMATION SHEET AND CONSENT FORM**

#### **CONSENT INFORMATION FOR RESPONDENTS**

I am Victoria Partey-Newman and a Student at Ensign College of Public Health, Kpong. I am conducting a research on **Cognizance of Cervical Cancer and Its Service Delivery Practices Amongst Community Health Nurses at The Krobo Enclave in The Eastern Region of Ghana.** I would be grateful if you could spare some time to be part of this study.

## **PURPOSE OF RESEARCH**

You are invited to participate in a research study which intends to assess the cognizance of cervical cancer and its service delivery practices amongst community health nurses at the Krobo Enclave in the Eastern Region of Ghana. You are being selected as a possible participant in this study because you meet our selection criteria.

## **VOLUNTARY PARTICIPATION**

Your participation in this study is entirely voluntary. Your decision not to participate will not have any negative effect on you or on your relation. During the study you can withdraw anytime you want to, without any consequences.

## **DURATION OF STUDY INVOLVEMENT**

This research study is expected to take approximately 4 weeks (1<sup>st</sup> March to 31<sup>st</sup> March) to administer research questionnaire to selected participants and to collect the data. Responses will be put together and analysed in the first week of April. The final report should be ready by the end of June 2021. It is estimated that each participant will take at most 20 minutes when filling out this questionnaire.

## **PROCEDURES**

If you choose to participate, the research assistant will explain all the procedures to be followed in a language you understand. You will be given the opportunity to ask all questions you may have, and further explanations will be given. Kindly direct all your queries to the research assistant prior to responding to the questions in the questionnaire hence your consent is needed before it commences.

### **Signing or Thumb printing of Questionnaire**

If you agree to participate, you will be requested to sign a consent form or thumb print if you wish to indicate that you fully agree to take part. This will be done after understanding the purpose of study and agreeing to be part of study.

### **Administration of Questionnaire**

A set of questions will be asked by the research assistant for which you will be requested to provide genuine answers as much as possible. You can however decide not to answer questions you feel uncomfortable with. Each questionnaire will take less than 30 minutes to complete.

### **Risks**

There are no risks attached to responding to the questionnaires. Your identity will not be disclosed whatsoever in this study; however, for purposes of data analysis each form will be coded.

### **PARTICIPANT RESPONSIBILITIES**

As a participant, your responsibilities include:

- Follow the instructions of the research assistant
- Complete your questionnaires as instructed
- Ask questions as you think of them
- Tell the research assistant if you change your mind about staying in the study

### **WITHDRAWAL FROM STUDY**

If you first agree to participate and later change your mind, you are free to withdraw your consent and discontinue your participation in the study. Your decision will not affect you in any way.

### **POSSIBLE RISKS, DISCOMFORTS, AND INCONVENIENCES**

The study involves no risks; however, discomfort is anticipated given the sensitive nature of the topic. Questions will be asked about your characteristics, sociodemographic, economic, family and mental state related to the topic. You should talk with the research assistant if you have any such discomforts and ask questions whenever you want for clarification. You are also free to skip any question you are not comfortable answering.

### **POTENTIAL BENEFITS**

There is no direct benefit to the participant of this study, however the information you will provide will contribute to assess the cognizance of cervical cancer and its service delivery practices amongst community health nurses at the Krobo enclave in the eastern region of Ghana. This

information will help to improve cervical cancer service delivery practices, which has been proven to be associated with the uptake of interventions. We further hope that the outcome of this study would be used to advice on healthcare policies.

## **PARTICIPANT’S RIGHTS**

You should not feel obligated to agree to participate. Your questions should be answered clearly and to your satisfaction. If you decide not to participate, please inform the research officer.

## **CONFIDENTIALITY**

We would like to assure you that whatever information you provide will be handled with strict confidentiality, will be used purely for research purposes, and will never be used against you. Data analysis will be done at the cumulative level to ensure anonymity. Your name or personal identifying information will not be published in any report. Some staff of the research team may sometimes review the research records, but no unauthorized individual(s) will be able to access your information.

The results of this study may be presented at scientific or public health meetings or published in scientific or public health journals. No response given will be disclosed to any unauthorized persons. Neither your name nor any identity traceable to you or your relation will be indicated on the survey forms.

## **CONTACT INFORMATION**

Questions, Concerns, or Complaints: If you have any questions, concerns or complaints about this research study, its procedures or risks and benefits, you should ask the research assistant.

Independent Contact: If you are not satisfied with how this study is being conducted, or your questions/ concerns etc. are not satisfactorily answered by the research assistant or if you have further concerns, complaints, or general questions about the research or your rights as a participant, please contact:

Victoria Partey-Newman

Ensign College of Public Health

Kpong

Tel: 0247111636

Email: victoria.partey-newman@stensign.edu.gh

**Statement of Consent**

I have read this consent form, or it has been read and explained to me. I have had the opportunity to discuss this research study with Victoria Partey-Newman. I have had my questions answered by them in a language I understand. The risks and benefits have been explained to me. I believe that I have not been unduly influenced by any study team member to participate in the research study by any statement or implied statements. I understand that my participation in this study is voluntary and that I may choose to withdraw at any time. I freely agree to participate in this research study.

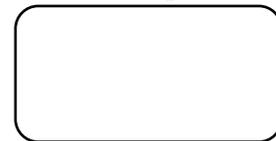
I understand that information regarding my personal identity/ that of my relation will be kept confidential. By signing this consent form, I have not waived any of the legal rights that I have as a participant in a research study.

Participant signature \_\_\_\_\_

Date \_\_\_\_\_

(Day / month / year)

Thumbprint



**APPENDIX II: STUDY QUESTIONNAIRE**

**ENSIGN COLLEGE OF PUBLIC HEALTH, KPONG, EASTERN REGION OF GHANA  
(MASTER OF PUBLIC HEALTH)**

The researcher is an MPH student of ENSIGN COLLEGE OF PUBLIC HEALTH conducting a research on Cognizance of cervical cancer and service delivery. The questionnaire is designed to seek your candid views about the topic. The researcher will be grateful if you could devote some of your quality time to study and answer this questionnaire. All answers will be treated as confidential and will be used for statistical analysis, research and academic purposes only.

**COGNIZANCE OF CERVICAL CANCER AND ITS SERVICE DELIVERY PRACTICES AMONGST COMMUNITY HEALTH NURSES AT THE KROBO ENCLAVE IN THE EASTERN REGION OF GHANA.**

**Researcher: Victoria Partey-Newman Tel: 0247111636 email: vickypartey7@yahoo.com**

**Date** \_\_\_\_\_ **of** \_\_\_\_\_ **interview:**

**Questionnaire** \_\_\_\_\_ **Number:**

**Location/Facility** \_\_\_\_\_ **Name:**

**Interviewer:** \_\_\_\_\_

**SECTION A**

**DEMOGRAPHIC CHARACTERISTICS**

1. Age: Less than 20 yrs. 20-29 yrs. 30-39 yrs. 40-49 yrs. 50-59 yrs.
2. Gender: Male Female
3. Religion: Christianity Muslim Traditionalist Other\_\_\_\_\_
4. Ethnicity: Akan Ewe Dangme Ga Other\_\_\_\_\_
5. What is the highest level of Education qualification you have obtained?  
Certificate Diploma Advanced Diploma Degree
6. Marital Status: Single  Married Separated Divorced Widowed  Cohabiting
7. How many years have you been working as a Community Health Nurse?  
Less than 5 yrs. 5-10 yrs. 11-15 yrs. 16-20 yrs. 21 yrs. or more

## SECTION B

### GENERAL AWARENESS OF CERVICAL CANCER

8. Have you ever heard about cervical cancer? Yes No
9. Have you ever seen a patient with cervical cancer before? Yes No
10. Where did you have your information on cervical cancer from? (*Tick all that apply*)  
School Church Public Health Worker Screening Centre Colleague   
Mass  
Media Internet Maternity Clinic
11. Have you ever attended any seminar or training workshop on screening and treatment of cervical cancer? Yes No
12. If yes to Q.11 when and where? If 'No' skip to  
Q.13\_\_\_\_\_
13. How does cervical cancer rank in terms of causes of morbidity and mortality for Ghanaian women?  
It is the leading cause of morbidity and mortality  
It is the second leading cause of morbidity and mortality  
It is the third leading cause of morbidity and mortality  
Only a few women get cervical cancer, it does not rank high  
I don't know
14. Which month of the year has been designated as cervical cancer general awareness month world-wide?  
March  
October  
January  
September  
I don't know
15. Have you, or any member of your family or friends ever been diagnosed with Cervical Cancer?  
Yes No  
a) If yes, tick (*You can tick as many that apply*)  
Myself Partner My Family member Partner Family member Friend  
Other, please specify\_\_\_\_\_

## SECTION C: KNOWLEDGE ON CERVICAL CANCER

### PART I: KNOWLEDGE ON RISK FACTORS FOR CERVICAL CANCER

16. List the risk factors you know that can cause cervical cancer

17. Which of the following are the risk factors for cervical cancer?

- a. Early coitarche (sex) Yes No  
I don't know
- b. Early child birth Yes No  
I don't know
- c. Multiple childbirth (high parity)  
Yes No I don't know
- d. HPV Infection Yes No  
I don't know
- e. Multiple sexual partners Yes No  
I don't know
- f. Male partner with HPV infection  
Yes No I don't know
- g. Smoking Yes No I don't know
- h. Combined Oral Contraceptive (COC) use (>5years) Yes No I don't know
- i. Drinking alcohol Yes No I don't know
- j. HIV infection coinfection Yes No I don't know
- k. Family history of cervical cancer  
Yes No I don't know

18. In your opinion, which age range of women is most likely to develop cervical cancer in Ghana?

- |  |  |
|--|--|
| <input type="checkbox"/> A woman aged 10 to 19 years | <input type="checkbox"/> A woman aged 20 to 29 years         |
| <input type="checkbox"/> A woman aged 30 to 49 years | <input type="checkbox"/> A woman aged 50 to 69 years         |
| <input type="checkbox"/> A woman aged 70 or over     | <input type="checkbox"/> Cervical cancer is unrelated to age |

19. HPV (Human Papilloma Virus) Infection is strongly associated with cervical cancer than any other factors (>95% of the cases) Yes No I don't know

20. Can males also acquire HPV infection? Yes No I don't know

## **PART II: KNOWLEDGE ON PREVENTION**

21. Have you heard of the HPV vaccine? Yes No

22. How can cervical cancer be prevented? (*Tick as many as can apply*)

Vaccinating girls between 9-13years with 2 doses of HPV vaccine prior to sexual activity

Vaccinating girls between 9-13years with 3 doses of HPV vaccine prior to sexual activity

Recently, vaccination is also beneficial in adult

Screening, all sexually active women and those 30years and above

Treatment of precancerous lesion which may develop into cervical cancer

Vaccination of boys

## **PART III: KNOWLEDGE ON PRESENTATION OF CERVICAL CANCER**

23. Which of the following are the ways cervical cancer patients presents?

a) Asymptomatic Yes No I don't know

b) Offensive vaginal bleeding Yes No I don't know

c) Irregular bleeding Yes No I don't know

d) Bleeding after douching Yes No I don't know

e) Intermenstrual bleeding Yes No I don't know

f) Bleeding after sex Yes No I don't know

g) Postmenopausal bleeding Yes No I don't know

h) Urinary symptoms Yes No I don't know

## **PART IV: KNOWLEDGE ON TREATMENT**

24. The methods for diagnosing cervical cancer are: Blood test Pap smear X-ray of the abdomen HPV testing VIA I Don't Know
25. Can cervical cancer be treated? Yes No I don't know
26. Do you think cervical cancer can kill? Yes No I don't know
27. How often should a woman do a pap smear? Once a year Twice a year Thrice a year I don't know

#### **SECTION D: CERVICAL CANCER SERVICE DELIVERY PRACTICES**

28. Do you know how to perform a Visual Inspection with Acetic Acid (VIA) of the Cervix? Yes No
29. Have you ever performed a VIA on a person in the community? Yes No
30. Do you know how to perform a pap smear of the Cervix? Yes No
31. Have you ever performed a pap smear of the Cervix on a person in the community? Yes No
32. Do you offer cervical cancer education at Antenatal and Child welfare Clinic (ANC/CWC) Yes No
33. During post-natal care, do you reach out to women who are six weeks' post-partum (delivery) to do their VIA/pap-smears? Yes No
34. How often do you create general awareness on cervical cancer during your field visits in your community? Not at all Sometimes All the time  
If 'not at all', explain the reason why?
-

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**PART II: TREATMENT PRACTICES**

35. How confident are you to identify a cervical cancer patient?  Not at all confident  Not very confident  Fairly confident  Very confident

36. If a community member had a symptom that you thought might be a sign of cervical cancer how soon would you advise the person to visit the healthcare facility?  Within a week  Within a month  Within a few months  Within a few years

**PART III: REHABILITATION PRACTICES**

37. Do you actively look for and follow up on patients with cervical cancer in the community?  Yes  No  
If No, explain the reason why?

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If Yes to Q42; then answer Q43.

38. Do you offer counselling services to identified patient with cervical cancer that have been treated and their family members/relatives?  Yes  No  
If No, explain the reason why?

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**SECTION E: CONTINUOUS EDUCATION**

39. Are you interested in learning how to do a VIA? Yes No

40. Are you interested in learning how to do a pap smear? Yes No

41. Are you interested in workshop trainings on cervical cancer? Yes No

## APPENDIX III: LETTERS OF INTRODUCTION

### ENSIGN COLLEGE OF PUBLIC HEALTH - KPONG

OUR REF: ECOPH/AR/EL/015/SN153  
YOUR REF:  
Tel: +233 245762229  
Website: www.ensign.edu.gh



P. O. Box AK 136  
Akosombo  
Ghana

February 18, 2021

**THE DISTRICT DIRECTOR  
LOWER MANYA HEALTH DIRECTORATE  
EASTERN REGION.**

Dear Sir,

#### **LETTER OF INTRODUCTION**

We respectfully write to introduce to you **Victoria Partey-Newman** (Student Identification number 197100157), a second year student of the Master of Public Health (MPH) degree program of the College.

The student is writing a thesis on the topic; "**Cognizance of Cervical Cancer and its Service Delivery Practices amongst Community Health Nurses at the Krobo Enclave in the Eastern Region of Ghana.**" in partial fulfilment for the award of Master of Public Health Degree and would like to obtain data from your outfit for that purpose.

We would be grateful if you kindly accede the student any assistance required in the collection of this data in your unit for the thesis.

The student is aware that compliance with all proper research protocols is of paramount importance to the College and is obliged to observe same in all approaches.

Thank you.

Respectfully yours,

**Patrick Kuma**  
Academic Registrar

BOARD OF GOVERNORS:  
Dr. Lynette N. Gay - Chair, Prof. Agyeman Badu Akosa-Vice Chair, Togbe Afede XIV, Dr. Stephen C. Alder, Prof. Tsiri Agbenyega, Dr. Daniel Ansong, Kyle Gay.

## ENSIGN COLLEGE OF PUBLIC HEALTH - KPONG

OUR REF: ECOPH/AR/EL/UMK-DHD/SN157  
YOUR REF:  
Tel: +233 245762229  
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P. O. Box AK 136  
Akosombo  
Ghana

March 19, 2021

**THE DISTRICT DIRECTOR  
UPPER MANYA KROBO HEALTH DIRECTORATE  
EASTERN REGION.**

Dear Sir,

### **LETTER OF INTRODUCTION**

We respectfully write to introduce to you **Victoria Partey-Newman** (Student Identification number 197100157), a second year student of the Master of Public Health (MPH) degree program of the College.

The student is writing a thesis on the topic; **"Cognizance of Cervical Cancer and its Service Delivery Practices amongst Community Health Nurses at the Krobo Enclave in the Eastern Region of Ghana."** in partial fulfilment for the award of Master of Public Health Degree and would like to obtain data from your outfit for that purpose.

We would be grateful if you kindly accede the student any assistance required in the collection of this data in your unit for the thesis.

The student is aware that compliance with all proper research protocols is of paramount importance to the College and is obliged to observe same in all approaches.

Thank you.

Respectfully yours,

**Patrick Kuma**  
Academic Registrar

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Dr. Lynette N. Gay – Chair, Prof. Agyeman Badu Akosa-Vice Chair, Togbe Afede XIV, Dr. Stephen C. Alder, Prof. Tsiri Agbenyega, Dr. Daniel Ansong, Kyle Gay.

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P. O. Box AK 136  
Akosombo  
Ghana

February 18, 2021

**THE DISTRICT DIRECTOR  
YILO KROBO HEALTH DIRECTORATE  
EASTERN REGION.**

Dear Sir,

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The student is writing a thesis on the topic; **"Cognizance of Cervical Cancer and its Service Delivery Practices amongst Community Health Nurses at the Krobo Enclave in the Eastern Region of Ghana."** in partial fulfilment for the award of Master of Public Health Degree and would like to obtain data from your outfit for that purpose.

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